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Original Research Article

Utilization of antenatal care services in a rural area of Nalgonda district, Telangana state, India

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ABSTRACT

Background: Majority of maternal deaths can be prevented through appropriate maternal health services during antenatal, natal and post natal period Reasons for non-utilization of Antenatal health services could be due to various social, cultural and economic factors. Therefore, keeping this in view, this study was conducted to assess the utilization pattern of antenatal services by mothers, the facilitators of utilization of services.
Methods: It is a Community based cross sectional study conducted in Cherlapally and villages around, which constitute the rural field practice area of Department of SPM, Kamineni Institute of Medical Sciences, Narketpally telangana. This study was conducted from September 2012-October 2014. A pre-designed and pre-tested questionaire was used to collect the data. The data was compiled and analyzed using SPSS version 19.
Results: Majority (91.5%) of the mothers had three or more than three antenatal visits. Antenatal visits less than 3 was seen in only 8.5% of mothers. Mothers who took minimum of 2 tetanus toxoid injections were 93.6%. But only 37.7% of the mothers consumed 100 IFA tablets. Majority (68.6%) of the mothers received antenatal care from doctor and 22.9% of mothers from both doctor and ANM.
Conclusions: Majority of the mothers received antenatal care from private health facility followed by government health facilities. Better care and advice from health staff was the prime determinant for utilization.

Keywords: Antenatal care, Maternal health, Utilization

INTRODUCTION

Mothers and children approximately form 71.14% of the total population in any developing country. In India women of child bearing age (15-45 years) constitute about 32.2% of the total population. By virtue of their numbers, mothers form major consumers of the health care services. They not only form a large group but they comprise the vulnerable or special risk groups. The risk is associated with pregnancy, childbirth and post natal period. Promoting women's health improves not only individual health but also the health of the family, community and the nation. Hence women acquire a special place in the community.[1]

Majority of maternal deaths can be prevented through appropriate maternal health services during antenatal, natal and post natal period. The quality of care and accessibility to Full ANC is more important. According to National Health Systems Resource Centre (NHSRC) report of 2011, the percentage of ANC registration in first

trimester in India is 54.9%, Percentage of three ANC checkups against ANC registration in India is 73.1% where immunization with two doses of TT is 82.4%. Around 7.3% of the total deliveries in India are conducted in Home.[2,3]

According to NFHS report (2007-09), the percentage of ANC registration in first trimester in Andhra Pradesh, now comes under Telangana state after bifurcation of state is 66.1%. Percentage of three ANC check-ups in Telangana is 86% where Immunization with two doses of TT is 85%.[4]

Reasons for non-utilization of Antenatal health services could be due to various social, cultural and economic factors. Women's education, birth order and standard of living index also influences in choosing the health care facility. Early marriages, social pressure to bear children early, malnutrition, ignorance, illiteracy, customs, lack of awareness, lack of health services, hostile behaviour of health staff, unavailability of transport facilities etc are the other contributing factors.

Therefore, keeping this in view, this study was conducted to assess the utilization pattern of antenatal services by mothers, the facilitators and the barriers of utilization of services. Aim of the study was to study utilization of antenatal care services by recently delivered mothers. Objectives of the research work was to study the utilization of antenatal care services by recently delivered mothers and to study socio-demographic factors influencing utilization of services. Also, to study the geographical accessibility factors influencing utilization of antenatal care services.

METHODS

It is a community based cross sectional study conducted in Cherlapally and villages around, which constitute the rural field practice area of Rural Health Training Centre of Department of Community Medicine, Kamineni Institute of Medical Sciences, Narketpally, Nalgonda distrtict, Andhra Pradesh. The study was conducted from September 2012 to October 2014. Considering the prevalence of ANC services utilization 45.4% to calculate the sample size for our study using the formula.[5]

$N = 4pq/L^2$

Where, p= 45.4%, q= 54.6% (100-p), L=15 %

Sample size constitutes to 216 with the above formula, considering a non-response rate of 10% the total sample size constitutes to 236.

Sampling method

Multi stage sampling procedure was followed.

