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Correlates of antenatal care services utilization at health centres in Chandigarh Tricity, India

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ABSTRACT

Background and Aims

Adequate and good quality antenatal care (ANC) can ensure a favourable pregnancy outcome, but the coverage of ANC in India remains inadequate. To assess the correlates of antenatal care services utilization at various health centres in Chandigarh Tricity.

Method and Results

A cross sectional study was done from April 2012 to September 2013 at randomly selected 18 health centres in Tricity of Chandigarh, Northern India with an objective to assess the correlates of antenatal care services utilization at health centres. The data was obtained from 345 pregnant women using interview technique, and supplemented by record checking. Mean age (± S.D.) of participants was 24.51 (± 3.64) years. Majority of participants registered during first trimester (71.3%), received Iron-Folic acid tablets (84.6%) and Injection Tetanus Toxoid (96.0%). Maximum numbers of participants (78.0%) were anaemic.

Conclusion

The use of IFA tablets could be increased by their regular supply and counselling of pregnant women. There should be provision for improvement of competence, confidence & motivation of health workers to ensure full utilization of Maternal & Child Health services.

Keywords: Antenatal Care Services, Utilization, Health Centres, India.

INTRODUCTION

In India, women of the child- bearing age (15 to 44 years) and children less than 15 years of age constitute about 22.2% and 35.3% of the total population, respectively. [1] By virtue of their numbers, mothers and children are the major consumers of health services. Both socioeconomic and demographic factors, however, have been shown to have a particularly great influence on use of health care services. [2, 3] It has been observed that women of lower socio-economic status often do not avail the existing reproductive health care services. Higher education levels influence the use of health services in several ways such as antenatal check-ups, institutional deliveries, consulting the doctors, contraceptive use and sexual health care. [4] In many South Asian cultures including India the use of preventive health services like routine

ante-natal care (ANC) is an alien concept because such services are perceived to be existing solely for curative purposes. [5]

Adequate and good quality ANC can ensure a favourable pregnancy outcome, but the coverage of ANC in India remains inadequate. Although there has been an increase in institutional births from 33.6% to 43.5% in some states, but around 65% of all births nationwide still occurs at home. [6] Reproductive & Child Health (RCH) programme [7] recommends a gamut of antenatal care services. It is reasonable to assume that utilization of antenatal services depends on individual and household factors, as well as factors operating at the community or policy levels. Against this background, the present study was conducted with objectives to assess the utilization of antenatal care services and its co-relates at various health centres in tricity of Chandigarh.

MATERIALS AND METHODS

The cross-sectional study was conducted during April 2012 to September 2013 in the Tricity of Chandigarh, India. Chandigarh along with two satellite cities *viz.* Panchkula in Haryana and Mohali in Punjab collectively constitute the Chandigarh Tricity. Two available community health centres (CHCs) and four sub-centres (SCs) at random were selected from Chandigarh. No primary health centre (PHC) exists in Chandigarh. In Mohali district, two out of three CHCs, two out of 12 PHCs and two out of total 78 SCs were selected at random. Two CHCs that came under Panchkula district along with one PHC under each CHC and one SC under each PHC constituted the sample. Finally, a total number of six CHCs, four PHCs and eight SCs were selected from Chandigarh tricity.

Based on 90% confidence co-efficient and 5% permissible error and several parameters of maternal and child health services of interest, sample of 345 women of reproductive age calculated. Therefore, study included 345 pregnant women who had come for antenatal checkup in 2nd and 3rd Trimester and gave consent to participate in the study. Those patients who attended ANC clinics but having incomplete records and presenting in 1stTrimester were excluded. The data was collected by visiting all the selected health centers using the pre-designed, structured and pre-tested questionnaire. The information was supplemented by checking the patient's ante-natal card at time of interview. Data was entered into *SPSS version 19.* Discrete data was analyzed using frequency, percentages, and Mean (± S.D.). Sample characteristics of ante-natal women were studied and compared in different subgroups using Chi-square test. The study was conducted after obtaining approval from the Faculty of Medical Sciences, Panjab University, Chandigarh vide letter no. 5715/G.M. dated 26.04.2012. The data was collected from participants after obtaining their informed written consent. The privacy and confidentiality of their information obtained was assured.

