

**EFFECT OF DAILY AND ALTERNATE DAY IRON
FOLIC ACID SUPPLEMENTATION TO PREGNANT
FEMALES ON HAEMOGLOBIN LEVEL**

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ABSTRACT

This article presents the effect of daily and alternate day iron folic acid supplementation (100 mg elemental iron in the form of ferrous sulphate and 500 microgram of folic acid) on blood haemoglobin levels of the pregnant women in a rural area of East Delhi. Out of the 200 women enrolled in the study, 120 completed the course of the study; including 64 who took the iron folic acid supplementation daily (Group I) and 56 took the supplementation on alternate days (Group II). Both the groups were monitored for side-effects and their haemoglobin level. Incidence of side-effects was lower in group II (alternate days) and there was no significant difference in the initial and final haemoglobin levels in both the groups.

Nutritional anaemia is a problem of great magnitude the world over with a much higher frequency in the developing countries¹. Anaemia still remains an important nutritional and public health problem especially in pregnant females affecting more than 40 per cent of our pregnant women². About one fifth of maternal deaths can be directly associated with anaemia while in an equal proportion of deaths it is indirectly related^{3,4}. Besides, it also influences the fetal outcome and the birth weight of the baby. Supplementation with iron folic acid during pregnancy is an effective method for preventing the mortality and morbidity associated with anaemia and improving the outcome of pregnancy⁵. For the desired results to be obtained it is necessary for the patient to adhere to regular supplementation. Patient compliance is an important aspect of this nutritional prophylaxis and the problem remains very much there despite two decades of our MCH programme. One important cause of non-compliance by patient is side-effects of the drug^{5,6}. It, thus, becomes important to increase the patient

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compliance to the treatment so as to tackle the problem and the side-effects of the drugs being one important cause, minimising the side-effects may be one of our concerns without decreasing the efficacy of the treatment if possible. One such way of decreasing the side-effects and thus increasing the patient compliance is alternate day supplementation of iron folic acid in place of daily supplementation⁷. Blood haemoglobin has been considered to be a good indicator of response to haematinic supplementation all over the world⁷. This study was carried out to see the response of daily and alternate day iron folic acid supplementation 100 mg of elemental iron and 500 (mg of folic acid (self-administered and unsupervised) on Hb levels in rural pregnant women.

MATERIALS AND METHOD

Sample size: Hb level was considered as a parameter to estimate the response to supplementation. The minimum change it was desired at a given level of probability (80% power) at a given level of significance ($\alpha = 0.05$). A sample size of sixty is required allowing a provision of dropout rate of 20 per cent. It was proposed to enrol 100 women in each supplement group in the health centre. The study was carried out during January-December 1994 in Ghazipur Health Centre, Delhi.

Pregnant women with gestation 20 week $\pm$ 4 week were considered as sample in this study. Criteria for exclusion were having tuberculosis, chronic disease, toxemia, bleeding piles, haemoglobin level less than 7 gm per cent. Randomly the females were assigned to two different groups. First group received 100 mg elemental iron as ferrous sulphate and 500 microgram of folic acid daily while the second group received same dose on alternate days. Haemoglobin estimation was done by Sahli's method, first at the time of enrolment and second when the regimen was completed or in the last 2 weeks of pregnancy, whichever was later. Frequent surprise tablet counts were carried out at the houses of the women.

Data analysis: Data so collected were analyzed to find out the effect on the haemoglobin concentration on the two groups. Appropriate statistical tests were applied wherever applicable to establish the differences in the two groups.

RESULTS AND DISCUSSION

A total of 200 pregnant women were enrolled for the study, of which only 120 could complete the course of therapy. Of these 120 women, 64 were given iron folic acid tablets (100 mg elemental iron and 100 microgram of folic acid) (Group I) and 56 were given iron folic acid tablets every alternate day (Group II).

Table 1 shows the characteristics of both the groups. Most of the pregnant women were below 30 years of age and only 9.2 per cent were above 30 years. Most of these belonged to lower middle socio-economic group. Nearly 30 per cent of these women were illiterate. Both the groups were comparable and difference in literacy levels was not statistically significant. More than one-third (35.9%) women were registered before 20 weeks of gestation and inter-group variation was not statistically significant. Approximately one-fourth (23.4%) were primigravida. Almost two-fifth of the females (37.4%) were third gravida. It is evident that the two groups were similar with respect to age, education, and gestation in weeks gravida statuswise. Similarly the two groups were indifferent for their haemoglobin concentrations.

TABLE 1
CHARACTERISTICS OF THE TWO GROUPS

Characteristic	Group I (%) (n = 64)	Group II (%) (n = 56)	Total (n = 120)	Chi square test
1.Age (in years)				
<30	48.3	42.5	90.8	$\chi^2=3.312$, df=1, p=0.346
30	5.0	5.1	9.2	
2.Literacy				
Illiterate	31.6	29.6	60.8	$\chi^2=4.434$, df=4, p=0.489
Primary	6.6	6.6	13.2	
Middle	10.0	6.6	16.6	
High School/Matric/	5.0	3.3	8.3	
College	0.0	0.8	0.8	
3.Gestation (in weeks)				
<16	8.3	6.7	15.0	$\chi^2=0.167$, df=2, p>0.05
17-20	11.6	9.3	20.9	
21-24	33.3	30.9	64.1	
Total	53.3	46.7	100.0	
4.Gravida status				
Primi	12.5	10.9	13.4	
2nd	11.6	10.0	21.6	
3rd	19.1	18.3	37.4	
4th	4.1	5.1	9.2	
5th	3.3	2.5	5.8	
Total	53.3	46.7	100.0	$\chi^2=0.340$, df=1, p>0.05

Group I Daily supplementation with iron (100 mg elemental in the form of ferrous sulphate) and folic acid (500 gm)

Group II Alternate day supplementation with iron (100 mg elemental in the form of ferrous sulphate) and folic acid (500 gm).

Table 2 shows haemoglobin status before and after the supplementation of haematinic of both the groups. Before starting haematinic supplementation about four-fifth (79.2%) of the total 120 subjects were having their haemoglobin level less than 10g/dl. The percentage of subjects having haemoglobin less than 10g/dl was 76.6 per cent (49 out of 64) and 82.1 per cent (46 out of 56) in group I and II respectively. There was no statistically significant difference between group I and II regarding their haemoglobin status before the starting of supplementation or after the supplementation.

TABLE 2

**HAEMOGLOBIN LEVEL BEFORE AND AFTER HAEMATINIC SUPPLEMENTATION
IN THE TWO GROUPS**

Group	Initial		After Supplementation		Total
	<10/dl	>10g/dl	<10g/dl	>10g/dl	
Group I	49 (76.6)	15 (23.4)	31 (48.4)	33 (27.5)	64 (100.0)
Group II	46(82.1)	10(17.9)	34(60.7)	22(39.3)	56(100.0)
Overall	95 (79.2)	25 (20.8)	65 (54.2)	55 (45.8)	120(100.0)

$\chi^2 = 0.564$, df = 1, $p > 0.01$ (group I vs group II initial)

$\chi^2 = 1.183$, df = 1, $p > 0.01$ (group I vs group II after supplementation)

$\chi^2 = 10.800$, df = 1, $p < 0.01$ (group I initial vs group I after supplementation)

$\chi^2 = 6.300$, df = 1, $p < 0.01$ (group II initial vs group II after supplementation)

In group I mean haemoglobin concentration initially was 9.6 g/dl (Table 3). Finally after supplementation the mean haemoglobin in this group was found to be 10.3 g/dl and percentage of females with haemoglobin level was less than 10g/dl came down to 48.4 per cent. In comparison to group II, mean haemoglobin concentration initially was 9.7 g/dl. Finally after supplementation the mean haemoglobin in this group was found to be 10.2 g/dl and percentage of females with haemoglobin level was less than 10g/dl came down to 60.7 per cent.