I stage: Enlisting all villages under rural field practice area with their population. All villages were selected by census method.

II stage: Enlisting of households with recently delivered mothers (beneficiaries), who fulfills inclusion criteria (Married mothers delivered within last 12 months preceding the survey and residents of the study area) as per the records from ASHA, AWW and ANM.

III stage: Number of subjects drawn from the villages was calculated by probability proportionate to population size (PPPs) method.

IV stage: Selection of required number of subjects by simple random method.

Informed consent was obtained from the study subjects after explaining the purpose, nature and objectives of the study in their own language and confidentiality was assured.

Inclusion criteria

Married mothers delivered within last 12 months preceding the survey, resident of the study area and mothers who were willing to participate in the study were included.

Exclusion criteria

Non resident of the study area and mothers who were not willing to participate in the study.

Data collection

A pre-designed and pre-tested questionnaire used by Coverage evaluation survey and National Family Health Survey III and modified as per study objectives and local needs.

Data was collected by interviewing the study population by door to door survey. Each mother who was having a child less than one year was visited and information was collected on socio-demographic variables and utilization of antenatal health services. The data was compiled and analyzed using SPSS version 19. Descriptive analysis was done by summarising continuous variables (mean, standard deviation) and categorical variables (relative frequency). Univariate analysis was conducted to study the influence of factors on Antenatal care. A p value of <0.05 was considered as significant.

RESULTS

The study population consisted of all the women in the age group of 15-44 years who had delivered within last one year at the time of interview. Table 1 shows distribution of respondents according to the socio-demographic background**.** Majority were in the group of

20-24 years (59.7%) followed by 25-29 years (32.2%). The mean age of study subjects was 23.1±2.1 years. Of the total study subjects, majority were Hindus (94.5%) followed by Christians (4.2%) and Muslims (1.3%) respectively. Majority of the respondents belong to scheduled caste (42.8%) followed by backward caste (41.5%). Distribution of study subjects according to occupation of husband shows that 56.8% were skilled workers followed by unskilled workers (33.1%). Education wise distribution of the study subjects show that 23.7% were Illiterates and 28.4% completed high school education and 33.9% were graduates. Majority (45.8%) of respondents belong to low socio-economic status class followed by middle class (41.9%) (Modified Udai Pareek's classification). Only 12.3% belongs to high class majority of the mothers (65.3%) were multipara and 34.7% of the mothers were Primi para.

Table 1a: Distribution of respondents according to the socio-demographic profile.

Characteristics	Number	Percentage
Age group		
15-19	13	5.5
20-24	141	59.7
25-29	76	32.2
Above 30	6	2.6
Religion		
Hindus	223	94.5
Muslims	3	1.3
Christians	10	4.2
Caste		
Scheduled caste	101	42.8
Scheduled tribe	10	4.4
Backward caste	98	41.5
Other caste	27	11.4
Educational status of mother		
Illiterates	56	23.7
Primary school	2	0.9
Middle school	31	13.1
High school	67	28.4
College	80	33.9
Total	236	100

In the present study (Figure 1), the antenatal registration was 100% and majority of the respondents were registered in First Trimester (88.1%). Registration in 2nd and 3rd trimester was observed only in 11.9% of the mothers.

Majority (91.5%) of the mothers had three or more than three antenatal visits. Antenatal visits less than 3 was seen in only 8.5% of mothers. Mothers who took minimum of 2 tetanus toxoid injections were 93.6%. But only 37.7% of the mothers took 100 IFA tablets.

Table 1b: Distribution of respondents according to the socio demographic profile.

