

Maternal Health Care and Contraceptive Acceptance in Orissa : Evidence from a Baseline Survey

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Introduction

The MCH services are offered at Primary Health Centres (PHCs) and their sub-centers in the rural areas, and by general hospitals, women's and children's hospital and MCH centers run by State Health Departments and also through Municipal and Voluntary Organizations in the urban areas. The antenatal care services can be utilized by pregnant women either by visiting the antenatal clinics and getting medical check-up and/or from the visits of health staff such as Auxiliary Nurse Midwife (ANM) Lady Health visitor (LHV) or Female Health Worker in the course of their domiciliary visits. In a number of programs where the maternal and child health care services, and nutrition and contraceptive service packages were offered, the practice of family planning was observed to increase along with the increase in the use of antenatal care services (*Gwatkin, D et al, 1980; Anubhav, 1988*). However, these are special programs with extra inputs in MCH with highly personalized service. It remains unanswered whether the utilization of antenatal care services and ensuing contact with health personnel promotes the use of contraception in routine governmental health programs or not, and is yet to be studied. It is hypothesized that the pregnant woman who utilizes the antenatal care services, comes in contact with the health staff and is thus more likely to accept family planning after the child birth. If this happens, the integration of MCH with family planning will serve its purpose. In the present paper an attempt is made to study the linkages between utilization of antenatal services and acceptance of family planning using the primary data collected from married women sampled out from 80 villages of Orissa.

Data and Method of Analysis

The present study has used the data obtained from the Baseline survey conducted in eighty sampled villages from five districts of Orissa namely; Cuttack, Puri, Ganjam, Phulbani, and Kalahandi by the International Institute for Population Sciences, Bombay during 1984. These five districts, though heterogeneous regarding various indicators of socio-economic development, population size, type of area, are contiguous. These districts were selected by Government of India and State of Orissa for development of infrastructure and

provision of service facilities in the field of health, family welfare and maternal and child health services under the Area Development Plan. The action program in Orissa received partial financial assistance from Overseas Development Administration (ODA) of U.K. The Baseline Survey was conducted with a view to providing benchmark data on fertility, family planning, morbidity, mortality, utilization of health services, with special emphasis on maternal and child health services.

The sampling design was primarily developed to provide independent and statistically reliable estimates, for the urban population, for stratum I villages (having primary health centres, or sub-centre/health facility, such as Mission Hospital), and for stratum II villages (with no such health facility). This involved the adoption of a two-stage stratified sampling design in which a specified number of villages or urban blocks were selected from each stratum in the first stage. For each of the selected villages or urban blocks, a random sample of 50 households was then selected for interview. The selection of villages and urban blocks was carried out with a view to maximizing the spread of the sample villages over different size classes of villages, and in order to improve the reliability of the estimates. Such a stratified sampling scheme was adopted in order to ascertain whether the provision of health facilities does or does not make a difference to the morbidity, mortality and utilization of health services. Since the action programs envisaged in project areas essentially involve the expansion of existing health facilities, without altering the basic strategy of health care provisions it would be useful to have an idea of such differentials as they existed prior to program initiation. The stratification of villages in three strata has special significance from program point of view, as it would clearly indicate the situation regarding the utilization of Maternal and Child Health Services and use of family planning methods in three types of residential locations. Also, with the design it is possible to study whether the nearness of health centres affects utilization of MCH services. From each district, 1000 households were selected for interviewing; 200 from stratum I villages, 600 from stratum II villages, and 200 from urban areas. Thus, out of five thousand households, 1000 were from stratum I villages, 3000 were from stratum II villages, and 1000 were from the urban areas. These five districts of Orissa together account for 46.6 per cent of the population of the state.

During the course of survey, the data of utilization of antenatal care and immunization were collected from currently married women in the age group 15-49 who had a last live birth 4 years prior to the survey. The MCH program has started very recently in India. Hence the collection of information was restricted to recent 4 years period. The restriction to the last lives born child whether alive or dead at the time of the survey was introduced to minimize recall lapse and mixing of the responses. The information on the use of family planning methods

was collected from each currently married woman in the reproductive age group 15-49. Thus the information on utilization of antenatal care services could be cross-tabulated with that of the use of the family planning methods for the present study.