RESULTS

The 345 antenatal beneficiaries, 96 (27.8%), 103 (29.9%) and 146 (42.3%) were from Chandigarh, Panchkula and Mohali, respectively. Among these, 114 (33%), 69 (20%) and 162 (47%) participants had availed services from SCs, PHCs and CHCs, respectively.

Table 1 shows the socio demographic profile of the participants. Mean age (± S.D.) of participants was 24.51 (± 3.64) years. Mean ages (± S.D.) of participants at marriage and at time of conception were 20.42 (± 2.56) years and 21.79 (± 2.52) years, respectively. Nearly three-fourth participants (78%) were literate. Most of the participants (94.5%) were homemaker. Majority of participants (62.6%) belong to middle class and were living in joint family (57.7%). (Table 1).

Table 1: Distribution of Participants according to Socio-Demographic Profile

Characteristics	Number (N=345)	Percentage (%)
Age in years		
18-21	66	19.1
22-25	156	45.2
26-30	101	29.3
31-35	19	05.5
36-45	03	00.9

Place of residence		
Rural	217	62.9
Urban	105	30.4
Slum	23	06.7
Education		
Illiterate	76	22.0
Primary, middle & high class	170	49.3
Intermediate and above	99	28.7
Occupation		
Homemaker	326	94.5
Working	19	05.5
Socioeconomic Status		
Middle	216	62.6
Lower	129	37.4
Type of family		
Joint	199	57.7
Nuclear	146	42.3

The utilization of ante-natal care services by the participants is shown in Table 2. Majority of them (98%) were registered at public health facility i.e. 114 (33%) participants in CHCs, 111 (32.2%) in PHCs and 101 (29.3%) in Sub centres. Majority of participants (65%) were examined by doctor, followed by Auxiliary Nurse Midwife/Nurse (35%). Around one-third (37%) were primigravida. Among multigravida, majority (125/180, 69%) participants had their previous delivery as institutional delivery. Blood pressure, weight and height of 87%, 81.2% and 11% participants, respectively were measured and recorded in the current and every previous visit as seen from their antenatal cards. Haemoglobin (96.8%), blood grouping (96.2%), urine examination (96.2%), VDRL (95.4%) and HIV (94.5%) tests were done in almost all of the participants. Maximum number of participants was anaemic as 71.0% and 07.8% of participants were having haemoglobin level within 9-11 gm% and 7-9 gm%, respectively.

Iron & Folic Acid (IFA) tablets were given to 84.6% of participants (Table 2). Maximum number of participants (94.2%) received IFA tablets in Panchkula followed by Mohali (81.5%) and least in Chandigarh (79.2%), and this difference was found to be significant ($p = 0.00$). Regarding health facility, it was observed that maximum number of participants received IFA tablets in PHC (91.3%) followed by SC (85.1%) and least in CHCs (81.5%). It was also observed that TT injection was not given among 07.8% participants in Panchkula, 03.4% in Mohali and 01.0% in Chandigarh, and this difference was found to be significant ($p = 0.04$). Regarding type of health facility, maximum number of participants (06.2%) did not received TT injection at CHC level followed by 04.3% at PHC and 00.9% at SC level ($p=0.03$).

Table 2: Distribution of participants according to utilization of antenatal care services

Components	**N=345**	**%**
Time of registration		
First trimester	246	71.3
Second trimester	90	26.1
Third trimester	09	02.6
Number of visits done		
Once	30	08.7
Twice	124	35.9
Thrice	98	28.4
More than three times	93	27.0

Number of Iron - Folic acid Tablets Given		
None	53	15.4
01 – 30	134	38.8
31 – 60	117	33.9
More than 60	41	11.9
Whether Iron - Folic acid Tablets consumed		
Yes	253	73.4
No	39	11.2
Not received	53	15.4
Whether Injection Tetanus Toxoid administered		
None	14	04.1
One dose	54	15.7
Two dose	214	62.0
Booster dose	63	18.3

The relationship between registrations in different trimesters with other components is shown in Table 3. The significant difference was found between trimester of registration and place of residence (p = 0.00), religion (p = 0.00), and education (p = 0.00).