Characteristics	Number	Percentage
Educational status of husband		
Illiterates	66	28
Primary school	12	5
Middle school	23	9.7
High school	78	33.1
College	57	24.2
Socio economic status (Udai Pareek's)		
Low	108	45.8
Middle	99	41.9
High	29	12.3
Occupation of husband		
Professional	24	10.2
Skilled workers	134	56.7
Un skilled workers	78	33.1
Birth order		
1	82	34.7
2	120	50.9
Above 3	34	14.4
Total	236	100

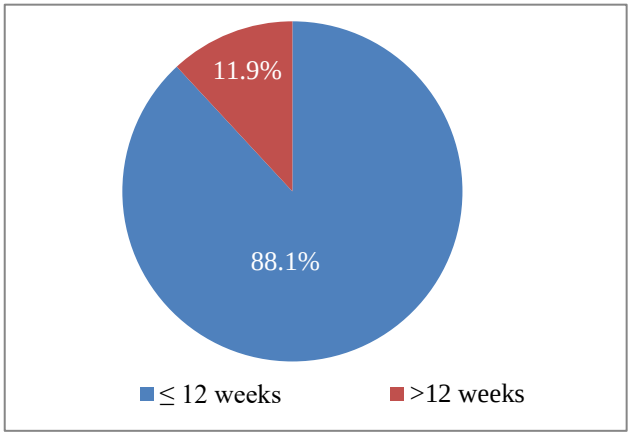

Figure 1: Distribution of study subjects according to time of registration (n=236).

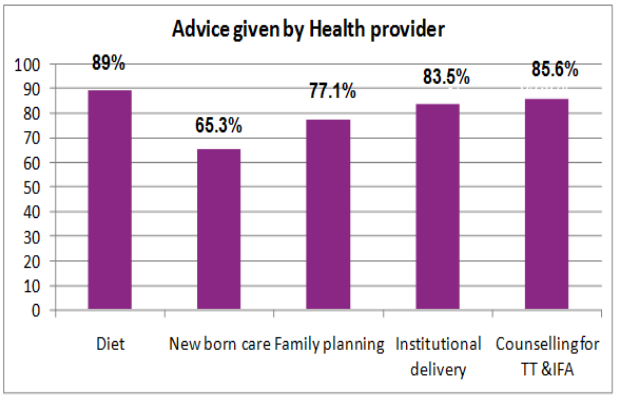

Figure 2: Distribution of study subjects according to ante natal advice given by health provider (n=236).

In the present study majority (68.6%) of the mothers received antenatal care from doctor and 22.9% of mothers from both doctor and ANM. Majority (68.6%) of the mothers received antenatal care from private health facility followed by government health facilities (23.7%).

Table 2: Association between socio-demographic factors and utilization of iron and folic acid tablets (n=236).

Age	<100 IFA	≥ 100 IFA	Total	OR(95%CI)
	Number (%)	Number (%)	Number (%)	
<25 years	90 (58.4)	64 (41.6)	154 (100)	0.617(0.349-1.090)
≥25 years	57(69.5)	25 (30.5)	82 (100)	
Educational status of mother				
Literates	109 (60.6)	71 (39.4)	180 (100)	0.727(0.385-1.373)
Illiterates	38 (67.9)	18 (32.1)	56 (100)	
Educational status of Husband				
Literates	97 (57)	73 (43)	170 (100)	0.425(0.224-0.806)*
Illiterates	50 (76)	16 (24)	66 (100)	
Caste				
Scheduled	76 (68.5)	35 (31.5)	111 (100)	1.652(0.968-2.818)
Others	71 (56.8)	54 (43.2)	125 (100)	
Socio-economic status				
High	17 (58.6)	12 (41.4)	29 (100)	0.839(0.380-1.851)
Low	130 (62.8)	77 (37.2)	207 (100)	
Occupation of Husband				
Skilled	93 (58.9)	65 (41.1)	158 (100)	0.636(0.358-1.131)
Unskilled	54(69.2)	24 (30.8)	78 (100)	
Birth order				
0-2	125 (61.9)	77 (38.1)	202 (100)	0.885(0.415-1.891)
Above 2	22 (64.7)	12 (35.3)	34 (100)	

*P<0.05 was considered as significant

Table 3: Association between socio-demographic factors and antenatal visits.

