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Original Research Article

A cross-sectional study on utilisation and content of antenatal services among pregnant women in a coastal area of Thrissur district

Sruthi M. V.[1]*, Bablu Raphael[2]

Department of Community Medicine, [1]P K Das Institute of Medical Sciences, Vaniamkulam, Palakkad, [2]Al Azhar Medical college & Super Speciality Hospital, Thodupuzha, Kerala, India

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***Correspondence:**
Dr. Sruthi M. V.,
E-mail: sruthi_harish@yahoo.com

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ABSTRACT

Background: Antenatal care is 'care before birth' to promote wellbeing of mother and foetus. The number of antenatal care visits and the timing of the first visit are important for the health of the mother and the outcome of the pregnancy. The use of ANC varies from country to country considerably, with underutilization among pregnant women, in low income countries like Asia & Africa. Within the country ANC utilization varies with mother's age, education, occupation, income, parity, place of residents, availability and cost of services. In coastal areas most of the people belong to fisherman community and their socio-demographic characteristics are different from that of other areas. Not enough studies have been conducted previously; in coastal areas to obtain data on utilization of ANC services. It is in this background that the present study was carried out to assess the utilization and content of antenatal services among pregnant women in a coastal area.

Methods: A cross-sectional study was conducted in Kadappuram gramapanchayath, Chavakkad Taluk, during the period of December 2013 to March 2014. Data collection was done by interviewing total 286 registered mothers from four subcentres from Kadappuram CHC, using a pretested validated questionnaire.

Results: Out of 286 mothers, 179 (62.6%) of pregnant mothers had taken optimum antenatal care and remaining 107 (37.4%) of mothers had taken sub-optimum antenatal care. Among utilisation and content of antenatal services, only 228 (79.7%) of pregnant mothers done the Hb estimation and blood screening in first trimester itself. The proportion of mothers consumed 100 IFA tablets were 279 (89.5%), but 30 (10.5%) mothers had not taken full course of IFA tablets. Only 202 (70.6%) of mothers received the advice on family planning method during their antenatal visits and remaining 84 (29.4%) mothers did not received any advice. There was a statistically significant difference between socio-economic status of pregnant mothers and services like family planning advice and Hb estimation and screening at first trimester.

Conclusions: The study revealed that, even though all the pregnant women were literate and majority had educational status up to high school, the antenatal services like routine blood examination in the first trimester, Iron and folic acid coverage and advice on family planning services were relatively low. Improving the socio-economic status of pregnant women would improve the utilization and content of antenatal care. The study also emphasizes the need for awareness programs for antenatal mothers on content and utilisation of proper ANC.

Keywords: Antenatal care, Coastal area, Pregnant women

INTRODUCTION

Pregnancy is a normal physiological process. Outcome of pregnancy depends upon the availability and utilization of antenatal care and socio-demographic characteristics of mother. Antenatal care is 'care before birth' to promote wellbeing of mother and foetus. Ideally, antenatal care should monitor a pregnancy for signs of complications, detect and treat pre-existing and concurrent problems of pregnancy, and provide advice and counselling on preventive care, diet during pregnancy, delivery care, postnatal care, and related issues. Main aim of antenatal care is to reduce maternal morbidity, mortality, low birth weight & perinatal mortality and morbidities. All pregnant women should have adequate antenatal care irrespective of their social, economic, cultural and geographical background. The number of antenatal care visits and the timing of the first visit are important for the health of the mother and the outcome of the pregnancy. WHO recommends a minimum of four antenatal visits, comprising interventions such as tetanus toxoid vaccination, screening and treatment for infections, and identification of warning signs during pregnancy.

Globally, the proportion of women receiving antenatal care (ANC) at least once during pregnancy was 83% for the period 2007–2014. However, only 64% of pregnant women received the recommended minimum of four antenatal care visits or more, suggesting that large expansion in antenatal care coverage is still needed.[1] In India during 2010-11, 28.30 million women got registered for ANC check-up and more than 20 million underwent three or more check-ups during the pregnancy period.[2] Proper and timely utilization of antenatal services decreases the maternal complication like anaemia in pregnancy, Pregnancy induced hypertension (PIH), eclampsia, infections, postpartum haemorrhage and maternal mortality, which ultimately decreases low birth weight babies, preterm babies and other perinatal morbidities including stillbirth. In India previous studies show that women who had at least one antenatal visit had higher chances of survival compared to those with no care.[3]