Table 3: Relationship between Registration in different Trimesters and other components

Components	**N**	**Registered in which trimester (T)**			**χ^2; p**
		1st T	**2nd T**	**3rd T**	
City					
Chandigarh	96	71(74.0)	22(22.9)	03(03.1)	5.69; 0.22
Panchkula	103	65(63.1)	34(33.0)	04(03.9)	
Mohali	146	110(75.3)	34(23.3)	02(01.4)	
Health centre					
Sub centre	114	79 (69.3)	32 (28.1)	03 (02.6)	4.09; 0.39
PHC	69	45 (65.2)	23 (33.3)	01 (01.5)	
CHC	162	122 (75.3)	35 (21.6)	05 (03.1)	
Place of residence					
Urban	105	83(79.0)	22(21.0)	00(00.0)	25.80; **0.00***
Rural	217	151(69.6)	61(28.1)	05(02.3)	
Slum	23	12(52.2)	07(30.4)	04(17.4)	
Gravida Status					
Primigravida	128	100(78.1)	26(20.3)	02(01.6)	4.78; 0.09
Multigravida	217	146(67.3)	64(29.5)	07(03.2)	
Education of participant					
Illiterate	76	40 (52.6)	31 (40.8)	05 (06.6)	18.73; **0.00***
Literate	269	206 (76.6)	59 (21.9)	04 (01.5)	
Occupation of participant					
House wife	326	233(71.5)	86(26.4)	07(02.1)	5.05; 0.08
Working	19	13(68.4)	04(21.1)	02(10.5)	

***Significant**

The relationship between total numbers of visits with other components is shown in Table 4. The significant difference was found between number of visits and city (p = 0.00), type of health centre (p = 0.01), and education (p= 0.00).

Table 4: Relationship between total numbers of visits with other relevant components

Components	N	Total numbers of visits(N=345)				χ^2; p
		One	Two	Three	More than Three	
City						
Chandigarh	96	06(06.3)	24(25.0)	29(30.2)	37(38.5)	20.30; **0.00***
Panchkula	103	15(14.6)	43(41.7)	29(28.2)	16(15.5)	
Mohali	146	09(06.2)	57(39.0)	40(27.4)	40(27.4)	
Health centre						
Sub centre	114	08 (07.0)	50 (43.9)	34 (29.8)	22 (19.3)	18.07; **0.01***
PHC	69	10 (14.5)	27 (39.1)	20 (29.0)	12 (17.4)	
CHC	162	12 (07.4)	47 (29.0)	44 (27.2)	59 (36.4)	
Place of residence						
Urban	105	12(11.4)	31(29.5)	27(25.7)	35(33.3)	12.34; 0.06
Rural	217	13(06.0)	85(39.2)	66(30.4)	53(24.4)	
Slum	23	05(21.7)	08(34.8)	05(21.7)	05(21.7)	
Gravida Status						
Primigravida	128	09(07.0)	42(32.8)	36(28.1)	41(32.0)	3.15;
Multigravida	217	21(09.7)	82(37.8)	62(28.6)	52(24.0)	0.37
Education of participants						
Illiterate	76	08 (10.5)	40 (52.6)	19 (25.0)	09 (11.8)	16.59; **0.00***
Literate	269	22 (08.2)	84 (31.2)	79 (29.4)	84 (31.2)	
Occupation of participants						
House wife	326	27(08.3)	120(36.8)	94(28.8)	85(26.1)	4.49;
Working	19	03(15.8)	04(21.1)	04(21.1)	08(42.1)	0.21