Age	<3 ANC	≥ 3 ANC	Total	OR(95%CI)
	Number (%)	Number (%)	Number (%)	
<25 years	10 (6.5)	144 (93.5)	154 (100)	0.500(0.199-1.256)
≥25 years	10 (12.1)	72 (87.9)	82 (100)	
Educational status of mother				
Literates	17 (9.5)	163 (90.5)	180 (100)	1.843(0.520-6.534)
Illiterates	3 (5.4)	53 (94.6)	56 (100)	
Educational status of Husband				
Literates	17 (10)	153 (90)	170 (100)	2.333(0.661-8.242)
Illiterates	3 (4.5)	63 (95.5)	66 (100)	
Caste				
Scheduled	14 (12.7)	97 (87.3)	111 (100)	2.863(1.060-7.729)*
Others	6 (4.8)	119 (95.2)	125 (100)	
Socio-economic status				
High	2 (6.9)	27 (93.1)	29 (100)	0.778(0.171-3.540)
Low	18 (8.7)	189 (91.3)	207 (100)	
Occupation of Husband				
Skilled	16 (10.1)	142 (89.9)	158 (100)	2.085(0.673-6.460
Unskilled	4(5.1)	74 (94.9)	78 (100)	
Birth order				
0-2	12 (6)	190 (94)	202 (100)	0.205(0.077-0.549)*
Above 2	8 (23.5)	26 (76.5)	34 (100)	

As mentioned in Figure 2 it was observed that 89% of the mothers had received advice regarding diet and 77.1% received regarding family planning. Counselling for IFA intake and TT immunization was given to 85.6% of the mothers and advice on Institutional delivery was given to 83.5% of mothers. Majority (82.7%) of mothers travelled upto 5 kms for availing antenatal care. Only 17.3% travelled greater than 5 kms for taking antenatal care. Mean distance was 2.8±5.3 km.

DISCUSSION

Majority (91.5%) of the mothers had minimum of three antenatal visits. Mothers who took min of 2TT injections were 93.6%. But only 37.7% of the mothers took 100 IFA tablets. Recall bias may be possible with respect to history of number of Iron and folic acid intake.

A study conducted by Rudramma in belgaum found that majority (83.1%) of mothers had received minimum of 3 antenatal visits and 65.6% of mothers had consumed 100 or more IFA tablets.[6] The present study findings were comparable to above study.

A study conducted in West Bengal found that 90% of mothers had received three or more than 3 visits.[7] A study in Aligarh found that 93.2% mothers received two or a booster dose of tetanus toxoid.[8]

Another study conducted at Kolkata, found that 93% of mothers had received three antenatal visits and all (100%) of them were adequately immunized against TT.[12]

Agarwal N et al study reported that only 53.1% of mothers consumed 100 IFA tablets.[9] The present study findings were comparable with Agarwal N et al study.[9] In the present study the antenatal registration was 100% and majority of the mothers were registered in First Trimester (88.1%). Registration in 2nd and 3rd trimester was observed only in 11.9% of the mothers.

A study in urban slum of Delhi concluded that 67.1% of pregnant women had registered their pregnancy.[10] Among the registered majority (55.0%) had done registration during 2nd trimester, 11.7% in 1st trimester and 33.3% in the 3rd trimester. A study in Madhya Pradesh showed that 61% of mothers had registered in 1st trimester and 31.4% in 3rd trimester.[11] Another study in Kolkata, showed that antenatal registration was 100% and 58% of them had registered in 1st Trimester.[12] In the present study majority (68.6%) of the mothers received antenatal care from doctor and 22.9% of mothers from both doctor and ANM.

According to Agarwal N et al study 53.2% of mothers received antenatal care by doctor and 46.8% by health worker.[9] The present study revealed that that majority (68.6%) of the mothers received antenatal care from private health facility followed by government health facility (23.7%).

In a study carried out in villages of Bathinda district of Punjab state, it was found that 42.8% of mothers received ante natal care from government health facility and 47.2% from private health facility.[13] The present study findings were similar to the above study.

Association between socio-demographic factors and Antenatal visits

The present study showed that women belonging to high socio-economic class were associated with more antenatal check-ups.

