

Assessment of utilization of antenatal services by women in urban field practice area of a private medical college, Visakhapatnam

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Abstract: Introduction: Maternal mortality and morbidity continue to be high in developing countries despite the existence of national programs for improving maternal and child health. This could be due to non-utilization or under-utilization of services. **Objectives: 1)** To assess the utilization of various antenatal care services among women in Urban field practice area. **2)** To study the factors influencing the utilization of antenatal care services.

Methodology: A community-based cross-sectional study was done among 100 postnatal women who have delivered in past one year and residing in urban field practice area, Visakhapatnam from May to June 2019. Simple random sampling method was used to select the required sample size. Data was collected by using pre-designed pre-tested semi-structured patient interview schedule after taking informed consent. Data entered in Microsoft Excel and analyzed by using SPSS 17.version. Chi-square test was used and $p < 0.05$ was taken as statistically significant. **Results:** Study participants were in the age group of 17-38 yrs with mean age 22.72 yrs. About 22% were illiterates, 36% and 37% belonged to class III and IV socioeconomic status respectively. About 81% got registered within 1st trimester of pregnancy, 93% had ≥ 3 antenatal check-ups, 95% took at least one TT injection, 66% took ≥ 100 IFA tablets, 56% got monetary benefits from Janani Suraksha Yojana (JSY), 95% utilized Integrated Child Development Services (ICDS) services and 49% knew about warning signs during pregnancy. The full antenatal care utilization was found to be 68%. There was significant association between parity, age of participants and full antenatal care utilization.

Conclusion: There is need to increase utilization of antenatal services like intake of IFA tablets and knowledge regarding warning signs during pregnancy.

Key words: Antenatal services, urban, utilization, Visakhapatnam

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I. Introduction

In any community, mother and child form the high priority or vulnerable group. They constitute 71.14% of the population in developing countries and are major consumers of the health services. Every day, approximately 830 women die from preventable causes related to pregnancy and childbirth. Almost all maternal deaths (99%) occur in developing countries with overall MMR 239(229-275). The lifetime risk of maternal death – is 1 in 4900 in developed countries, versus 1 in 180 in developing countries. Between 1990 and 2015, maternal mortality worldwide dropped by about 44%.^{1,2} Between 2016 and 2030, as part of the Sustainable Development Goals, the target is to reduce the global maternal mortality ratio to less than 70 per 100 000 live births. In India, the MMR reduced by 22 points per year from 167 in year 2011-2013 to 130 in 2014-2016. The life time risk of maternal death in India is 1 in 220. Around 80% of the maternal deaths are due to obstetric causes. MMR in Andhra Pradesh is 74 which reached target of 100 according to National Population Policy.^{3,4}

Despite significant improvement in maternal health through various health programs and initiatives like RCH program and Janani Suraksha Yojana (JSY), under National Health Mission (NHM), Ministry of Health and Family Welfare (MoHFW) an estimated 44,000 mothers die due to causes related to pregnancy and child birth.⁵ Previous studies showed that various factors like - low socio-economic, educational status of women, lack of awareness and other factors like distance to health centers, availability of service, inadequately trained and poorly motivated medical staff, inadequate referral systems were responsible for Three Delays - Delay in decision to seek care, Delay in reaching care, Delay in receiving adequate health care and further leading to underutilization of services.^{6,7} To improve maternal health, above barriers that limit access to quality maternal health services must be identified and addressed at all levels of the health system.

Based on the above review of literature the present study was carried out in urban field practice area of a private medical college to assess the utilization of the antenatal care services and factors affecting it.

Objectives:1) To assess the utilization of various antenatal care services among women in urban field practice area.

2) To identify the factors influencing the utilization of antenatal care services.

II. Material And Methods

A cross-sectional study was done in an urban field practice area of GITAM Institute of Medical Sciences and Research, Visakhapatnam from May 2019 to June 2019 .Total 100 women participated in the study.

Study Design: A community-based cross-sectional study

Study setting: Pedajalaripeta, an urban field practice area and a slum which is mostly occupied by fishermen community in Visakhapatnam).As this area is considered to be one of the high risk areas during implementation of any government health schemes,the present study was conducted in the area.

Study period: May 2019 to June 2019

Study population: All postnatal women who have delivered in past one year and residing in Pedajalaripeta.

Sample size: 100

Sample size calculation: Pregnant women who received full ANC in Visakhapatnam district as per DLHS-4 data is 52.9% with an absolute precision of 10 (d). Using the formula, $N = 4 p \times q/d^2$, sample size comes to 99 and rounded off to 100.Hence, sample size was taken as n=100.