Table 4 depicts the dose response in the two groups with increasing number of iron folic acid tablets consumed. There was a significant difference in the haemoglobin levels, initial and after supplementation in all the groups who consumed more than 20 tablets in all.

TABLE 3
MEAN HAEMOGLOBIN CONCENTRATION BEFORE AND AFTER IRON SUPPLEMENTATION IN THE TWO GROUPS

Group	Mean Haemoglobin Concentration g/dl		Paired T test p value
	Initial	After supplementation	
Group I	9.598±0.864	10.327±0.913	<0.0001
Group II	9.736± 0.939	10.239± 0.824	<0.0001
Overall	9.658± 0.896	10.286± 0.870	<0.0001

TABLE 4
DOSE RESPONSE OF GROUP I AND II AFTER IRON FOLIC ACID TABLETS SUPPLEMENTATION IN DIFFERENT AMOUNTS

Group 1					Group II				
No.of tablets	No.of pairs	HB cone mean± sd initial	HB cone mean ± Sd final	p value of 12 tailed' paired t test	No.of tablets	No.ot pairs	HB "cone mean± sd initial	HB cone mean ± so Initial	p value of 2 tailed paired ttest
≤20	10	9.950 ±0.657	9.960 ±0.776	0.891	≤20	11	9.709 ±0.538	9.864 ±0.555	-0.290
21-40	18	9.511 ±0.935	10.050 ±0.988	0.006	21-40	20	9.70 ±0.737	10.155 ±0.594	0.007
41-60	20	9.635 ±1.099	10.42S ±0.872	0.006	≥41	25	9.418 ±0.918	10.264 ±0.887	0.002
61 -80	12	9.717 ±0.685	10.588 ±0.742'	<0.001	-	-	-	-	-
61-100	4	9.500 ±0.707	11.25 ±1.038	0.029	-	-	-	-	-

Table 5 summarizes the findings in the two groups according to the initial haemoglobin status of the pregnant females. It is noticeable that mean haemoglobin rise per patient and per tablet were negative in those patients of group II who had their initial haemoglobin levels more than 10 g/dl. The results obtained for those females who were having a initial haemoglobin level of less than 10 gm /dl were better as compared to females with more than 10 gm/dl Hb level in both the groups, while there was not much difference in the groups I and II. The favourable response to the iron folic acid supplementation can be attributed

to the established fact that the capacity and efficiency to absorb and utilize iron is enhanced in iron deficiency stages such as in pregnancy or in iron deficiency anaemia⁷.

TABLE 5

CHANGES IN BLOOD HAEMOGLOBIN LEVEL IN RESPONSE TO IRON FOLIC ACID TABLET SUPPLEMENTATION DURING PREGNANCY IN THOSE HAVING BLOOD HAEMOGLOBIN LEVEL LESS THAN 10 G/DL AND IN THOSE MORE THAN 10 G/DL

		Group I	Group II
Hb<10g/dl	Total tablets	1935	1268
	Mean initial Hb	9.01	9.06
	Mean final Hb	10.09	10.07
	Mean rise/per patient	1.05	1.00
	Mean rise/per tablet	0.020	0.024
Hb>10 g/dl	Total tablets	1237	963
	Mean initial Hb	10.40	10.56
	Mean final Hb	10.64	10.45
	Mean rise/per patient	0.24	(-) 0.11
	Mean rise/per tablet	0.005	(-) 0.003

Overall for Group I mean Hb rise per patient = 0.712 g/dl
 mean Hb rise per tablet = 0.014 g/dl
 For Group II mean Hb rise per patient = 0.504 g/dl
 mean Hb rise per tablet = 0.013 g/dl

CONCLUSIONS AND RECOMMENDATIONS

The anaemia continues to be an important problem in pregnant women despite the MCH programme being operational for more than two decades. Supplementation of iron in both the groups was statistically significant in increasing the haemoglobin-level. Further research is needed on behavioural component of non-compliance and dietary practices and study the effect of alternate schedules and different dosages to get the optimum outcome of pregnancy. In the pregnant females, having problems or side-effects with daily iron folic acid supplementation

alternate day supplementation with the same dosages can be given a consideration so as to improve their haemoglobin status.

सारांश

प्रस्तुत लेख में पूर्वी दिल्ली के एक ग्रामीण क्षेत्र में गर्भवती महिलाओं को रक्त में हीमोग्लोबिन स्तर पर प्रति दिन और वैकल्पिक दिन (एक दिन छोड़कर) आयरन फालिक एसिड की गोलियां (फेरस सल्फेट की 100 ग्राम तथा अमिश्रित आयरन की 500 माइक्रोग्राम) दिए जाने पर उन महिलाओं पर होने वाले इन गोलियों के प्रभाव के बारे में प्रकाश डाला गया है। अध्ययन में शामिल 200 महिलाओं में से 120 महिलाओं द्वारा ही अध्ययन की अवधि पूरी की गई थी, जिनमें 64 ऐसी महिलाएं शामिल थी जिन्होंने आयरन फालिक एसिड की गोलियां प्रतिदिन लीं थी, (ग्रुप 1) और 56 महिलाएं ऐसी थी जिन्होंने गोलियां वैकल्पिक दिन पर ली थी (ग्रुप 2) महिलाओं पर इन गोलियों के दुष्परिणाम तथा उनके हीमोग्लोबिन स्तर को जांचने के लिए दोनों समूहों की महिलाओं का प्रबोधन किया गया था। दूसरे ग्रुप की महिलाओं (वैकल्पिक दिन पर गोली लेने वाली महिलाएं) में इन गोलियों के कम दुष्परिणाम देखे गए और दोनों ही समूहों की महिलाओं के प्रारम्भिक और अन्तिम हीमोग्लोबिन स्तर में कोई विशेष उल्लेखनीय अन्तर नहीं पाया गया।

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INVENTORY CONTROL BY ABC AND VED ANALYSIS IN MEDICAL STORES DEPOT OF CGHS DELHI

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ABSTRACT

For evolving a selective inventory control for use at MSD of CGHS, Delhi, the authors have made a thorough ABC and VED analysis in this paper. The classification of various categories in this paper include 52 items (17.8%), consuming 70 per cent of the budget as 'A' category; 66 items (22.6%), consuming 20 per cent of the budget as 'B' category and 174 items (59.6%), consuming 10 per cent as 'C' category. The number of vital items was found to be 15 (5.1%), essential items were 172 (58.1 %) and desirable items were 109 (36.8%). The authors also corroborate in this paper that the basic challenge of the inventory control is to balance the benefits of keeping stock on hand against the cost of stock holdings.

The Central Government Health Scheme (CGHS), formerly Contributory Health Scheme, was launched in Delhi by the Government of India in 1954, primarily as an organised health insurance scheme, with the objectives of promoting and providing comprehensive and satisfactory medical care services to the central government employees and their families¹

To fulfil the requirements of such a large organisation with 118 dispensaries and 4 polyclinics spread over whole of the city, an efficient and large supply system is vital. The CGHS has its own supply system, the centre of which is the Medical Stores Depot (MSD). The MSD has to procure adequate stocks of medical and other supplies for distributing to dispensaries.

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The logistics and supply management of drugs continue to suffer from inadequate attention of the administrators. In recent years the expenditure on materials and supplies has been rising at a phenomenal rate without any concomitant improvement in health care services. The total CGHS budget has shown a marked increase from about rupees 39 crore in 1992-93 to about 55 crore in 93-94 and the "materials and supplies" budget has shot up from rupees 17 crore to about 31 crore for the same period. On the one hand there is a glut of expensive and extravagant drugs with limited medical potential while on the other there is an alarming scarcity of essential and life saving drugs.

The basic challenge of inventory management is to balance the benefits of keeping stock on hand against the costs of stock-holding.

Therefore, it is desirable to classify the items and subject each class to control in accordance with use, consumption, nature, lead time, etc. through ABC, VED, FSN, HML and SDE analysis.