A study in rural area of Pakistan conducted by Agha et al showed that the percentage of women who made at least three ANC visits increased substantially with the level of household wealth.[14]

A study done in Karachi concluded that the only characteristic that demonstrated a statistically significant association with utilization of antenatal care was income.[15] The odds of reporting high income were 1.75 times among the antenatal care group as compared to women not receiving antenatal care. Similar observations were made by Mumbare SS in North Maharashtra.[16]

A study done in East Delhi found that women with lower income groups had less than three ANC visits as compared to those with high income groups. This difference was statistically significant.[10]

Among the study subjects, 87.3% of scheduled castes had undergone 3 or more than 3 antenatal visits compared with other castes (95.2%). The strength of association between caste and number of antenatal visits was found to be strong and significant. (OR=2.863, 95%CI=1.060-7.729*).

A study by Digambar A et al observed that the proportion of mothers receiving full ANC was substantially higher for those who belong to other caste compared to SC/ST women.[17] In the present study, the strength of association between birth order and number of antenatal visits was found to be strong and significant (OR=0.205, 95% CI=0.077-0.549).

A study in rural Jhang of Pakistan observed ANC visits declined markedly with parity.[14]Among the study subjects 90.5% of literates had undergone more than or equal to three antenatal visits compared to illiterates (94.6%) but the association was not statistically significant. Contrary to this study in Uttarakhand study conducted by Digambar A et al literates (89%) were taking more antenatal check-ups compared to illiterates (22.3%).[17]

A study in Nigeria showed that literates (82.1%) were taking more antenatal care than illiterates (50%).[18] A study in Maharashtra conducted by Mumbareetal SS et al with a sample size of 216 mothers showed that education

of mother had a significant association with the utilization of antenatal care services.[16]

Association between geographical accessibility and antenatal check-ups

Among the study subjects 91.8% of women availed ≥3 antenatal visits in a health facility stayed at a distance of upto 5 kms compared with women staying more than 5 kms (90%). However the association was not statistically significant.

Shariff A et al found that presence of health care services within five kilometers of the village significantly increased ANC.[19] Similar results were shown by Khan et al in a study conducted in urban area of Uttar Pradesh.[20]

Association between socio-demographic factors and utilization of iron and folic acid tablets

Among the study subjects, 39.4% literates had received more than or equal to 100 IFA tablets compared to illiterates (32.1%) and the association was not statistically significant.

Similar findings were seen in study conducted by Digambar et al in Uttarakhand in which literates were taking more IFA tablets compared to illiterates.[17]

The strength of association between educational status of husband and number of iron and folic acid intake was found to be strong and significant. (OR=0.425, 95% CI=0.224-0.806, p<0.05).

The prevalence of more than or equal to 100 IFA intake is more in women belonging to other castes (43.2%) compared with women belonging to Scheduled caste (31.5%) however the association was not statistically significant.

Our study findings were similar to Uttarakhand study in which scheduled caste mothers were taking less IFA compared with other castes.[17]

Limitations of the study

The information used is subject to recall bias as it depends on womens recall ability about her pregnancy.

CONCLUSION

The respondents of the present study hail from a rural area of Nalgonda district. Hindu was the predominant religion among the study subjects. Most common distribution of age group was between 20-24 years Majority of the women belongs to low and middle socio-economic status. Almost all the total pregnancies were registered, out of which 82.1% were registered in First trimester. About 33.1% of the respondents received full antenatal care which is very low. In this study Univariate analysis reveals caste and birth order were found to have strong and significant association with number of antenatal check-ups.

Recommendations

Importance of antenatal care should be emphasized to mothers during antenatal checkups, in immunization clinics, mother's group meetings in Anganwadi and during the home visits by health workers. Improving nutritional status before and during pregnancy by strengthening education of mothers regarding increase in caloric intake, achieving weight gain of 10-12 kg, and correction of iron deficiency anaemia at house hold level, Anganwadi centres and sub centres and private health facilities. Accessibility should be improved particularly in hard to reach areas (HRA). This can be achieved by the provision of good roads and transportation or ensuring frequent visits by Health Workers to their home.

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