Ante natal care (ANC) has been established in high income countries for a long time and which brought about remarkable achievements in reducing maternal and neonatal mortality. Most of the low and middle income countries have applied the same pattern of ANC programmes, with some adjustments for local contexts. The use of ANC varies from country to country considerably, with great underutilization among pregnant women, in low income countries like Asia & Africa. Within the country ANC utilization varies with mother's age, education, occupation, income, parity, place of residence as well as availability & cost of services. This variation in antenatal care may affect the pregnancy outcome.[4] Although coverage of Antenatal care is regularly monitored and improved in developing countries, there is little evidence on the content and utilization of ante natal care. In addition there is wide difference among women with low socioeconomic status in utilization of antenatal care.

Kerala, considered as a model for developing countries, because of its high achievement in the field of health and family welfare at relatively lower cost. In Kerala most of the health indicators are much superior to that of Indian national averages and nearer to that of developed countries. When considering the Maternal and child health services in Kerala, it is much better than in the other states of India. The prevailing socio-cultural practices and the high female literacy have helped in improving the health status of women and children in the state favourably impacting in bringing down the maternal and infant mortality in the state. The studies in Kerala show that average number of antenatal visit was eight and above, both in urban and rural setting.[5] But content and quality of antenatal care is questionable, since some of the outcomes of pregnancy and delivery are not commensurate with number of antenatal visits. Utilization of antenatal care also varies with socio – economic status of women. Most of the previous studies pertained to the coverage of antenatal care or any urban rural disparity in utilization of ANC care. In coastal areas most of the people belong to fisherman community and their socio-demographic characteristics are different from that of other areas. Not enough studies have been conducted previously, in coastal areas to obtain data on utilization of ANC services. It is in this background that the present study was carried out with a view to assess the utilization and content of antenatal services among women in a coastal area of Chavakkad in Thrissur District.

Aim

To study the content and utilisation of antenatal services among pregnant women in a coastal area of Thrissur district.

Objectives

1. To determine the utilisation and content of antenatal services among pregnant women in a coastal area of Thrissur district.
2. To find out association between the socio-demographic characters of mothers and utilisation of antenatal services among pregnant women in a coastal area of Thrissur district.

METHODS

A cross-sectional study was conducted in Kadappuram gramapanchayath, Chavakkad Taluk of Thrissur district in the state of Kerala. Kadappuram gramapanchayath belongs to Chavakkad block. Of the 16 wards in Kadappuram gramapanchayath 9 wards (ward No.1, 7, 8, 9, 10, 11, 12, 13 and 14) are in coastal area and

considered as coastal wards. There are 4 PHC namely Blangad PHC, Thottappu PHC, Vattaekkadu PHC and Kadappuram PHC, 12 Subcentres and 31 anganawadis. All pregnant women ≥28th weeks of gestation who were registered with any of the four PHCs of Kadappuram CHC during the period of December 2013 to March 2014,were included in the study.

Inclusion criteria

Inclusion criteria were **r**egistered pregnant mothers ≥28th weeks of gestation, those willing to participate.

Exclusion criteria

Exclusion criteria were pregnancy with co-morbidities (heart disease, renal disease, malignancy haematological disorder etc).

Sample size calculation

Sample size was calculated using the formulae $4PQ/ d^2$.

From another study done by N.Khatib from Whardha district only 35.7% of pregnant mothers received IFA tablets.[6]

P – 35.7%
Q = 100-P = 100-35.7 = 64.3
4 × 35.7 × (100-35.7)/ (20/100 × 35.7)2
4 × 35.7 × 64.3 / (0.2 × 35.7)2
9182.04/50.97 = 180.197

Sampling method

All pregnant women who were ≥28 weeks of gestation, registered in any of the four PHCs and who had given consent were included in the study. There were 294newly registered mothers in these PHC. From the total mothers, 4 mothers refused to give consent to take part in the study and hence were not included. The study sample was thus 290 mothers considering the exclusion criteria (4 mothers excluded 1 mother with renal disease, 1 mother with malignancy, and 2 mothers with heart disease) and thus the final sample size was 286.