ABC analysis is carried out from a capital investment angle and is based on the principle of 'Vital few, trivial many' since a higher degree of attention is focused on vital few, which effect the result significantly. Every item in the inventory is listed in order of its annual value of its usage. These classes of items can be identified as:

Category	Per cent of Items	Per cent of Annual Expenditure
A	10-15	70-80
B	20-25	15-20
C	60-70	5-15

VED analysis is based on the criticality of an item and its effect on the functioning of an institution. "V" stands for vital items without which an institution cannot function necessitating control by the top management. "E" stands for essential items without which an institution can function but may affect the quality of the services to some extent requiring control by the middle level managers. "D" stands for desirable items without which an institution's functioning will not suffer and its management can be delegated to lower level managers.

OBJECTIVE

To carry out ABC and VED Analysis of the drugs supplied and couple them together to evolve selective inventory control for use at MSD of CGHS.

METHODOLOGY

All the drugs listed in the formulary for the reference year 1994-95 were considered for analysis.

For ABC analysis, the unit cost was multiplied by the annual consumptions of the items and the resulting figure were arranged in descending order of rupee values. A separate column for cumulative figures were drawn up and drugs consuming 70 per cent of the total were characterised as 'A', next 20 per cent as 'B' and the rest 10 per cent as 'C' items.

For VED analysis, proformae containing all the drugs were distributed to a panel of ten medical personnel comprising 5 specialists, one each from the disciplines of Surgery, Medicine, Gynaecology, Paediatrics and Dermatology and five senior CMOs representing the GDMOs. They were asked to subjectively classify the drugs into vital, essential and desirable. The drugs were classified into specific categories if more than 50 per cent members of the panel concurred.

FINDINGS

TABLE 1
ABC INVENTORY ANALYSIS OF DRUGS

Drug list characteristics	ABC Category			Total
	A	B	C	
% of total annual consumption	70.1 (70% approx.)	20.1 (20% approx.)	9.8 (10% approx.)	100
Value of annual consumption	Rs. 229112874/-	Rs. 65707413/-	Rs. 32112121/-	Rs. 326932414/-
% of all items	178	22.6	59.6	100
Number of items	52	66	174	292

Table 1 shows that only 52 items (17.8% of the total) consume 70 per cent of the budget i.e. Rs. 229112874/- and are categorised into 'A' group. 66 items (22.6% of the total) consume about 20 per cent of the budget i.e. Rs. 65707413/- and are categorised into 'B' group while the balance of 174 items comprising 59.6 per cent of the total consume the rest, i.e., 10 per cent of the budget i.e. Rs. 32112121/- and are grouped into 'C' group.

TABLE 2

**THE PERCENTAGE OF ANNUAL CONSUMPTION VALUE OF THE TOTAL AS AGAINST
THE PERCENTAGE OF DRUG ITEMS IN SPECIFIC RANGE**

Percentage of drug items	Number of items	Annual consumption value in Rupees	Percentage of Annual Consumption
10	29	185826784/-	56.8
20	58	237761934/-	72.7
30	88	271613051/-	83.1
40	117	294198087/-	89.9
50	146	306964181/-	93.9
60	175	315816907/-	96.6
70	204	321276861/-	98.3
80	233	324951523/-	99.4
90	263	326494095/-	99.8
100	292	326932414/-	100.0

Table 2 depicts the percentage of drug items in the ascending incremental order against the corresponding consumption value in actuals as well as in percentages. It shows that for an uniform incremental increase of 10 per cent from 10 per cent to 100 per cent, the rate of increase in percentage of annual consumption is gradually decreasing. Thus while 40 per cent of items consume 89.9 per cent of the expenses, 50 per cent of the items consume only 93.9 per cent *is*. an increase of only 4 per cent (93.9-89.9). Further, 60 per cent of items cost only 96.6 per cent, an increase of a mere 2.7 per cent (96.6-93.9), which is still lesser than the previous increase of 4 per cent⁴.

TABLE 3
NUMBER AND PERCENTAGE OF DRUGS BELONGING TO 'V', 'E' AND 'D' CATEGORIES
(V.E.D. CLASSIFICATION)

Category	Total No. of Items	% of total items	Concurrence of judges on items					
			100%	90%	80%	70%	60%	50%
V	11	3.8	1	0	3	1	3	3
E	172	58.9	6	16	54	44	21	31
D	109	37.3	4	24	32	15	20	14
TOTAL	292	100.0	11	40	69	60	44	48

Table 3 shows that the drugs falling into V category are only 11, 'E' category are 172 and in 'D' category are 109.

TABLE 4
DIFFERENT COMBINATIONS OF ABC AND VED CLASSIFICATIONS
(ABC-VED MATRIX)

	V		E		D		Total No. of drugs	%age of drugs
	Combined Category	Numbers	Combined Category	Numbers	Combined Category	Numbers		
A	AV	0	AE	35	AD	17	52	17.60
B	BV	3	BE	41	BD	22	66	22.60
C	CV	8	CE	101	CD	65	174	56.80
	TOTAL	11		177		104	292	100.00

Table 4 shows that by combining ABC and VED classification, the drugs can be divided into nine sub categories of which AV, BV, CV, AE and AD can form class I, while BE, BD and CE can form class II and CD alone can constitute class III for selective control.

DISCUSSION

A classic ABC classification demonstrates that 70 per cent of the total amount is consumed by only 10 per cent of the items. But, in this study it has been found that 17.8 per cent of drugs consume 70.1 per cent of the total. This excess of 7.8 per cent (17.8-10) is on account of the expenses incurred for local purchase of costly non-listed medicines/vaccines like Rabipur, Engerix B, Ceftum, Oxacillin etc. and costly imported drugs. No detailed and systematic records are available for the same as these are mostly procured at the peripheral dispensary level from the designated local chemists and since most of these medicines are non listed, their consumption value cannot be reflected in the regular indents either. Had these been listed and their records available then most of these few costly medicines would have found their way into the 'A' category by virtue of their incurring high costs and pushed down many of the non-listed 'A' group items into 'B' group, resulting in gross reduction in the number of 'A' group items to around 10 per cent of the total and thereby conforming to the classical ABC concept'.

The ABC curve will be in the shape of a parabola. From the curve it is possible to deduce instantly what percentage of drugs consume what percentage of total expenditure. ABC classification is done with the purpose of having selective control over the inventory management. The 'A' category of drugs because of their being responsible for a larger amount of consumption value, should have a tighter control and management by the top level. Their order frequency should be more with a smaller safety stock. Accurate forecasting techniques should be used for forecasting their requirements. The 'B' category of drugs should have middle level management control, relatively larger safety stock and quite accurate forecasting. The 'C' category of drugs should have large safety stocks, their order quantity should be high and ordering frequency should be low and this could be left with the management at lower level'.

Since VED classification is based on the criticality of drugs, it follows that the 'Vital' drugs should never be out of stock, their safety should be high and these drugs must be closely supervised by the top management. The 'Essential' drugs should have minimum possible stock-outs and could be supervised by the middle level management, while 'Desirable' drugs can be left to the supervision at lower level as their stock-out is not going to affect the health care services.

The ABC-VED matrix shows that management of 63 (52+11) items of class I, would help in keeping a check on the annual budget expenses, at the same time making available the vital items. The management of 164 (22+41+101) items comprising the class II could help in providing all the essential drugs an effort could also be made to bring down the number of AD items which are a good

17 in number. These items take away a good chunk of the budget and their nonavailability is not going to make much difference to the quality of health care provided by the organisation².

CONCLUSIONS

In spite of various advantages outlined in the discussion above, no ABC and VED classification are being undertaken at the MSD of CGHS, Delhi, at present. Moreover, in the present scenario, management with these classifications is difficult because the provisioning and subsequent orders are placed for the whole year in advance and that too only from one source.

However, in the light of the expected policy changes regarding procurement of drugs from multiple sources, these methods for selective inventory control should be kept in mind.