***Significant**

DISCUSSION

The present study was undertaken with the broad objectives to assess utilization of antenatal services and its co-relates in Tricity of Chandigarh. It was found that 62.9% participants were from rural area, 30.4% from urban while 06.7% from slums as we have taken patients from tricity i.e Chandigarh, Panchkula and Mohali while in a study by Gupta et al [8] in Chandigarh had 56.0% women from urban, 33% from slums and 11% from rural areas. Chandigarh is primarily an urban area with very few villages and slums. In our study 19.1% of participants were in the age group of 18-21 years and none of the participant was below 18 years, while teenage pregnant mothers or mothers less than 20 years of age was found to be very low (05.3%) in a study in Karnataka by Parasuramalu et al [9] and 09.5% in a study by Dasgupta et al [10] in Kolkata, West Bengal. Nearly two-third (64.3%) of respondents were less than 25 years in our study and similar findings were seen in study by Gupta et al [11] in East Delhi where 65.7% women were less than 25 years. In present study mean age of participants at marriage was 20.42 (± 2.56) years and mean age at 1st pregnancy was 21.79 (± 2.52) years while in a study by Parasuramalu et al [9] observed that in majority (51.3%) teenage pregnant mothers, the age at marriage was 18 years. The most common reason given for early marriage and early pregnancy was traditional practices and family pressure. Another study by Gupta et al [8] in Chandigarh revealed that teenage marriage was higher (13.5%) in slums as compared to urban (07.9%) and rural (04.5%) areas. Panja et al [12] in West Bengal revealed that 42.6% women had their marriage before attaining 18 years and 30.6% conceived before 19 years of age and majority of women (65.1%) had their first pregnancy between 19 and 25 years which is quite higher in comparison to our findings. In the present study it was seen that majority of the participants (49.3%) were educated up to high school and only 22.0% were illiterate, and majority of them (94.5%) were home makers while in a study by Parasuramalu et al [9] in Karnataka observed higher number of respondents (32.1%) who were educated up to high school and 97.4% were home makers similar to our findings. In another studies by Bajpai et al [13] in

Varanasi found large number of respondents (57.3%) were illiterate whereas only 10.3% had above high school education and Gupta et al [11] in East Delhi observed more number of illiterate women (37.3%), and all women were home makers.

We found majority of the participants (62.6%) belonged to middle class and 37.4% belonged to lower class while in a study by Gupta et al [11] in East Delhi found more number of respondents (62.7%) in lower class. It was observed that majority of the participants (79.0%) from urban area got registered in first trimester and around 17.0% from slums were registered in third trimester. By education status 76.6% literate mothers were registered in first trimester as compared to 52.6% illiterate mothers. In contrary to our findings, Patel et al [14] in Gujarat found only 29.2% women were registered. In study by Das et al [15] in Kerala found 57.2% women were registered. Another study done in Kerala [16] revealed good utilization of ante-natal services where 94.3% of women registered in first trimester whereas it was 68.0% in slum areas, and the reason given for delay in registration was that if decided to go every month for ANC after registration at an early period, the doctor will prescribe lot of medicines and tonics. As they could not purchase such tonics and medicines, they decided to start ANC only in later half of pregnancy. Dasgupta et al [10] in West Bengal found poor utilization where only 36.5% of women had been registered during first trimester and Khan et al [17] in Aligarh found that 19.6% of the women did not receive any antenatal care.

In present study 98.0% respondents utilized government health facility for receiving ANC services including SC (29.3%), PHC (32.2%), CHC (33.0%) and Government hospital (03.5 %), and private hospitals in only 02% cases, while Patel et al [14] in Gujarat found that source of ANC was government setup in 75.6% cases which is quite less in comparison to our findings and rest 24.4% received it from private hospitals. In contrary to our findings another study done in Kerala [16] revealed that higher number of respondents (74.3%) utilized private and only 25.7% utilized government health facilities. In our study 27.0% participants visited the health facility more than three times. Similar findings were seen in other studies i.e. 23.0% by Agarwal et al [18] in Chandigarh and 29.2% by Sharma et al [19] in Dehradun visited centre more than three times. However, Das et al [15] in Kerala reported higher number of mothers (62.0%) had visited centre more than three times. Another study in `Kerala [16] revealed 99.4% of participants attended health facilities more than three times. Singh et al [20] observed 62.0% participants had made three or more visits. Bajpai et al [13] in Varanasi revealed poor utilization of services where 88.5% participants had not taken antenatal care due to several reasons among which 43.4% reported they did not had any kind of knowledge about ANC, 28.8% said that it was not necessary for them, 14.2% did not take due to side effects of medicines prescribed, 07.3% did not take due physical problems and 06.3% due to religious restrictions. Another study by Jha et al [21] in Tamil Nadu found that 96.7% mothers had received at least three antenatal visits at their home by ANMs from health centres while in a study by Babalola et al [22] in Nigeria found that 60.3% of the respondents used antenatal services at least once during their pregnancy.