Subjects & selection method: From the maternal and child health registers available from the local health authorities, a complete list of mothers who have delivered in the past 1 year was prepared and the study subjects (n=100) were selected by a simple random technique using computer-generated random numbers.

Inclusion criteria: All postnatal mothers who delivered in past one year, residing in the study setting and willing to participate in study were included in the study.

Exclusion criteria: Those women who were not residents of the study area and those not willing to participate in the study were excluded from the study.

Procedure methodology: In the present study, **full antenatal care** is considered as at least four antenatal visits, at least one tetanus toxoid (TT) injection and iron folic acid tablets or syrup taken for 100 or more days based on definition given by NFHS-4 ,⁸ DLHS-4.⁹A pre-designed, pretested, semi-structured interview schedule was used to collect data from the participants after taking informed consent. The study participants were selected randomly and house to house visit was done to collect the data.**Study variables:** **I-**socio -demographic details - age, education, occupation, and income. **II-** Details regarding ante natal services utilization like total number of antenatal check -ups, TT immunization, intake IFA tablets, details of health care facility .**III-** Outcome of pregnancy, utilization of government schemes like ICDS,JSY were used in collecting information.

Statistical analysis: Data collected was entered in MS Excel and then analysed using SPSS 17.0 version software. Chi-square test was performed to test for differences in proportions of categorical variables. The level $P < 0.05$ was considered as the cutoff value or significance.

III. Result

In the present study, majority of participants were in the age group 21-25 years (61%). The age group of the women ranged from 17-38yrs.The distribution of the age group of the participants is shown in Table no1.The mean age of the participants is 22.72yearsand S.D= ± 3.15 . About 94% of the participants were Hindu.Among the study participants, 54% belonged to nuclear family as shown in Table no1.

Table no 1:Socio-demographic features of the study participants (n=100)

Age Group (years)	Frequency(n)	Percentage
<20	25	25%
21-25	61	61%
26-30	12	12%
>30	2	2%
Religion		
Hindu	94	94%
Muslim	1	1%
Christian	5	5%
Type of family		
Nuclear	54	54%
Joint	24	24%
Three generation	22	22%

Table no 2: Educational status of study participants and their husbands (n=100)

Educational status	Study participants(%)	Husbands of participants(%)
Illiterate	22%	44%
Primary	17%	14%
Secondary	18%	7%
High	27%	18%
Inter/Diploma	11%	8%
Graduate	5%	9%
Total	100%	100%

In the study it was observed that 22% of the women and 44% of the husbands of the study participants were illiterates as shown in Table no2. Majority of the participants (86%) were home makers. Regarding the occupational status of the husbands, -45% of them were fishermen, 48% work for daily wages (laborers) and 7% were regular salaried.

The distribution of the participants based on the socioeconomic status is shown in Figure no 1.

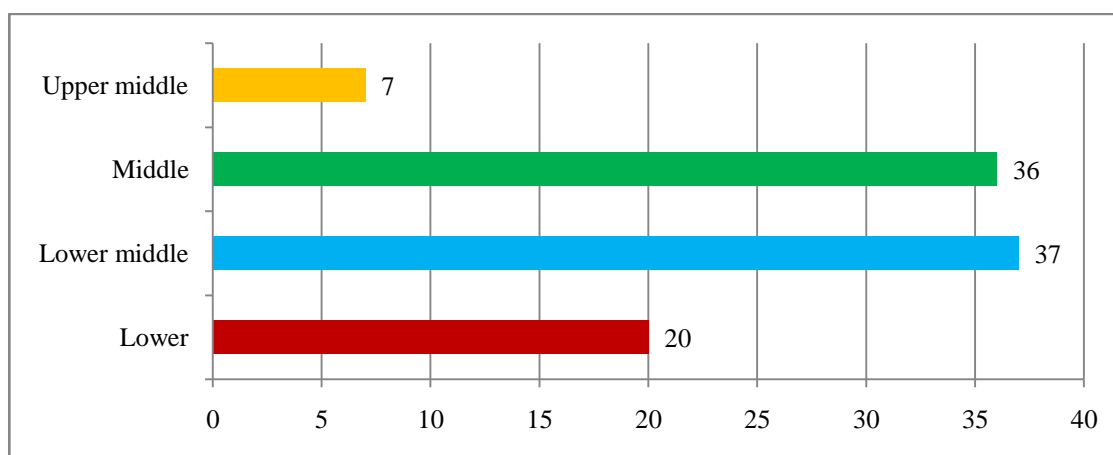


Figure no 1: Socio-economic status of study participants (B.G.Prasad socio-economic scale revised for 2019)

In the present study, mean age at marriage of the participants was 18.9yrs (S.D= \pm 2.16) and mean age at first child birth was 20.24 years (S.D= \pm 2.17). About 58% were Para -1 (primipara) and 42% were multipara [27% (Para-2), 15% (Para -3)].