सारांश

प्रस्तुत लेख में केन्द्रीय सरकार स्वास्थ्य योजना, दिल्ली के मेडिकल स्टोर्स डिपो में एए चयनित उपादान नियन्त्रण प्रणाली तैयार करने के लिए लेखकों द्वारा एक गहन ए बी सी और वी ई डी विश्लेषण किया गया है। इस लेख में शामिल की गई विभिन्न मदों को बजट के 70 % भाग को व्यय करवाने वाली 52 मदों (17.8%) को ए श्रेणी, बजट के 20 % भाग को व्यय करवाने वाली 66 मदों (22.6%) को बी श्रेणी और बजट के 10 % भाग को व्यय करने वाली 174 मदों (59.6%) को सी श्रेणी में वर्गीकृत किया गया था। महत्वपूर्ण मदों की संख्या 15 % (5.1%) पाई गई, अनिवार्य मदों की संख्या 172 (58.1%) थी, और वांछनीय मद 109 (36.8%) थे। लेख में लेखकों द्वारा इस बात की पुष्टि की गई है कि उपादान नियन्त्रण को बुनियादी चुनौती धारित स्टॉक जमा रखने के लाभों के मध्य संतुलन बनाए रखना है।

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**AN ASSESSMENT OF COMMUNICATION
ACTIVITIES FOR WOMEN IN
REPRODUCTIVE AGE IN HARYANA**

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ABSTRACT

This paper attempts to assess the availability and acceptability of electronic media and inter-spouse communication for family planning among ever married women between age 13 and 59 years, living in Haryana State. It also highlights the reach and effectiveness of communication efforts being performed by health and family welfare delivery system in the State. An attempt has also been made to assess the interpersonal communication skills among medical officers, Block Extension Educators and Multi-purpose Health Workers and their supervisors in Haryana. The author concludes that the availability of electronic media and use by the women in reproductive age is comparatively higher than the national level. The television is gaining viewership at a faster rate in Haryana than radio. The acceptability of family planning messages presented through electronic media to Haryana women is comparatively higher than the overall national level. It was also observed that among women who use contraceptive almost half of them have been exposed to family welfare messages through electronic media.

The communication activities have contributed significantly for promoting health and family welfare programmes in the country by increasing the awareness and knowledge of people about various contraceptive methods. It has also played a crucial role for creating conducive environment for adopting such methods in urban as well as in rural areas. The electronic media, particularly radio and television have tremendous role in this venture. Of course, the empirical studies have also shown that no single medium is effective as compared to media used in combination. It is in this perspective that the national health survey conducted in 23 States of India has gathered useful information about media and their reach, particularly for electronic media in relation to family welfare programmes. This

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paper analyses certain issues in relation to communication activities for women in reproductive age in Haryana.

METHODOLOGY

The first part of the paper has been derived from data presented in National Family Health Survey (1993), Haryana, conducted by the Population Research Centre, Punjab University, Chandigarh, in collaboration with International Institute for Population Sciences, Bombay; East West Centre, Hawaii and Macro International, USA. The study findings in relation to the National Family Health Survey are based on the interviews conducted among a sample of 2,946 ever married women from 2,734 households in Haryana. The second and third parts of the paper have been taken from data collected from M.D. thesis work of Dr. S.K. Behl, C.M.O. (MCH), Delhi Administration, Government of Delhi, who intensively analyzed communication activities and the materials developed and disseminated at a primary health centre level in one of the districts of Haryana State.

FINDINGS

Profile of Haryanavi Women

Some of the important indicators of quality of life being among women are (a) expectancy of life at birth for women; (b) the educational status of women; (c) total fertility rates; (d) age at marriage of women; (e) sex ratio; (f) working status of women; and (g) infant mortality rates.

It is recognized that Haryana is one of the progressive States in India and enjoys third place among the States having the highest per capita income. After Maharashtra and Punjab, Haryana per capita income was Rs.3499 in 1990-91 as compared to only Rs.2199 for India during the same period. From the census data for the last three decades, it can be seen that the literacy rate among women in Haryana has doubled between 1971 and 1991 from 24 per cent to 56 per cent. Although this improvement in literacy is more pronounced among women than males, the overall educational status of women is only 40.5 per cent. Further, the rural women continue to be less educated than urban women. The educational status of women ever married between 13 and 49 years in age in Haryana is still dismal with almost 64 per cent of them being illiterate. Around 74 per cent of rural women ever married are illiterate in comparison to 35.1 per cent in urban areas in Haryana. The school attendance ratio at the age 6-14 for female is 75 per cent. Among this population group of ever married women almost 71 per cent of them are not gainfully working.

The life expectancy of women in Haryana has increased from 59.6 years to 62.0 years during 1981-91 and is higher than the national average of 59.1 years. Although total fertility rate witnessed a decline from 6.7 in 1971 to 4.0 in 1991. Yet, it continues to be higher than the national total fertility rate of 3.6. The infant mortality rate (1992) is also registering a decline to 75 per thousand live births in comparison to 79 at national level. The couple protection rate in Haryana has shown a remarkable increase from 12.2 per cent in 1971 to 55.9 per cent in 1992. This rate has doubled from the decade of 1981 to 1991. The couple protection rate is much higher in Haryana (55%) when compared to all India level couple protection rate which is 42.0 per cent. The most disturbing aspect of Haryana women relates to sex ratio rates, which are unfavourable towards them. In Haryana, sex ratio is only 865 for 1000 males which is significantly lower than the national average of 927 per 1000 males.

From these findings, it is easy to infer that Haryana women are in the process of demographic, social and economic change and this change is more pronounced in the area of literacy, life expectancy and infant mortality rates which have direct bearing on the quality of life being enjoyed by the women in Haryana. However, the distributing aspects of staggerly low sex ratio is indicative of many social evils which have bearing on the social status of women in the State.

Availability of Electronic Media

With the process of modernization, industrialization, the inputs of media technology and its appropriate use have also influenced the nature and pace of development. It is even being hypothesized that non-availability of media is one of the important impediments to development perspectives in any given society. The role of communication in creating awareness, the sustaining of interest and finally adopting positive behaviour towards development are time tested important inputs. In family planning, the first and second phases have since been covered, the third stage of adoption is taking proportionately much longer time. In progressive States like Haryana, it is natural to expect that people should possess the capacity to possess all required electronic media in rural and urban households. However, the data indicate that the availability of radio sets is comparatively higher (63.8%) among urban households than among rural households (44.4%). This would mean that more than half of Haryana rural women in reproductive age do not possess even a small transistor set which is comparatively cheaper medium in India. At State level also, situation remains the same. Although, the situation is favourable for Haryana when compared to national average of 32.6 per cent women possessing radio sets, yet the non-availability of radio to half of women in Haryana itself is to be viewed as an important impediment to developmental initiatives in the State.

Television, comparatively a costly medium, has proved to be effective than radio. In Haryana around 40 per cent of households own television in comparison to 16.8 per cent at national level. The urban households are again much better (71.5%) in comparison to rural households (27.6%) in possession of television sets.

Use of Electronic Media

The availability of television or radio in household itself may not always indicate its use. The use of radio, television and cinema houses by the women in reproductive age in Haryana is given in Table 1.

Although more women in Haryana listen to radio than all women in the country, yet almost half of them do not listen to this medium at all (Table 1). The percentage of women who watch television in Haryana is very close to the national level. Television as a medium is shown to be better watched over a period of time than Radio and is also gaining viewership much faster than any other media. The cinema viewing by women is almost negligible in Haryana although this medium is also fairly low in the country as whole from viewership point of view. With all progressive inputs in Haryana around 40 per cent of married women in Haryana in the age group of 13-49 years are not exposed to any of the media on regular basis.

TABLE 1
DISTRIBUTION OF PERCENTAGE OF WOMEN WATCHING TELEVISION OR LISTENING TO RADIO AT LEAST ONCE A WEEK OR VISITING CINEMA AT LEAST ONCE A MONTH AMONG WOMEN BETWEEN AGE 13 AND 40 YEARS IN HARYANA

	Listen to Radio once a week	Watch TV once a week	Visit Cinema at least once a month	Not regularly exposed to any of the media
Haryana	49.0	43.0	2.0	39.9
India	32.0	44.0	15.0	47.0

It is, however, amazing that although the possession of radio in Haryana is higher, the listening of the same is less indicating therein that the possession of media is no guarantee to its use. In case of television the viewership is slightly higher than those who possess it (in both case, urban possession is higher and the urban use is much lower).