It was observed that 65.0% of participants were attended by doctor and 35.0% by ANM/ Nurse in the present study. Similar trend was observed by Agarwal et al [18] in Chandigarh where 53.2% received care by doctors and rest 46.8% by a health worker. Another study by Gupta et al [8] in Chandigarh revealed that ANC was sought from doctor by only 27.8% of pregnant women in slums whereas good utilization of services was seen in urban and rural areas where 93.4% and 88.4% perceived health care from doctor respectively.

It was observed that blood pressure, weight and height of 87%, 81.2% and 11.0% participants, respectively were measured and recorded in the current and every previous visits as checked from their antenatal cards. Routine investigations were done in almost all of the participants. Jain et al [23] in Agra found that BP and weight was measured only in 35.0% and 41.2% women, respectively. Routine investigations was also not done in majority of patients as only 27.9% and 20.5% had blood examination and urine examination done, respectively. Another study by Chhabra et al [24] in Delhi revealed that good services were being provided in comparison to our findings as weight and BP measurement was done for 88.0% of the women, and urine examination done for 86.0% of women.

In current study injection TT was administered in 96.0% participants and only 04.0% didn't receive any dose. Similarly, Agarwal et al [18] in Chandigarh

found that 90.6% of pregnant females had received two doses of tetanus. Similar trends were also observed in study by Dasgupta et al [10] in Kolkata in which 05.0% of mothers' received no or incomplete dose of TT while Khan et al [17] in Aligarh revealed higher number of participants (09.6%) did not receive a dose of TT while 78.2% received two doses of TT. Singh et al [20] found that 86.0% of pregnant women received only one dose of TT while about 77.9% of pregnant women received two doses of TT or a booster dose and high number of participants (13.6%) in comparison to our findings did not get themselves immunized for TT. Though tablet IFA was given to majority (84.6%) of the women in the present study but among them only 73.4% actually consumed IFA tablets. It was also observed that only 11.9% women received more than 60 tablets and the reason given was irregular supply of medicines. In other studies, Agarwal et al [18] in Chandigarh observed that 53.1% received it for three months, Das et al [15] in Kerala found that 100 tablets of IFA were given in only 01.7% women thus showing poor services being provided. Sumithra et al [25] in Ernakulam (Kerala) observed good services where IFA tablets were given to 98.0% of women. Another study in Kerala [16] revealed that 89.0% had taken IFA tablets. Jha et al [21] in Tamil Nadu observed that over 90.0% of mothers received and consumed at least 100 IFA tablets during entire period of pregnancy and Jain et al [23] in Agra found that 56.1% and 45.6% of mothers purchased and consumed IFA tablets respectively. In rural and urban slums, 51.7% and 42.5% mothers received IFA tablets while in urban elite it was 76.7%. Regarding consumption, about 40.0% mothers in rural and urban slum (40.0% and 42.5%) were found consuming IFA tablets while in urban elite, 63.3% consumed it. Another study by Sharma et al [19] in Dehradun found poor services where only 48.3% women had consumed 100 IFA tablets and the proportion was high (79.4%) in women belonging to rural areas and Gupta et al [11] in Delhi found that though IFA tablets were given to 88.2% females during their antenatal visits but only 52.4% had taken more than 50 tablets during pregnancy.

CONCLUSION

The results revealed that majority of respondents who visited the health facility for more than three times were from Chandigarh (38.5%) followed by Mohali (27.4%) and Panchkula (15.5%). The use of IFA tablets was found to be low; hence interventions like involvement of husband during ANC and their counseling may increase the adherence to IFA tablets along with regular and sustained awareness campaigns. The issue of irregular supply of tablets should also be addressed on priority. There should be provision for improvement of competence, confidence & motivation of health workers to ensure full utilization of Maternal & Child Health services. Attention should also be given to regular and sustained contact between health workers and antenatal women particularly through home visits to develop mutual confidence and thereby it would help remove prevailing misconceptions and other barriers as identified.

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