Table no 3: Antenatal service utilized by participants in the present study in comparison with DLHS-4 & NFHS-4 data :(n=100)

Service	Percentage	DLHS-4 Visakhapatnam (2012-2013)	NFHS-4 data (2015-2016)
Got registered within 1 st trimester	81%	73.3%	82.4%
Had MCP Card	86%	-----	92.6%
Had \geq 4 Antenatal visits	93%	81.5%	76.3%
Taken atleast one TT injection	95%	84%	95%
Took \geq 100 IFA tablets	66%	55.1%	56.2%
Institutional deliveries(government&private)	99%	80.3%	91.6%
Delivered by skilled health personnel*	100%	83.5%	92.2%
Monetary benefits under JSY	56%	37.7%	17.4%
Full antenatal care**	68%	52.9%	43.9%
Used government health facilities	69%	51.9%	-----
BP monitoring done	98%	81.9%	-----
Blood tests (Hb% done)	100%	81.5%	-----
Per-abdomen examination	95%	61.5%	-----

*Skilled health personnel-Doctor/ANM/Nurse/midwife/LHV/Other health personnel

**Full antenatal care is at least four antenatal visits, at least one tetanus toxoid (TT) injection and iron folic acid tablets or syrup taken for 100 or more days

The distribution of the utilization of some of the components of antenatal care is represented in Table no 3. It shows that majority of the participants got registered within first trimester of pregnancy, had atleast four

antenatal visits and got TT immunization. But only 66% of the women took ≥ 100 IFA tablets, 32% took 50-100 tablets, 2% took < 50 tablets during their antenatal period. About 69% of participants got registered in government health facility and availed services from it. The distance of the government health care facility from their residence varied from 0.5km to 6km (mean=1.6km). About 70% got delivered at government hospital, 29% at private hospital, 1% home delivery- 99% were institutional deliveries.

On enquiring about the utilization of the government schemes -95% utilized ICDS services; but only 56% of participants received monetary benefits from JSY and only 45% were able to avail transport facility under JSY.

Only 66% of the participants availed home visits during pregnancy by local female health worker. About 80% of the participants were educated regarding diet, personal care, exclusive breast feeding, family planning. But only 49% were informed regarding danger signs during pregnancy. Around 72% of the participants were aware of JSY scheme. About 11% had complications during pregnancy and 8% utilized referral services.

Table no 4: Association between socio-demographic variables, parity and Full antenatal care: (n=100)

Variable	Full antenatal care		Pearson Chi-square & p value
	YES (n=68)	NO(n=32)	
Age group(years)			
<20	20	5	$X^2 = 7.712$ df= 3 p=0.05
21-25	42	19	
26-30	6	6	
>30	0	2	
Educational status			
Illiterate	15	7	$X^2 = 6.514$ df= 5 p=0.25
Primary	15	2	
Secondary	13	5	
High	15	12	
Inter/Diploma	6	5	
Graduate	4	1	
Socioeconomic status			
Lower	13	7	$X^2 = 5.343$ df= 3 p=0.1
Lower middle	27	10	
Middle	21	15	
Upper middle	7	0	
Parity			
Para1	41	17	$X^2 = 6.7835$ df= 2 p=0.033
Para2	21	6	
Para3	6	9	

Table no 4 shows that there is significant association between age of women, parity and full antenatal care. Factors like educational status of women and their husbands, socio-economic status, occupation, religion, type of family are not significantly associated with full antenatal care.

Table no 5: Reasons for under-utilization of services according to study participants:

Reason	Frequency	Percentage
Not aware of the antenatal services to be availed	6	6%
Not satisfied with the government health facilities	8	8%
Lack of advice or information by local female health worker	44	44%
Administrative (like lack of bank account for delay in getting financial benefits under JSY)	16	16%
Not aware of the JSY Scheme	11	11%
Availing services from only private facilities as not confident on Government services	17	17%
Ignorance and lack of information regarding importance of intake of IFA tablets.	30	30%
Unaware of complications and referral services	48	48%
Inappropriate advice by relatives and neighbours	6	6%
Family size and responsibilities at home	7	7%

The reasons stated during the interview by the mothers for the under- utilization of antenatal services were represented in Table no 5 . The major reasons identified were lack of health education by local health personnel on importance of antenatal services and warning signs; lack of awareness regarding government schemes like JSY and how to avail them; inappropriate advices given by relatives & neighbors ; ignorance in intake of IFA tablets; family size or parity of the women and administration related problems.