TABLE 2

PERCENTAGE OF WOMEN BETWEEN AGE 13 AND 49 ACCORDING TO THEIR POSSESSION OF RADIO, TELEVISION AND THEIR USE IN HARYANA AND INDIA

	Possession of media		Overall Haryana	Use of electronic media at least once a week
	Rural	Urban		
Radio	44.4	63.8	50.0	49.8
Television	27.6	71.5	40.0	48.9

A further analysis of those who listen to radio or watch television or cinema reveals that comparatively educated women are more prone to use electronic media than illiterate women in Haryana. Among scheduled caste more than half of the women in reproductive age group use these media. In this manner the urban women tend to use electronic media more than rural women. However, education as a variable in both the situations is influencing the listening and viewership of electronic media.

Family Welfare Messages Seen or Heard on Electronic Media

It would be of interest to assess the extent to which health and family welfare messages broadcast on radio or beamed on television are ever listened or seen by women in the age group of 13-49 in Haryana. Government of India and even State Governments' local radio stations have been on regular intervals giving messages regarding health and family welfare. Table 3 comprehensively provides the details about the same.

Fifty-seven per cent of women in Haryana in reproductive age have never either heard nor seen any family planning message on electronic media. The country's situation is, however, still dismal where around 67 per cent of the women have neither heard nor seen any family planning message on radio or television. These findings clearly indicate the potential for utilization of electronic media for supporting family planning programme. When television and radio are even combined not even one third of Haryana women have seen family planning messages on television or radio.

After having examined the extent of possession of electronic media, their use and the extent to which family planning messages were seen by women in Haryana, it would be worthwhile to examine the extent to which such messages

TABLE 3
PERCENTAGE DISTRIBUTION OF WOMEN 13-49 YEARS WHETHER THEY HEARD ON
RADIO OR TELEVISION MESSAGE ABOUT FAMILY PLANNING IN MONTH PRIOR TO
SURVEY

	RURAL				URBAN				TOTAL HARYANA			Neither
	Radio	TV.	Both	Neither	Radio	T.V.	Both	Neither	Radio	T.V.	Both	
Haryana	7.0	16.0	30.0	47.0	3.0	24.0	56.0	18.0	9.0	13.0	21.0	57.0"
India	15.0	6.0	22.0	57.0	8.0	13.0	48.0	31.0	17.0	4.0	13.0	67.0

shown or broadcast on radio or television are acceptable to women in Haryana. Table 4 provides details about the same.

TABLE 4
DISTRIBUTION OF PERCENTAGE OF EVER MARRIED WOMEN IN AGE 13-49 AND THEIR LEVEL OF ACCEPTABILITY OF FAMILY PLANNING MESSAGES ON ELECTRONIC MEDIA

	Acceptable	Not-acceptable	Unsure
Haryana	83.0	8.0	9.0
India	69.0	8.0	23.0

From Table 4, it can be seen that among those women who have seen or heard family planning messages on television or radio, a very high percentage of them accept such messages implying thereby that women consider electronic media as a credible source.

The effectiveness of electronic media has also been examined in a limited manner. The relationship between women who currently use contraceptives and their exposure to the messages is presented in Table 5.

TABLE 5
PERCENTAGE OF EVER MARRIED WOMEN WHO ARE CURRENTLY USING CONTRACEPTIVES AND THEIR EXPOSURE TO ELECTRONIC MEDIA

	URBAN		RURAL		HARYANA AS A WHOLE	
	Regularly exposed	Not exp. regularly	Regularly exposed	Not exp. regularly	Regularly exposed	Not exp. regularly
Haryana	61.0	37.0	47.0	46.0	53.0	45.0
India	55.0	35.0	46.0	30.0	49.0	31.0

In Haryana a comparatively higher percentage of contraceptive users among women were regularly exposed to media than women from rural areas. In rural area only 47 per cent of current contraceptive users were exposed to electronic media messages on family planning. An overall analysis suggests that Haryana State has higher number of women using contraceptives who are

exposed to media than the national level current contraceptive users.

Inter-spouse Communication

Inter spouse communication has been considered as an important input which facilitates acceptance of family planning methods and helps in decisions about number of children family would desire to possess. Table 6 examines this aspect in some details.

Comparatively higher percentage of women discuss family planning with their husbands in Haryana than the overall national level. Only one third of women in Haryana have never discussed this issue with their husbands. In comparison to almost half of such women from the country as a whole. Discussion of family planning once or twice in a year may not provide a realistic estimate of its influence on acceptance or otherwise of family planning. It is natural to assume that higher interactions in this regard would be meaningful. Only one fourth of women have interacted more frequently with their husbands about family planning in Haryana in comparison to only 13 per cent in the country as a whole.

TABLE 6
PERCENTAGE OF WOMEN 13-49 YEARS AND THEIR INTER- SPOUSE COMMUNICATION
ABOUT FAMILY PLANNING UNDERTAKEN DURING LAST YEAR

	Never	Once or twice	More often
Haryana	33.0	40.0	27.0
India	49.0	37.0	13.0

Communication Activities at Primary Health Centre in Haryana with Regard to Family Planning and MCH Services

The registers maintained by BEE and the health workers of the PHC did not contain the relevant information regarding items received by them from different sources relating to various communication aids, materials, etc. the study revealed. The records available with the DEMO of the district clearly revealed that a majority of the printed materials supplied by them to the PHC were related to family planning and very few health educational materials were distributed in case of other **national** health programmes. It was also found that some outdated printed materials were lying with the BEE and the health worker (Female) of the PHC.

villages. The other aids of communication present in the PHC were three models, a family planning kit and a film projector which had been out of order for more than one year. It appeared from the study that no proper records were being maintained regarding communication aids and equipment supplied to the PHC and the BEE or any other health personnel were not accountable in this regard.

Of the twenty eight female and ten male health workers included in the study, a majority of them, sixty per cent were in the age group of 25 to 35 years. Further 87 per cent of these workers had education from high school to the senior secondary level. Around 82 per cent of the health workers had been in service for more than three years. The average children per worker's family comes to two in this study. Four field supervisors (BEE, LHV and two Health Assistants) and five medical officers were also taken up in the study. The study revealed that none of the health workers had undergone a specific training in the area of health or family planning communication. The level of job satisfaction of the workers was assessed in relation to their remuneration; nature of job, equipment supplied, supply of medicines and co-operation received from community members, their colleagues and seniors. It was found that 10.5 per cent of the workers were not at all satisfied, 79 per cent were satisfied while 10.5 per cent were highly satisfied with their job. The usual assumption is that health workers and their supervisors working at PHC and sub-centre levels remain dissatisfied with the nature of job, while it is not found to be true in this case as more than three-fourth of health personnel were satisfied with their jobs in relation to the nature of job, remuneration received, the co-operation received from their peer group and superiors, etc.

Assessment of Communication Skills Among PHC Staff

The communication abilities of the health personnel were measured with the help of a checklist specially designed for this purpose. The study findings show that 89 per cent of the workers had clarity of language while communicating with people; 58 per cent of them were found to be able to establish rapport with people before initiating any health education activity. A majority of them 58 per cent, were also found to be using pertinent examples to illustrate their point of view. The activities found to be totally neglected by the workers were (i) giving the listener a handout, (ii) determining the listeners saturation point, and (iii) determining whether the listener had understood information (feedback). Out of a maximum attainable score of 12, the mean score worked out on the items just outlined in relation to health workers was 3.26 (S.D. +_ 1.07) out of a maximum attainable score of 12. On the basis of the overall score gained by the health workers, they were categorized into three groups. The number of workers in the low category scoring between one and four were 84 per cent and in the medium category scoring between five and eight were 16 per cent while no worker could be placed

in the high category. The field supervisors (i.e. the health assistants male and female) and the BEE had a mean score of 5.75, while the medical officers had a mean score of 3.8. The lowest score for communication abilities was found among health workers followed by medical officers. The score of health supervisors was found to be satisfactory. This finding calls for upgrading the interpersonal communication skills among health workers as well as medical officer who remain always in direct contact with community members.