Variables under study

Adequacy of ANC was based on ANC utilisation. Main indicators for ANC utilisation were

1. Number of ANC visits (5 antenatal visits)
2. Timing of the first antenatal check-up, (first antenatal check-up before or at 12 weeks)
3. ANC service content. (Measurement of weight, measurement of BP, blood examination, IFA tablets supplementation (minimum 100 tablets), TT immunization (two doses of TT or booster), abdominal examination and foetal heart sound monitoring and advice on family planning)

Socio-economic status of mothers was collected using Udai Pareek's classification.[7]

Operational definitions

Optimum antenatal care was defined as at least 5 antenatal visit (MCP card in Kerala has 5 antenatal visits),early timing of first ANC check-up i.e. (first antenatal check-up before or at 12 weeks) and sufficient services (measurement of weight at each visit, BP monitoring on each visit, blood examination and routine screening at first trimester, IFA tablets supplementation (minimum 100 tablets), TT immunization (two doses of TT or booster), abdominal examination, & foetal heart sound monitoring at each visit and advice on family planning measures).

Suboptimum antenatal care was defined as if the pregnant women had less than 5 antenatal visits or first antenatal check-up done after 12 weeks or not taken at least one dose of TT or not taken minimum 100 tablets of IFA or not done the routine blood examination in first trimester or not received the services on each visit like weight measurement, BP monitoring, abdominal and foetal heart sound monitoring or not received any advice on family planning.

Statistical analysis

The data was collected, coded and entered into Microsoft Excel 2007. The whole data was rechecked and analyzed using statistical software SPSS Version 16. The demographic variable, indicators of ANC utilisation were expressed in rate and percentage. The association between selected socio-demographic variables and adequacy of ANC were checked by Pearsons chisquare test. If the expected count of any cell was less than 5 Fischer's exact test was used. The level of significance was estimated with 95% confidence intervals with P value <0.05.

Ethical considerations

The study protocol was submitted to the Institutional Research Committee and the Institutional Ethics Committee of Amala Institute of Medical Sciences, Thrissur and clearance was obtained IEC No: AIMSIEC/12/2014 Dated 31.01.2014) for conducting the study. Informed and written permission was obtained from the president of Kadappuram panchayath.

RESULTS

Out of 286 mothers, 121 (42.3%) mothers belonged to 21-25 age group, 107 (37.4%) belonged to 26-30 age group, 31 (10.8%) mothers were ≥31years and remaining 27 (9.4%) mothers were <21 years. The mean age was 25.49±3.93. It ranged from 18 to 36. Majority of mothers 241 (84.3%) were Muslims and 43 (15%) were Hindus and remaining 2 (0.7%) belonged to Christian religion. In

this study all mothers were literate, majority 186 (65%) had educational status up to high school, 54 (18.9%) were graduates, 44 (15.4%) had educational status up to middle school and only 2 (0.7%) mothers studied up to primary level. Out of total 286 mothers, majority 126 (44.1%) belonged to middle socio-economic status followed by lower middle class i.e. 111 (38.8%). Most of mothers 135 (47.2%) lives in joint family, and 112 (39.2%) mothers live in nuclear family and remaining 39 (13.6%) lives in three generation family in Table 1.

Table 1: Socio-demographic details of study population.

Sl.no	Particulars	classification	Frequency N (%) (N = 286)
1.	Age (in years)	< 21	27(9.4%)
		21-25	121(42.3%)
		26-30	107(37.4%)
		≥31	31(10.8%)
2.	Religion	Muslim	241(84.3%)
		Hindu	43(15%)
		Christian	2(0.7%)
3.	Educational status	Primary	2(0.7%)
		Middle	44(15.4%)
		High school	186(65%)
		Graduate	54(18.9%)
4.	Socio-economic status	Upper class	1(0.3%)
		Upper middle	43(15%)
		Middle	126(44.1%)
		Lower middle	111(38.8%)
		Lower class	5(1.7%)
5.	Type of family	Joint	135(47.2%)
		Three generation	39(13.6%)
		Nuclear	112(39.2%)

Table: 2 Distribution of mothers according to antenatal services received (N=286).

