Section: Community Medicine

Original Research Article

A COMMUNITY BASED CROSS-SECTIONAL STUDY TO ASSESS THE UTILISATION OF ANTENATAL HEALTH CARE SERVICES AMONG WOMEN IN A RURAL AREA OF SRIKAKULAM DISTRICT

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ABSTRACT

Background: Knowing the importance of improving maternal health and reducing the maternal mortality globally and nationally, assessing the utilization and factors influencing the utilization of antenatal health care services are essential.

Materials and Methods: A Community based cross-sectional study was carried out among the antenatal mothers in Singupuram area of Srikakulam district. Details were collected using a pretested and validated questionnaire and data analyzed using SPSS v21.

Results: The study included 300 antenatal mothers, of which 39% were illiterates, 64.7%pregnancies were registered at Government hospital, 67.3% received 2 doses of TT(Tetanus Toxoid), 38% had taken more than 100 Iron folic acid tablets. Factors which were identified to have statistically association with better utilization of antenatal healthcare services were religion, caste, type of family, level of education. Occupation, birth order of child, socioeconomic status, age at child birth.

Conclusion: The study has revealed the fact that inspite of a number of maternal health programs being implemented by the government and the large number of health personnel being employed in our country, antenatal healthcare services have not reached everyone in the community and there are areas which have been still underserved.

Keywords: Antenatal care, rural area, maternal health, health care services, health care provider

INTRODUCTION

Globally, approximately 3,03,000 women die from preventable or treatable pregnancy or delivery related complications each year world health organization (WHO 2018a)1. Developing countries account for 99% of these preventable maternal deaths with rural and low-income populations bearing the greatest burden of maternal mortality and morbidity (Alkemi et al.., 2016; WHO, 2018a).[1,2]

Indian women living in rural and other low-income communities also tend to be at greater risk for maternal death or disability. In fact, low-income mothers in India are two and a half times more likely to die because of preventable pregnancy or delivery related complications (UNICEF India, 2017).[3]

As per National Family Health Survey (NFHS-4),[4] 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. As per NFHS-4 data for Andhra Pradesh,[5] 76.3% had full antenatal care and as per NFHS-4 data for Srikakulam district6, 72.7% full antenatal care which comprises of above three criteria.

MATERIALS AND METHODS

This study was a community based cross-sectional study to assess the utilization of antenatal health care

services among in a rural area of Singupuram, Srikakulam district. This study was conducted between January 2019 to June 2021 (2 years). The study was done among married women who delivered between January 1st 2019 to June 2021, residing in Singupuram of Srikakulam district. Those women who are not normally resident of that place but have come and delivered child there, women who didn't give consent and loss to follow up were excluded from the study.

The sample size was calculated on the basis of Prevalence (p) - 42%, (Utilisation of full antenatal care was 42% in Srikakulam district as per National Family Health survey-4, 2015-16. District Fact Sheet, Srikakulam, AP Key indicators).[6]

$N = 3.96 \times p \times q / l2$

$q = 100-p = 100-42 = 58\%$

$l = 20\%$ of p $(20/100 * 42) = 8.4$

$N = 3.96 \times 42 \times 58 / 8.4 \times 8.4$

$= 137$

Design effect of 2:

$137 \times 2 = 274$

Adding 10% of non – response

$= 300$

So, the total sample size was 300 mothers.

Among 3 Primary Health Centres (PHC's) (Dusi, Etcherla, Singupuram) covering the rural field practice area of medical college, Singupuram PHC is selected randomly.

Using cluster sampling method 5 subcentres were selected among 13 subcentres of Singupuram PHC.

Exclusion Criteria

- Those women who are not normally resident of that place but have come and delivered child there.
- Women who didn't give consent.
- Loss to follow up.

Procedure of data Collection

After obtaining approval from the institutional ethics committee study was started. Based on the cluster sampling technique described above five subcentres were identified for data collection. Written informed consent was obtained from the study participants. Confidentiality of the cases was maintained.