K.A.P. of Health and Family Welfare Workers about MCH and Family Welfare

An attempt was also made to assess the level of knowledge, the nature of attitudes and practices of the health personnel on various dimensions of MCH and family planning. It was found that all the health personnel possessed correct knowledge about the immunization schedule required to be followed for children. Only five per cent of the health workers were possessing correct knowledge that mild URI/fever/diarrhoea were not contradictions for immunization. In this case, all the supervisors and medical officers possessed correct knowledge. Eighty four per cent of the health workers were of the opinion that vaccines could cause some bad effect on a child's health and nearly all of them had improper knowledge that vaccines could cause a generalized anaphylactic reaction. The field supervisors were generally not aware of any bad effect that these vaccines could have on the health of children.

All the health workers, the field supervisors and the medical officers advocated the use of colostrum and breast milk but the workers and the supervisors were not knowing the advantages of such practice whereas the medical officers were knowledgeable in this regard. All the health personnel had adequate knowledge about weaning of children.

A majority of the health workers had correct knowledge about the minimum number of checkups a woman should undertake during her pregnancy. All the health personnel had correct knowledge with regard to tetanus toxoid injection during pregnancy. The correct reason for giving iron and folic acid tablets during pregnancy was known only to five per cent of the health workers whereas all the field supervisors and the medical officers possessed correct knowledge in this regard. All the health workers, majority of the supervisors and the medical officers had correct knowledge about ORS and how to make it.

The female health workers, the female health supervisors and the medical officers possessed adequate knowledge about various family planning methods. The male workers and the male supervisors had correct knowledge about condom and terminal methods but their knowledge about oral pills and IUCD was found to be partial. With regard to Vit. A prophylaxis, all categories of health personnel

knew about the old schedule of giving Vit.A as the current schedule had still not reached the PHC under study. The need for periodic upgradation of knowledge on various aspects of public health problems, MCH care, family planning and follow-up has been found to be absolutely essential element of preserving the primary health care approach at village level.

The study findings further show that the majority of the health workers and the medical officers had a favourable attitude towards various aspects of contraception. The field supervisors were divided in their opinion regarding this. With regard to the contraceptive methods being used by the health workers, a majority 48 per cent, were using the IUCD followed by oral pills (8%), tubectomy (8%), and, rhythm method (5%). Twenty one per cent were not using any method. Among the field supervisors, three had undergone tubectomy and one was not using any method as not being in the reproductive age group. The medical officers were using spacing methods namely IUCD, oral pills and condoms as contraceptive methods.

With regard to the usage of the available communication aids by the health personnel in the PHC, all the health workers and the field supervisors reported to have used the poster quite regularly for communication activities in the field while all the medical officers denied its use. Only 15 per cent of the health workers reported the use of pamphlets/leaflets during the last one year. The models had been used by 5 per cent of the workers and the female health supervisor only, whereas slides, flash cards, flip charts and flannel graph have not been used at all because of their non-availability. Thirty-two per cent of health workers reported to have used charts over the last one year, whereas none of them reported having needed the family planning kit in spite of its availability in the PHC. The BEE however, claimed to be making use of it. Four per cent health workers reported to have organized an exhibition while ten per cent had organised a harikatha/bhajan. Four filmshows had been organized on a VCR in the study area over the last one year. Out of the various aids available to them, 75 per cent of health workers rated the poster as the most suitable aid for communication in the field. With regard to the most effective channel of communication, fifty-two per cent of the workers and 50 per cent of field supervisors rated the television as the first followed by interpersonal communication.

Reach and Effectiveness of Communication Efforts

It has been reported that on an average 234 visits per year by each of the health workers were undertaken. In case of female health worker; the average number of households being visited in each visit comes to 22. In case of male workers; around 100 households were claimed to have been visited during one day. The male workers on an average reported to have organized 84 group

meetings per worker over the last one year while the corresponding figure for the female workers was 60.

In order to assess the reach of various communication activities, it was found that 48 per cent of the respondents from the community had been visited by a health worker in the last one year and 86 per cent of the visited respondents reported a contact of less than 15 minutes. Only five per cent of respondents reported to have been exposed to a communication aids during their contact with the workers. The group meetings had been attended by 22.5 per cent of respondents and 22 per cent of these reported the use of a poster during these meetings. However, during observation of the health personnel in the meeting it was found that none of them was using any communication aid while talking to the community members. These observations have great value in relation to planning for communication activities at grassroots levels.

Forty per cent of the community respondents owned a television set and 56 per cent possessed a radio transistor in the study area. Of these, 99 per cent of those owning a television had seen a FP/MCH message while 89 per cent of the community members had heard such messages on radio. None of the respondents reported to have exposed to a film/exhibition/traditional folk media during the last one year. The reach of wall-paintings was also found to be fairly poor in the study area. Television was rated as the best source of communication by the respondents for the purposes of FP/MCH followed by the personal visit of female health workers to the respective households.

The study findings indicate that awareness of family planning/MCH exists to a" large extent in the community but the knowledge about the various dimensions like immunisation of children. ORS, infant feeding, weaning of children and ante-natal care was generally lacking. Thus, it is evident that there was much to be desired as far as reach and effectiveness of the communication activities with regard to family planning/MCH is concerned.

The information presented in preceding pages provide a glimpse of the IEC activities targeted to women in reproductive age in Haryana as well as the extent to which it is effectively reaching them. From the analysis made above some interesting conclusions emerge which have to be given due weightage in so far as IEC activities for promoting family planning programme in the State are concerned:

1. The pre-requisite of development is communication technology or availability of media. In spite of the fact that Haryana is one of the progressive States of the country, only half of the households were found to be possessing radio sets. Efforts may be made that at least each

household may possess radio sets which may have to be encouraged particularly in rural areas. It is not exactly known the percentage of women with age range of 13-49 who are able to operate the electronic media in the household, for viewing or listening to different programmes. This would have provided an insight into the exact use of electronic media by women themselves. From the experience in the field, it can safely be inferred that viewing television programmes and listening to radio programme is accidental, as most of the time they are occupied with their agricultural work or with their newborn children. But from the tables presented, Haryana women although by and large use "parda" have started gradually gaining their entry in health and family welfare programmes.

2. Television possession in rural Haryana is gaining ground whereas in urban areas more than three-fourth of the households have already owned television sets. For lower socio-economic strata of Haryana in rural areas, it would be important that community-based television sets are made available for which village panchayats in close collaboration with B.D.O. of the block would decide the place of keeping these sets and their maintenance problems.
3. A study to assess the work-schedule of Haryana women would reveal the time available to her for promoting and even accepting family planning programme.
4. From the data, although television and radio have been rated as credible sources of media, their potential has not been fully utilized in the State. The software in terms of programmes about promoting the family planning methods after adopting target free approach would be of great value.
5. IEC activities are being undertaken in an *ad hoc* and sporadic manner. Further, the record maintenance about the process of IEC has been poor, although the IEC activities as an output have been shown in details. The interpersonal communication for promoting male vasectomy and other methods of family planning have not been given due weightage as against tubectomy which has received fairly high acceptance among women in Haryana. This calls for evolving strategies to involve male members in decision-making process and elder male and female members of Haryana families who still influence to a large extent the crucial decisions about number of children should have, age at marriage of boy or girl. The health delivery system has to give recognition to the fact that Haryana State is the most patriarchal society in India and still male dominance about family decision continues to prevail.