Differentials in Utilization of Maternal Care Services

In the present analysis, in-depth probe linking utilization of antenatal care services by practice of contraception is carried out by taking into consideration the proximity of MCH service facility and educational status. For further analysis, we have clubbed women from stratum I villages with those from urban areas, as in both the cases, the proximity of health services existed. The findings are presented in Table 1(a) & 1(b). In Table 1a the data on ever use of contraceptive methods has been cross-tabulated with utilization status of antenatal services. Table 1a indicates that in both the areas under study the acceptance of family planning method was higher among women who had utilized antenatal care services. The acceptance of family planning methods was observed to be higher, as expected, in the areas having MCH facilities. Table 1(b) indicates that utilization of antenatal care services has increased with the increase in the literacy levels of husband and wife, in both the areas under study. The influence of literacy and educational attainment of women is more pronounced in stratum I of the study area.

Table 1(a): Percent Utilization of Antenatal Care Services by Ever-Use of Contraceptive, Orissa

Utilization Status of ANC	Ever-use of Contraception					
	Urban + PHC's (ST.I)			Rural (ST.II)		
	Never Used	Sterilized	Ever-used other Method	Never Used	Sterilized	Ever-used other Method
Utilized	68.4	19.5	12.1	77.0	11.0	12.0
Not Utilized	83.3	11.8	4.9	88.8	11.2	5.0

Table 1(b): Percent Utilization of Antenatal Care Services by Literacy and Education of Husband and Wife, Orissa

Characteristics	Percent Utilization of ANC	
	Urban + PHC's (ST.I)	Rural (ST.II)
<i>Literacy and Education of Husband</i>	33.2	16.2

Illiterate & Literate without formal education	48.5	27.5
Standard I to IX	65.0	40.9
Standard X and above	46.2	20.9
All		
<i>Literacy and Education of Wife</i>	37.7	18.2
Illiterate & Literate without formal education	54.4	38.6
Standard I to IX	94.5	76.2
Standard X and above	46.2	20.9
All		

Percentage distribution of ever-users of contraceptive methods among women who had a child during four years prior to survey, by literacy and educational attainments of husband and wife for stratum I and II is presented in Tables 2a & 2b.

Table 2(a): Ever-use Contraception by Education of Husband, Orissa

Ever-use of Contraception	Illiterate	Std. I-IX	X+	All
<i>Urban + PHC's (St. I)</i>	81.1	78.8	65.8	76.4
Never used	14.4	13.9	18.8	15.4
Sterilized	4.5	7.3	15.4	8.2
Ever used other methods				
<i>Rural (St. II)</i>	83.9	80.6	78.4	82.3
Never used	11.3	12.1	7.8	11.2
Sterilized	4.8	7.3	13.8	6.5
Ever used other methods				

Table 2(b): Ever-use Contraception by Education of Wife, Orissa

Ever-use of Contraception	Illiterate	Literate	All
<i>Urban + PHC's (St. I)</i>	80.1	69.9	76.4
Never used	14.1	17.6	15.4
Sterilized	5.8	12.5	8.2
Ever used other methods			
<i>Rural (St. II)</i>	83.3	77.3	82.3
Never used	11.3	10.6	11.2
Sterilized	5.4	12.1	6.5
Ever used other methods			

It is clear again, as expected that the percentage women ever-using family planning methods has increased with rise in the educational attainments, in both the areas. Thus, Table 1a has indicated that the use of family planning methods is higher for those women who had utilized Antenatal care services, and Table 2 has shown that the use of family planning methods increases with increase in educational standards. It was also found that the extent of the utilization of Antenatal care service increase with educational attainment of husband and wife (Table 1b). Expected though these findings are they are not able to indicate whether there is any positive association between the utilization of antenatal services and practice of family planning after controlling the effect of educational attainment. Here, in this paper the major interest lies in finding whether after controlling for educational attainment, the practice of family planning methods is higher among the women utilizing Antenatal care services or not, at both the areas under study. This has been attempted and the results are presented in Table 3.