Antenatal services	Particulars	Received services N (%)	Not received services N (%)
First trimester	Weight measurement	280(97.9%)	6(2.1%)
	BP measurement	283(99%)	3(1%)
	Hb & screening test	228(79.7%)	58(20.3%)
	TT immunization	281(98.3%)	5(1.7%)
Subsequent visit	Assessment of weight on every visit	274(95.8%)	12(4.2%)
	BP monitoring on every visit	280(97.9%)	6(2.1%)
	Anomaly scan	279(97.6%)	7(2.4%)
	Abdominal & foetal heart sound examination	284(99.3%)	2(0.7%)

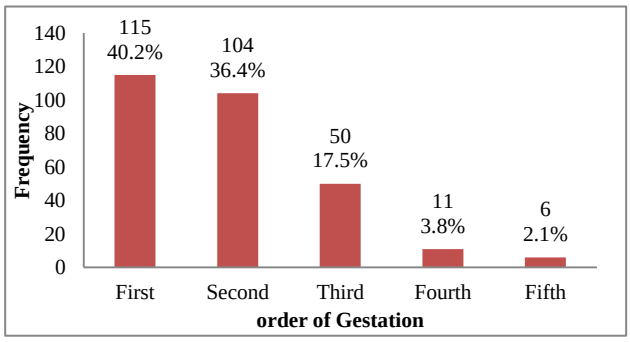

Figure 1: Distribution of mothers according to order of gestation.

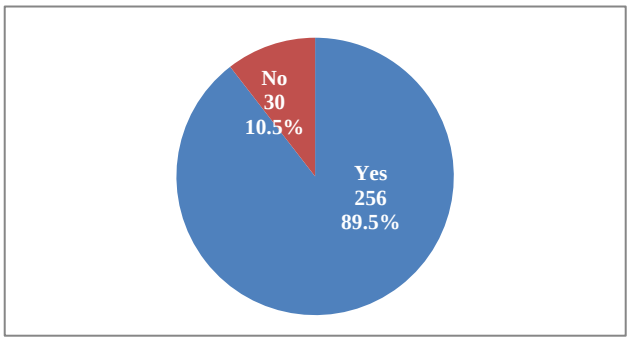

Figure 2: Distribution of mothers on IFA coverage.

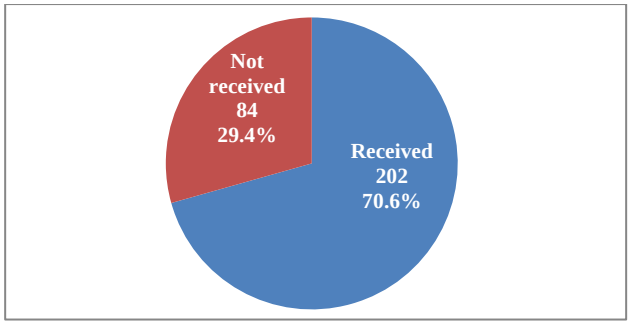

Figure 3: Distribution of mothers according to advice received on family planning.

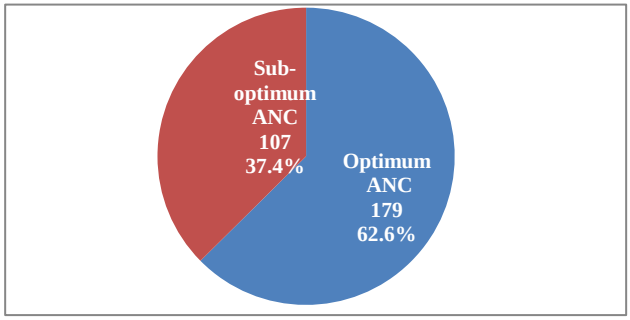

Figure 4: Distribution of mothers according to adequacy of antenatal care received.

DISCUSSION

In present study majority of mothers (99%) had done their first antenatal check-up at first trimester itself which is comparable with NFHS 3 data, which showed that 92% of women received antenatal care during first trimester, and 6% had their visit during 4th or 5th month of pregnancy.[8] In the present study 40.2% of mothers were primigravida. A study done by Ramankutty from Trivandrum showed similar result i.e. 45.3% of mothers belonged to primigravida and 36.1% of mothers belonged to Gravida 2. The results on utilization and content of antennal care were comparable with Ramankutty study from Trivandrum which showed that 91.02% of mother's weight was recorded in first visit itself.[9] According DLHS 4 in Thrissur district only 87.1% of pregnant women Hb was checked in first trimester.[10] According to study done by Sreelatha from Trivandrum 95.3% of pregnant women checked their Hb status and done routine screening in the first trimester.[11] The proportion of mothers consumed 100 IFA tablets wee 279 (89.5%). The result was similar to another study done by J.G Jha ranjith from Kanchipuram where IFA coverage among pregnant women was 90.52%.[12]

In the present study mean number of antenatal visit is 8.97±1.83 with minimum 3 antenatal visits and maximum 12 visits. Another study done by Thankappan also showed mean number of antenatal visit as 8 which was similar to the present study.[13] In present study 10 (3.5%) of mothers had less than or equal to 5 antenatal visit which was similar to study done by Hemachandran where 3.3% of women had less than 5 antenatal visit and mean number of antenatal visit as 8.87±2.98 which was similar to present study.[14] DLHS 4 shows that in Thrissur district 74% of mothers had taken full antenatal care.[10] Full antenatal care in DLHS 4 includes at least 3 antenatal visit, TT injection, and 100 IFA tablets. In this study only 62.6% of mothers had taken optimum antenatal care.