6. The health workers and medical officers in a team need to have condensed training in communication/IEC. This programme should enlist broadly what constitutes the effective communication at interpersonal and print media levels. An intensive training programme on evaluation of IEC at PHC, district and State levels for DMEIO and State level officers would not only sensitize them about the evaluation procedures and about qualitative methodologies required for the same but also make IEC accountable.
7. IEC is a support to health and family welfare programmes and would turn successful only if active co-operation and support from medical profession and proper back-up of other services at PHC, district and State levels are extended.

सारांश

8. प्रस्तुत लेख में हरियाणा राज्य में रहने वाली 13-59 वर्ष के बीच की विवाहित स्त्रियों में परिवार नियोजन के बारे में इलैक्ट्रॉनिक मीडिया और अन्तर-दम्पती सम्प्रेषण की उपलब्धता और स्वीकार्यता संबंधी आंकलन करने का प्रयास किया गया है। इस लेख में राज्य में विद्यमान स्वास्थ्य एवं परिवार कल्याण सेवा वितरण प्रणाली द्वारा निष्पादित संचार संबंधी प्रयासों की व्यापकता एवं प्रभावकारित पर भी प्रकाश डाला गया है। हरियाणा राज्य में चिकित्सा अधिकारियों, ब्लाक प्रसार शिक्षकों और बहुउद्देशीय स्वास्थ्य कार्यकर्ताओं तथा उनके पर्यवेक्षकों के बीच अन्तर-वैयक्तिक सम्प्रेषण कौशल के आंकलन का भी प्रयास इस लेख में किया गया है। यहां लेखक द्वारा यह निष्कर्ष निकाला गया है कि इलैक्ट्रॉनिक मीडिया की उपलब्धता और प्रजनन आयु की महिलाओं द्वारा इसका उपयोग राष्ट्रीय स्तर की तुलना में उच्च है। हरियाणा में रेडियो श्रोताओं की दर की अपेक्षा टेलीवीजन के दर्शकों की दर तेजी से बढ़ रही है। हरियाणा की महिलाओं द्वारा इलैक्ट्रॉनिक मीडिया की सहायता से प्रसारित किए जाने वाले परिवार नियोजन संबंधी संदेशों की स्वीकार्यता समस्त राष्ट्रीय स्तर की तुलना में अधिक पाई गई है। यह भी देखने में आया है कि जिन महिलाओं द्वारा गर्भनिरोधक साधनों को प्रयोग किया जाता है उनमें से लगभग आधी से अधिक महिलाओं ने इलैक्ट्रॉनिक मीडिया से ही परिवार कल्याण संबंधी संदेश प्राप्त किया गया था।

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**A COMPARATIVE STUDY OF IEC AND COMMUNITY
PARTICIPATION IN VARIOUS STATES IN INDIA
FUNDED BY BILATERAL AND INTERNATIONAL
AGENCIES**

T. Mathlyazhagan*

ABSTRACT

This paper presents a comparative analysis of IEC and community participation in five States namely, Tamil Nadu, Karnataka, Orissa, Gujarat and Rajasthan, funded by different bilateral and international agencies. Based on the analysis of IEC and community participation in five States, the author concludes that the 'Area Development Project in Orissa, Rajasthan and Gujarat certainly opens up new promises but media support, involvement of voluntary agencies, village health committees and method of working of IEC health functionaries need to be stepped up as compared to Tamil Nadu and Karnataka. The IEC working pattern and community participation was the best in Tamil Nadu. Synchronisation of media and production of teaching learning materials were better in Karnataka. Further, the study has also revealed that the procurement of A. V. equipment and production of IEC materials, the Area Development Project in Karnataka stood first followed by Tamil Nadu, Gujarat, Rajasthan and Orissa.

Providing basic health services to all its citizens has been a major objective of the Government of India since Independence in 1947. In order to provide these basic health care facilities a network of primary health centres and health-sub-centres has been created by the Government throughout the country. In addition, a vast array of hospitals, dispensaries and clinics have been set up in urban areas. However, the current health situation is far from satisfactory. The general and infant mortality rates are still among the highest in the world and what is more glaring is the disparity in the status of health between the urban and rural population of the country.

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One of the important reasons for these striking differences is the lopsided development of health facilities in the past⁴. The rural areas account for 76 per cent of the total population of the country but nearly 75 per cent of all inputs in health have been deployed in the urban areas which represent only about 24 per cent of the population. The primary health centre complex in the rural areas with its existing sub-centres actually covers only 15-20 per cent of the total population in a block, leaving the remaining 80-85 per cent of population without the benefits of even the most minimal health care.

These disparities between the urban and rural areas health care facilities indicate that despite the achievements in the past, the Government is yet to provide a large segment of the underprivileged population living in rural areas, the same access to health and life as is provided to the more privileged urban population.

Hence, the project approach to the process of development assumed a greater significance in developing countries in recent years. To accelerate the development on scientific lines at the micro level, it has become necessary to identify and study a large number of projects in priority areas. The health and family welfare, being one of the priority areas of national development process, has been given due importance by the policy makers, project planners and administrators in India. In response to this humble beginning, some of the bilateral agencies like ODA, USAID, DANIDA and international agencies like UNFPA and World Bank came forward to assist 15 States in India on the basis of certain economic and health related indicators viz. high proportion of rural population with economically weaker and backward sections of the society, inadequate health and family welfare infrastructure, high birth rate and high infant mortality rates.

Though there are several studies available on Area Development Projects funded by different donor agencies but there is hardly any study which has focused attention on the evaluation of Information, Education and Communication (IEC) and community participation in the country. Therefore, an attempt has been made in this study to analyze the functioning of IEC and community participation in States like Tamil Nadu, Karnataka, Gujarat, Rajasthan and Orissa.

OBJECTIVES

1. To study the focus of IEC and community participation in Area Development Project in various States under study.
2. To analyze the operational strategies adopted in Area Development Project In various States for promotion of IEC and Community participation.

3. To study the input in terms of I EC materials procurement as well as production in Area Development Project in various States.
4. To analyze the operational problems encountered in regard to I EC and community participation in Area Development Project in various States.

The Project Areas

Fifteen States in India had financial assistance from different donor agencies to strengthen the health and family welfare services in the first phase.

The details of States, name of donor agencies and number of districts under Area Development Project in each State were as given in Table 1.

TABLE 1
STATES, DONOR AGENCIES AND PROJECT DISTRICTS

S.L. No.	State	Donor agency	No. of Project Districts
1.	Madhya Pradesh	DANIDA	8
2.	Tamil Nadu	DANIDA	2
3.	Orissa	ODA(UK)	5
4.	Rajasthan	UNFPA	4
5.	Bihar	UNFPA	11
6.	Uttar Pradesh	World Bank	6
7.	Kerala	World Bank	4
8.	Karnataka	World Bank	6
9.	West Bengal	World Bank	4
10.	Andhra pradesh	World Band	3
11.	Maharashtra	USAID	3
12.	Gujarat	USAID	2
13.	Punjab	USAID	3
14.	Haryana	USAID	3
15.	Himachal Pradesh	USAID	3

The study proposal when initially drafted in 1991 had visualized the need for conducting the study in all the 15 States. During the study period, it was observed that the States funded by the same donor agency has a similar

objectives and working pattern. Thus, it was decided to choose only one State from one donor agency in order to conduct an in depth study in one district each from the five States funded by five different agencies. The details of selected States, donor agencies and districts are given in Table 2.

TABLE 2
STATES, DONOR AGENCIES AND SELECTED DISTRICTS UNDER STUDY

S.No.	State	Donor Agency	Selected District
1.	Orissa	ODA	Puri
2.	Tamil Nadu	DANIDA	Salem
3.	Karnataka	World Bank	Dharwad
4.	Rajasthan	UNFPA	Bharatpur
5.	Gujarat	USAID	Bharauch

As the project duration of most of the Area Development Projects was already over by the time the study team reached in the field, it was neither considered desirable nor feasible to collect hard statistical data about the impact of the projects. It would be unrealistic to expect a health project of a fixed duration to have had a measurable impact on the health status of the population. Moreover, it would be difficult to ascribe such changes solely due to the efforts of the project. Therefore, the present study was planned as well as executed more as a review of activities which were undertaken during the project duration and out of these activities which still continue and/or have been absorbed in the health services delivery system. The bulk of the data needed for such a study were to be qualitative in nature but most of the qualitative data were strengthened by means of quantitative dimensions using a structured check-list and interview schedule for in depth study.