Table 3: Ever use of contraceptive methods by Literacy of wife and utilization of Antenatal Care Services, Orissa

Use of Contraception	Not Utilized Antenatal Care Services			Utilized Antenatal Care Services		
	Illiterate	Literate	All	Illiterate	Literate	All
<i>Urban + PHC's (St. I)</i>	84.0	81.2	83.3	73.5	62.7	68.3
Did not Use	11.0	14.1	11.8	19.2	19.9	19.5
Sterilized	5.0	4.7	4.9	7.3	17.4	12.2
Other Methods						
All	73.9	26.1	100.0	52.1	47.9	100.0
<i>Rural (St. II)</i>	84.1	82.0	83.8	80.0	70.8	77.0
Did not Use	11.0	12.7	11.2	12.7	7.5	11.0
Sterilized	4.9	5.3	5.0	7.3	21.7	12.0
Other Methods						
All	86.9	13.1	100.0	6.5	32.5	100.0

It can be seen from Table 3 that in the areas where health centres were located, the ever-use of family planning methods among illiterate women who had utilized antenatal services was higher (26.5 per cent) than the illiterate women who had not utilized antenatal care services. In the stratum II areas (comprising villages with no health services facility), the ever-use of family planning methods was higher for illiterate women who had utilized Antenatal care services (20 per cent) than those illiterate women who had not used Antenatal care services (16

per cent). In the same area, among literate women, the percentage of women ever using contraception was higher for those who used antenatal care services (29.2 per cent) compared to those literate women who had not utilized Antenatal care services (18.0 per cent). Thus, it is clearly indicated that the utilization of Antenatal care services affected the acceptance of family planning methods even after controlling for literacy. Therefore, the importance of use of antenatal care services for promoting, acceptance of family planning can be well emphasized.

Analysis of Variance in Contraceptive Use

From the foregoing bi-variate analysis it is obvious that the use of contraceptives is influenced independently or jointly with background attributes of women. In the present analysis, an attempt has been made to disentangle their association and determine the importance of the significant variables, which may explain the linkages. The Analysis of Variance (ANOVA) and Multiple Classification Analysis (MCA) was resorted to isolate joint effects of variables and to assess the impact of each variable on the dependent variable (Andrew, 1973). In this analysis Contraceptive use has been taken as dependent variable. The predictor variables in the analysis are: Residential status, Literacy of Women, Literacy of Husband, Caste, and Utilization status of Antenatal care. The current age of women has been taken as co-variate in the model. Table 4(a) presents the result of hicerarchial analysis of variance and Table 4(b) presents the multiple classification analysis. The age of women has been introduced first in the analysis as a co-variate in order to eliminate the variation in the dependent variable. The subsequent variables have been introduced in the analysis partly on the basis of their causal relationship and partly on their relevance to the study. The age of women which has been taken as co-variate is statistically significant and exhibits high F value. This indicates that age differentials among women have significant influence on use of contraceptives and need to be controlled. The analysis of variance has been done using all two-way and three-way interactions to test for the presence of any interactions between the predictor variables. It is obvious from Table 4(a) that none of the interactions were significant. Hence the application of MCA was considered to be logical in this case. Table 4(a) presents the effect of predictors on the dependent variable. The predictors; Literacy of Women, and Utilization status of Antenatal care services show high significance ($P \leq 0.01$). The Caste of Women and Residential status exhibit significance at 5 percent level.

Table 4(a): Analysis of Variance of Contraceptive Use by Selected Background Characteristics of Women, Orissa

Source of Variation	Sum of Square	DF	Mean Square	F
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Covariates	106855.80	1	106855.80	71.44**
Age of Women	118037.55	5	23607.51	15.78**
Main Effects	18848.46	1	18848.46	12.60*
Residence	48615.57	1	48615.57	32.50**
Literacy of Women	7216.17	1	7216.17	4.82
Literacy of Husband	13650.86	1	13650.86	9.13*
Utilization of ANC	29706.50	1	29706.50	19.86**
Interactions	24242.78	10	2442.78	1.62
2-way Interactions	11065.68	10	1106.57	0.74
3-way Interactions	260201.81	26	10007.76	6.69**
Explained Residuals	3443336.19	2302	1495.80	
Total	3703537.99	2328	1590.87	

* Significant at $P < 0.05$;