Data was collected using a pre-tested semi-structured questionnaire. The study questionnaire was divided into 3 parts as follows:

PART 1- Sociodemographic details – basic details such as age at childbirth, religion, caste, type of family, education, occupation, and income level/ socio economic status (Based on BG Prasad classification – updated 2020)68 and birth order of child.

PART 2- Ante Natal Services - details regarding availed antenatal health services such as confirmation and registration of pregnancy, number of antenatal visits, intake of iron and folic acid (IFA) tablets, getting TT immunization, investigations done (from MCP card), exposure to smoking and radiation, utilisation of services from ICDS and details of any antenatal complications.

PART 3- Reasons for preference of MCH services from government or private providers.

Data was collected from eligible mothers (based on inclusion and exclusion criteria) by house-to-house survey in the sub centres selected by cluster sampling.

Permissions: Permission has been obtained from Institutional Ethical Committee (IEC) prior to starting data collection. Written informed consent has been obtained from the study participants after clearly explaining about the nature of the study.

Data Analysis

- Data was entered in MS excel spread sheet.
- Data was analysed using SPSS v21.
- Categorical data was expressed as frequencies and percentages.
- Continuous data was expressed as mean and standard deviation.
- Chi square test and Fischer exact test were used as test of significance for categorical data.
- Independent samples T test was used as test of significance for continuous data.
- P value less than 0.05 was considered as statistically significant.

Bar diagrams and Pie charts were drawn wherever needed.

RESULTS

The study included 300 antenatal mothers from Singupuram area of Srikakulam district. Among them majority were Hindus (275 cases, 91.7%). Six cases (2%) were Muslims, and 19 cases (6.3%) were others. Among the study sample, majority were BC (269 cases, 89.7%). 21 cases (7%) were SC/ST, and 10 cases (3.3%) were general category. 64.3% belonged to joint families and 21% belonged to nuclear families. Among the study sample, 39% were illiterates. 36% had secondary education and 18% had primary education. 34.7% were home makers. 31.7% were unskilled workers, 29.7% were semi-skilled workers and only 4% were skilled workers. Among the study sample, regarding birth order, majority of cases (67%) were first child followed by second child (19.3%) and third child (12.7%). Only 3 cases (1%) are above third child. Among the study sample, 46% cases belong to SES class II and 37.3% belong to SES class III.

Table 1: Socio- Demographic characteristics of study population (n=300)

Variables	Frequency	Percentage (%)
RELIGION		
HINDU	275	91.7
MUSLIM	6	2
OTHERS	19	6.3

CASTE		
GENERAL	10	3.3
BC	269	89.7
SC/ST	21	7
TYPE OF FAMILY		
JOINT	193	64.3
NUCLEAR	63	21
OTHERS	44	14.7
EDUCATION		
ILLITERATE	117	39
PRIMARY EDUCATION	54	18
SECONDARY EDUCATION	108	36
UNDERGRADUATE	18	6
POSTGRADUATE	3	1
OCCUPATION		
HOMEMAKER	104	34.7
SKILLED WORKER	12	4
SEMISKILLED	89	29.7
UNSKILLED	95	31.5
BIRTH ORDER OF CHILD		
FIRST CHILD	201	67
SECOND CHILD	58	19.3
THIRD CHILD	38	12.7
ABOVE THIRD CHILD	3	1
SOCIO ECONOMIC STATUS		
I	29	9.7
II	138	46
III	112	37.3
IV	14	4.7
V	7	2.3