Table 3: Association between selected socio-demographic characters and utilisation of ANC.

Particulars	Classification	Particulars		Total	P value
		Family planning advice			
		Received	Not received		
Age distribution	<21	16(59.3%)	11(40.7%)	27	**0.03**
	21-25	78(64.5%)	43(35.5%)	121	
	26-30	82(76.6%)	25(23.4%)	107	
	≥30	26(83.9%)	5(16.1%)	31	
	Total	202	84	186	
		Adequacy of ANC		**Total**	**P value**
		Optimum	Sub-optimum		
Educational status	Primary	1(50%)	1(50%)	2	0.36
	Middle	26(59.1%)	18(40.9%)	44	
	High school	123(66.1%)	63(33.9%)	186	
	Graduate	29(53.7%)	25(46.3%)	54	
	Total	179	107	286	
		Hb estimation and screening in first trimester		**Total**	**P value**
		Done	Not done		
SES	Upper class	1(100%)	0	1	**0.02**
	Upper middle	35(81.4%)	8(18.6%)	43	
	Middle	106(84.1%)	20(15.9%)	126	
	Lower middle	85(76.6%)	26(23.4%)	111	
	Lower class	1(20%)	4(80%)	5	

	Total	228	58	286	
		Family planning advice		**Total**	**P value**
		Received	Not received		
	Upper class	1(100%)	0	1	**0.007**
	Upper middle	29(67.4%)	14(32.6%)	43	
	Middle	94(74.6%)	32(25.4%)	126	
	Lower middle	78(70.3%)	33(29.7%)	111	
	Lower class	0	5(100%)	5	
	Total	202	84	286	
Religion		**Hb estimation and screening in first trimester**		**Total**	**P value**
		Done	Not done		
	Muslims	198(82.2%)	43(17.8%)	241	**0.03**
	Christians	2(100%)	0	2	
	Hindus	28(65.1%)	15(34.9%)	43	
	Total	228	58	286	
		Adequacy of antenatal care		**Total**	**P value**
Type of family		Optimum care	Sub-optimum care		
	Nuclear	78(69.6%)	34(30.4%)	112	**0.03**
	Joint	74(54.8%)	61(45.2%)	135	
	Three generation	27(69.2%)	12(30.8%)	39	
	Total	179	107	286	

On further analysis a statistically significant difference (p value 0.03) was obtained between age distribution and advice on family planning services (Table 3). Advice on family planning services increased as the age of mother increased. Similar result was obtained from another study conducted by Pawar Anath in rural Kerala.[15] Socio-economic status of mothers were also statistically (p value 0.02) associated with services like family planning advice (p value 0.007) and haemoglobin estimation and screening done at first trimester in Table 3. Another study done by Fagbamigbe from Nigeria showed significant association between wealth status of pregnant mothers and desirable antenatal services received by the mother.[16] In the present study 34.9% of Hindus and 17.8% of Muslims, had not done the Hb estimation and screening at first trimester and there was statistically significant difference between religion of pregnant mothers and haemoglobin estimation and screening (P value 0.03) Table 3. Another study done by Kulkarni had shown significant difference between religion and utilization of antenatal care.[17] Adequacy of antenatal care was statistically associated with type of family of pregnant mothers (p value 0.03) Table 3. Another study by Gill found out a statistical significant association between type of family and utilization of antenatal care.[18]

CONCLUSION

The study revealed that, even though all the pregnant women were literate and majority had educational status up to high school, the antenatal services like routine blood examination in the first trimester, Iron and folic acid coverage and advice on family planning services were relatively low. Of total pregnant women, more than half had taken optimum antenatal care. Improving the socio-economic status of pregnant women would improve the utilization and content of antenatal care. The study also emphasize the need for awareness programs for antenatal mothers on content and utilisation of proper ANC. Timely antenatal visits and content on each visit has to be addressed properly.

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