** Significant at $P < 0.01$

Table 4(b) presents the results from MCA. The main advantage of the MCA technique is that, it provides the grand mean of the dependent variable as its constant term and a set of category means for each factor expressed as deviations from the grand mean as main effects. The result in this analysis show that the grand mean of the dependent variable, i.e., Use of Contraceptives is 19.84 per cent. The effect of predictors on dependent variables is revealed through this table as we examine the adjusted category means. The adjusted means in Urban & PHC's villages is 21.07 ($19.84 + 1.23$) compared to 19.1 ($19.84 - 0.74$) in rural areas. The women in illiterate group have a lower acceptance of contraceptives than in the literate group. The adjusted means were 18.41 for illiterates and 24.22 for literate. Further, for the women who have utilized Antenatal care services, the adjusted means were 25.53 as compared to 17.29 for women who have not utilized antenatal care services. Thus, the findings clearly bring out that proximity of service center, caste, literacy level and utilization status of antenatal care service by women are important predictors. However, the predictor utilization status has come out as most important, as exhibited through a strong beta value and a high category mean. Table 4b brings out that the beta value is rather strong (0.10) for the variable Utilization of antenatal care, and also category mean for the utilized group is the highest (25.53) as compared to those

not utilizing antenatal care services even after controlling for other variables, including literacy.

Table 4(b): Results of Multiple Classification Analysis showing the relationship between Contraceptive Use (in percentages) and predictors, through unadjusted and adjusted category means, Orissa

Predictors & Categories	No. of Cases	Unadjusted Values (Eta)	Adjusted Values (Beta)
<i>Residence</i>	876	23.52	21.07
Urban & PHC's Rural	1453	17.62	19.10
Rural		(0.07)	(0.02)
<i>Literacy of Women</i>	1756	17.49	18.41
Illiterate	573	27.05	24.22
Literate		(0.10)	(0.06)
<i>Literacy of Husband</i>	1230	16.59	18.45
Illiterate	1099	23.48	21.39
Literate		(0.09)	(0.04)
<i>Caste</i>	690	13.77	16.21
Sch. Caste & Sch Tribe	1639	22.39	21.37
Other groups		(0.10)	(0.06)
<i>Utilization of ANC</i>	722	27.84	25.53
Utilized ANC	1607	16.24	17.29
Not Utilized ANC		(0.13)	(0.10)

Grand Mean = 19.84

Mult. R = 0.246

Mult. R² = 0.061

No. of Cases = 2329

Discussion

The findings from the study throw light on the hidden potential of maternal health care services. One important function of antenatal care services is to identify and monitor services to pregnant woman and thus it serves to establish rapport between women and paramedics. The program of antenatal care not only provides preventive interventions, but also nutrition, education, post-partum family planning, etc., (Govindasamy, 1993). The very contact between women and providers in a health-care system can bring changes in her efforts to

seek medical assistance, as well as towards acceptance of family planning. The evidence from 2329 currently married women analysed in this study, very clearly exhibits that the utilization of antenatal care does bring changes in family planning acceptance. The findings have important program and policy implications which need to be disseminated. The implications are the following: The finding that for the same level of educational attainment the contraceptive acceptance is higher for the women utilizing antenatal care services even in the villages having no health facilities, is very encouraging. It gives support to the hypothesis that contact with the health-staff in the antenatal or post-natal period may increase the chances of the acceptance of family planning methods. One may agree that increasing the levels of education could be a very slow process but improvement in antenatal care services lies well within the domain of an action program. Thus, the finding points out the importance of strengthening of the maternal and child health services in general, and antenatal care services in particular.

Summary and Conclusions

The present analysis has been carried out to find whether the contact of pregnant women with the MCH staff during utilization of antenatal care services increases the chance of acceptance of family planning methods. This was done by using the data collected from currently married women from 80 villages of Orissa who had a live birth during past four years period from the survey date. The analysis was carried out for two areas (stratum 1 & 11) based on the proximity of health services. The villages, which did not have any facility of health services, was one, and tile urban sector and villages where either Primary Health Centre or sub-center was located, was the second area. It was found that there is a positive association between the utilization of antenatal care services and ever-use of family planning methods, with women utilizing antenatal care services showing a higher percentage of acceptance of family planning methods. It was also found that after controlling for proximity of health services and literacy, the extent of the practice of family planning was higher among the mothers who had utilized antenatal care services. Indeed these findings have important program implications, and just by strengthening the MCH services, the possibility of increase in the practice of family planning would increase, besides the increase in child survival and safe motherhood.

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