Among the study sample, 55.7% cases had their pregnancy confirmed at government hospital and 30.7% confirmed it at private facility. 13.7% confirmed pregnancy by themselves using pregnancy kits. Among the study sample, 64.7% pregnancies were registered at government hospital, 35.3% were registered at private facility. only 37% had adequate antenatal visits of >3. About 7% cases had only one antenatal visit. 37% cases had 2 antenatal visits and 19% cases had 3 antenatal visits. Among the study sample, 67.3% received 2 doses of TT, 18.7% received single dose and 14% cases have not received TT. only 38% cases had taken >100 IFA tablets. 14% have not taken IFA at all. Among the study sample, only 37% cases have utilised antenatal services completely. Remaining 63% cases have partially utilised antenatal services. Among the study sample, 55.7% cases availed services from ICDS and 44.3% not availed any services from ICDS. Among the study sample, 50.7% cases reported complications. About 54.3% cases have undergone all routine investigations during antenatal period. Among the study sample, 55.7% cases utilised government health service providers for MCH and in 44.3% cases private health service providers were utilised to avail ANC.

Table 2: Details regarding availed Antenatal health services of study population (n=300)

Variable	Frequency	Percentage %
Place of confirmation of pregnancy		
Government	167	55.7
Private	92	30.7
Self	41	13.7
Place of registration		
Government	194	64.7
Private	106	35.3
Number of antenatal visits		
1	21	7
2	111	37
3	57	19
>3	111	37
Number of TT doses		
1	56	18.7
2	202	67.3
Not received	42	14
Number of Iron folic acid tablets		
<50	90	30
51-100	54	18
101-200	114	38
Not taken	42	14
Antenatal services utilisation		
Partial	189	63

Complete	111	37
Utilisation of services from ICDS		
No	133	44.3
Yes	167	55.7
Antenatal complications		
No	148	49.3
Yes	152	50.7
Investigations done		
Yes	163	54.3
No	137	45.6
Health service provider for MCH		
Government	167	55.7
Private	133	44.3

Among Hindus, 33.5% utilised antenatal services completely. None of the Muslims utilised ANS whereas all (100%) cases in other religion group utilised ANS completely. On performing chi square test, it was found that religion was significantly associated with complete utilisation of antenatal services (P value <0.05). 39.8% in BC group, 30% in General group utilised ANS completely as compared to only 4.8% in SC/ST group. On performing chi square test, it was found that caste was significantly associated with complete utilisation of antenatal services (P value <0.05). All the cases who had better education like under graduation and postgraduation utilised ANS completely. Among illiterates only 6.8% utilised ANS completely. On performing chi square test, it was found that level of education was significantly associated with complete utilisation of antenatal services (P value <0.05). All the skilled workers, 69.7% semi-skilled workers utilised ANS completely. Only 26% in home makers and 10.5% unskilled workers utilised completely. On performing chi square test, it was found that occupation was significantly associated with complete utilisation of antenatal services (P value <0.05). Mothers who had more children utilised ANS completely (Birth order upto 3: 36.4%, Birth order >3: 100%). On performing Fischer exact test, it was found that birth order of child was significantly associated with complete utilisation of antenatal services (P value <0.05). 66.5% of the cases in class I & II utilised ANS completely. None of the cases in class III, IV, V utilised ANS completely. On performing Fischer exact test, it was found that socioeconomic status was significantly associated with complete utilisation of antenatal services (P value <0.05). Age at childbirth was more in those who completely utilised ANC as compared to those who partially utilised ANC. On performing unpaired t test, this difference was found to be statistically significant (P value <0.05).

Table 3: Associated factors in utilization of antenatal health services (n=300)

Religion	**ANS Utilisation**		**Total**	**Chi Square**	**'P' Value**
	Partial	**Complete**			
HINDU	183	92	275	37.358	0.001*
MUSLIM	6	0	6		
OTHERS	0	19	19		
CASTE					
BC	162	107	269	10.463	0.005*
GENERAL	7	3	10		
SC/ST	20	1	21		
TYPE OF FAMILY					
JOINT	122	71	193	14.794	0.001*
NUCLEAR	30	33	63		
OTHER	37	7	44		
EDUCATION					
ILLITERATE	109	8	117	97.698	0.001*
PRIMARY	32	22	54		
SECONDARY	48	60	108		
UNDERGRADUATE	0	18	18		
POSTGRADUATE	0	3	3		
OCCUPATION					
HOMEMAKER	77	27	104	95.166	0.001*
SKILLEDWORKER	0	12	12		
SEMISKILLED	27	62	89		
UNSKILLED	85	10	95		
BIRTHORDER OF CHILD					
UPTO THIRD CHILD	189	108	297	0.049* (Fischer exact test)	
ABOVE-THIRD	0	3	3		
SOCIOECONOMICSTATU					
CLASS I & II	56	111	167	0.001* (Fischer exact test)	
CLASS III, IV & V	133	0	133		
	ANS Utilisation	**N**	**MEAN**	**STD. Deviation**	**P Value**
AGE	COMPLETE	111	26.16	2.745	0.001*