IV. Discussion

The present study was carried out in an urban field practice area of a private medical college to know about the extent of utilization of antenatal services. In the study population, 61% were in the age group 21-25 years, 22% were illiterates, 86% were home makers, most of them belonged to middleclass III (36%) and IV(37%) according to B.G Prasad socioeconomic scale revised for 2019. These findings were similar to the study done by Narayana Murthy MR et al.¹⁰ in Mysore district in 2016 in which 88% were between 20-34 yrs, 16% were illiterates, belonged to class III (45.3%) and class IV (36%).

The utilization rates of most of the antenatal services were better in the study area when compared to rates of DLHS-4 data⁹ of Visakhapatnam district (2012-2013) and NFHS-4 data (2015-2016)⁸ as shown in Table no 3. The better utilization rates might be due to better socio-demographic factors like most of the women were literates(78%), and belonged to middle socio economic status. The other factors were 69% of the participants availed services from government health facility which is near to the study setup and hence services were feasible, accessible, affordable.

But the rates of intake of IFA tablets were less. The reasons for less intake of IFA tablets in the present study were identified as intolerance due to side effects among some women and ignorance or lack of information regarding complications like anemia and importance of intake of tablets. The utilization of JSY scheme was better than the data of DLHS-4⁹ and NFHS-4⁸ but some factors were identified during interview which act as barriers for availing benefits of JSY like- some of the participants were not aware of the scheme, around 17% availed services from private set up, and some of them could not avail benefits under JSY due to administrative problems like lack of pass books for bank account, delay in getting money into their account etc

The rates of utilization of services in previous studies done by Danasekaran, et al¹¹ among women of fishermen population in Kanchipuram district in 2015, Mumbare SS et al¹² among tribal block of Nashik district in 2011, Narayana Murthy MR et al¹⁰ in Mysore district in 2016, Begum et al¹³ in Odisha 2015, Bhisare KA et al¹⁴ in tribal area, Thane district 2009 were compared with the present study as shown in Table no 6. The rates of utilization of services among various studies were almost similar. Full antenatal care was 68% in the present study. Similarly, in cross-sectional studies done by Mumbare SS et al¹², Kavitha Patelet al,¹⁵ Narayanamurthy MR et al¹⁰ rates were 71.90%, 94.95 and 93% respectively.

The reasons identified for the underutilization of services in the present study were lack of awareness, ignorance, lack of information from local female health worker etc. Similar factors were observed in the study done by Mumbare SS, et al.¹² In the present study one of the major factors responsible for the underutilization of the services was found to be lack of health education by local health personnel regarding services, warning signs during pregnancy and complications. Hence only 49% had knowledge regarding warning signs. These findings are consistent with the findings in the study done by Begum et al,¹³ and Bhisare KA et al.¹⁴ in which 42%, 48% had knowledge regarding danger signs respectively.

Tableno 6: Comparison of rates of Utilization of antenatal services in different studies with the present study.

Service	Present study	Danasekaran, et al ¹¹	Mumbare SS et al ¹²	Narayana Murthy MR et al ¹⁰	Begum, et al ¹³	Bhisare KA et al ¹⁴
Got registered within 1 st trimester	81%	80%	63.8%	98%	80%	58%
Had minimum 4 Antenatal check-ups	93%	59%	72.86%	90%	72%	93%
Taken atleast one TT injection	95%	64%	82%	100%	100%	99%
Took ≥100 IFA tablets	66%	13.3%	68.5%	94%	58.7%	75%

V. Conclusion

The present study showed that the utilization of some of the antenatal services were better but some of the services like intake of IFA tablets and utilization of government schemes were less. This study identified the reasons for underutilization of services as lack of motivation and health education for the antenatal women by the female health workers in the field, ignorance, lack of awareness of danger signs during pregnancy. These factors should be rectified to increase the utilization of services. The present study recommends IEC activities in the area, health education for women and training of the local female health worker to motivate and educate pregnant women for better utilization of antenatal services.

VI. Limitations

There is possibility of recall bias in recollecting information regarding utilization, exact month of registration and number of visits by the respondents. The Mother and child protection cards were also incomplete to validate the information given by the respondents.

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Conflict of interest: There are no conflicts of interest.

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Acronyms and abbreviations:

NFHS: National family health survey
ANC: Antenatal care
IFA: Iron folic acid
TT: Tetanus toxoid
UHC: Urban health center
DLHS: District level household survey
SPSS: Statistical package for social sciences
JSY: JananiSurakshaYojana
ICDS: Integrated Child Development Services.
MMR:Maternal Mortality Ratio
NHM:National Health Mission
MoHFW:Ministry of Health and Family Welfare
IEC: Information, education ,Communication

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