	PARTIAL	189	21.61	2.413	
AGE AT CHILDBIRTH	COMPLETE	111	26.16	2.745	0.001*
	PARTIAL	189	21.61	2.413	

DISCUSSION

Among the study population, 64.7% pregnancies were registered at government hospital, 35.3% were registered at private hospital. Danasekaran R et al,[7] observed that 60.21% registered with government sector. Only 37% had adequate antenatal visits >3. Zeine Abose et al,[8] reported that 42% cases had less than 4 visits. In the present study, 67.3% received 2 doses of TT, Nongdhar J et al,[9] reported that 98% mothers had received TT vaccination. Only 38% cases had taken >100 iron folic acid tablets. Santosh K Yatnatti et al,[10] found that only 45.7% mothers had taken iron folic acid tablets. In our study, only 37% cases have utilized antenatal services completely. Bhaisare KA et al,[11] observed that 73% women received recommended antenatal care. In the present study, 55.7% cases utilized government health service providers for maternal child health. Similar findings were reported by Naydenova et al,[12] where government was preferred because of free treatment. In the current study, age at childbirth was 23.3 + 3.358 years. Seham Othman et al,[13] reported that mean age at child birth 18.99 ± 3.39 years which is less when compared to our findings. In our study, among Hindus, 35.5% utilized antenatal services completely. Pallikadavath S et al,[14] found an association between religion and antenatal services utilization. In present study, 39.8% in BC group, 30% in general group utilized antenatal services completely. Pallikadavath S et al,[14] Singh P.K et al,[15] found an association between caste and antenatal services utilization. In our study it was found that type of family 36.8% joint families utilized antenatal services completely contrary to our findings, Shrivastava and Bobhate,[16] Santosh K Yatnatti et al,[17] did not find a significant association between type of family with antenatal services utilization. In our study level of education was significantly associated with complete utilization antenatal services. Alcock et al,[18] Birmeta K et al,[19] Onasoga OA et al,[20] Zhao Q,[21] Worku AG,[22] reported that those with better education had better utilization of antenatal services. In our study occupation, birth order of child, socioeconomic status, age at childbirth showed significant association with antenatal services utilization same findings were shown by Danasekaran et al study.[7]

CONCLUSION

Improving maternal health is one among the eight goals in MDG's and to achieve that, maternal healthcare delivery has to reach every mother in the community. The study has revealed the fact that inspite of a number of maternal health programs being implemented by the government and the large number of health personnel being employed in our country, antenatal healthcare services have not reached everyone in the community, and there are areas which have been still underserved. The study also proves the fact that improvement of certain factors like the socioeconomic status of the population and level of education of the mother can have a significant impact on the utilization of antenatal healthcare services.

Recommendations

- Awareness of women regarding her health assumes special significance in the Indian context because the maternal health problems are mainly due to ignorance, poverty, and lack of knowledge regarding the issue.
- It is therefore very important to first focus on services for the increasing awareness level of the mother.
- A sustained and focussed IEC campaign to improve the awareness amongst community on MCH will help in improving community participation leading to sustaining and improving the quality, accessibility, and utilization of maternal health care services provided by the government agencies in rural areas.
- Those who register early tend to utilize the services early and completely. So, more stress is needed in this aspect to motivate women.

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