METHODOLOGY

The study was conducted during 1991-92.

Interview

Informal but wide ranging discussions were held with available project staff members, some retired officers concerned with the project at different levels and

officers of health services at State, district and peripheral levels based on the check-list prepared for the purpose. The focus of such discussions was to understand the planned managerial process and how it worked during the project period. Besides efforts were also made to collect information on the project activities which were made part and parcel of health services delivery system.

Observation

This technique was used to ascertain whether the physical facilities created under the project were being put to desired use as well as being maintained by health services network at the peripheral levels.

Record Study

Basic project documents as well as progress reports were scrutinized to assess the accomplishment of various activities as against the planned ones.

FINDINGS

IEC and Community Participation

The overall objective of IEC and community participation in Area Development Projects in the health sector in selected five States under study was to educate, motivate and mobilise the rural communities so as to enable them to work themselves to achieve and maintain a normal standard of health. The efforts of IEC functionaries, therefore, were centred around to make IEC as an integral part of the entire health and family welfare services delivery system to provide health and family welfare education as a community-based extension effort and utilise it as a tool for mobilising the community to participate in the activities of health and family welfare in all the five States.

Operational Strategies in Various States

The major emphasis of IEC in Area Development Project was on creating awareness, particularly among the poorer sections of the community to enable them to gain access to better health. The stress was on interpersonal communication and bulk of the activity was in the area of mass communication in Tamil Nadu and Karnataka while the communication strategy of UNFPA assisted project in Rajasthan had a two-fold strategy, *i.e.* (i) to strengthen the capacity of the existing communication infrastructure, and (ii) to widen the range of contacts between the programme and the community in order to encourage a more horizontal and spontaneous dissemination of family welfare messages among the people of the project districts. The IEC strategy followed in US AID assisted Area

Development Project in Gujarat was shifting from informing and educating staff to informing leaders, to informing and educating field workers to the use of mass media to carry information and finally to the problems of persuading resistant groups to the benefits of health and family-welfare and of maintaining continued contraceptive use among current acceptors.

Further analysis of IEC strategy in the Area Development Project in five States reveals that the methodology of working pattern followed in Tamil Nadu was very systematic and innovative as compared to the remaining four States under study. The significant achievements of IEC and community participation in Tamil Nadu were the establishment of (i) District-Communication Action Group, (ii) Block Communication Cells, (iii) Village Health Councils, and (iv) Community Welfare Funds.

The District Communication Action Group co-ordinated 'the' health communication activities of different departments at the district level in the project areas while the Block Communication Cells (BCCs) had the overall responsibility of communication activities at the block level². The BCCs were created at the PHC level and were headed by the Block Extension Educators. The objectives of BCCs were to (i) prepare an area-oriented and need-based communication action plans, (ii) develop appropriate skills to communicate the health message to the community, (iii) train health functionaries in effective communication, (iv) utilise effectively the AV aids provided, and (v) organise OTCs and mini-exhibitions. The primary aim of the Village Health Councils (VHCs) was to strengthen the links between health sub-centre and community. Besides, they were also expected to promote effective utilisation of the HSC as well as its outreach services through MPWs.

The IEC strategy in Karnataka was area specific with the support¹ of mass media and interpersonal communication³.

Area Specific Strategy. Intensive educational activities were undertaken under area specific strategy to motivate eligible couples to adopt family planning services. These activities were carried through extensive film shows, "exhibitions; group meetings, mahila mandais, health check camps, immunization camps, etc.

Radio Listening Strategy. As a part of innovative campaign, radio broadcasting on spacing methods and immunization to the target audience was taken up. Twenty four health education lessons were broadcasted through the All India Radio Station, Dharwad, covering the districts of Dharwad, Bijapur, Belgaum under IPP-III Uttara Kannada and Bellary districts acted as controlled districts.

Three hundred Auxiliary Nurse Midwives from sub-centres were selected and a four-day workshop was conducted. Twenty-four lessons were selected, 12 on spacing methods and 12 on immunisation. This broadcast programme was spread over a period of 6 months and in each month 4 lessons were broadcast. Thirteen thousand eight hundred sixty two listeners had registered their names for listening to this programme. Three hundred radio sets were supplied to 300 Auxiliary Nurse Midwives. As a feedback to get clarifications, 8,000 inland letters were also given to the participants. The additional information and clarification were broadcasted in the next lessons. After such lessons the listeners were also asked two questions by the All India Radio, Dharwad. Lotteries were drawn from the correct answers on each lesson for giving awards. An award of Rs.250/- worth Indira Vikas Patra was awarded to 48 successfully answered lucky persons.

An evaluation study on radio health lessons broadcast by AIR, Dharwad, conducted by the field unit of Population Centre, Gulbarga, revealed that women listeners registered by the ANM for this programme had more knowledge on spacing methods and immunisation than unregistered listeners.

Intensive Campaign on Spacing Methods: An intensive campaign on spacing method was launched during the project period to motivate eligible couples to accept IUD. Five voluntary organisations were identified in each primary health centre to motivate ten eligible ladies to accept Copper T. The voluntary organisation was paid Rs.10 per case as incentive money. As part of campaign strategy Mahila Vichara Vinimaya discussions were organised in selected villages of the primary health centres where the eligible women were invited and this forum served as a tool to educate and motivate the women for accepting Copper-T as a temporary method for spacing the birth.

Involvement of Minority Groups, Voluntary Organisations and Mahila Mandals: Family Planning Association of India (FPAI) at Bidar involved 40 Mahila Mandals in PHC of Janwada and Chillargi of Bidar taluka with the objective of revitalisation of Mahila Mandals and developing skills in them to implement welfare activities in their area. This programme helped 70 per cent of eligible couples to adopt family planning methods in their selected areas.

Application of Magazine Strategy and other-Printed Mass Education Materials: *Jana Pragne* is a quarterly magazine brought out by the FPAI, Bidar branch and is devoted to the spread of message on family welfare and MCH activities through various kinds of articles both in Urdu and Kannada. Printing and distribution of posters, folders, booklets and other publications served as education materials for the local population.

Activities in Collaboration with other Agencies: The State, regional as well as district centres were regularly involved in population education activities organised by the Adult Education Department, FPAI, Universities, AIR, Industrial Training Institute, etc. All efforts were made to convey the message of the small family norm to the community by deploying different kinds of community contact techniques.

In case of Area Development Project in Orissa, Rajasthan and Gujarat, the IEC work certainly opens up new promises but synchronisation of media, involvement of voluntary agencies, village health committees and method of working of IEC health functionaries need to be stepped up.

IEC Inputs and Other Communication Activities

With the assistance of different donor agencies, the IEC work in all the five States was intensified in several ways, one being the IEC equipment and materials for education and motivation purposes. The AV aids were supplied at State, divisional, sub-divisional and PHC levels to strengthen the communication activities. The IEC activities with respect to the procurement of AV equipment and production of teaching and learning materials, the Area Development Project in Karnataka funded by World Bank stood first followed by Tamil Nadu funded by DANIDA, Gujarat funded by USAID, Rajasthan funded by UNFPA and Orissa funded by ODA. However, the IEC centre functioning at Bhubaneswar is one of the important contributions of Area Development Project in Orissa. The State Health Education Bureau (SHEB), Mass Education and Media (MEM), IEC (ADP), and Director of Family Welfare have been integrated to meet the requirements of IEC Centre, though no change in the financial arrangements has been made. The health communication activities in Area Development Project of Orissa are quite extensive and broad based and shift has been envisaged from interpersonal communication to mass media and integrated media. However, the IEC role in project district was limited and just laid emphasis on supporting some of the existing media activities rather than assuming independent role.

Effectiveness of Media

It was observed that mass media like radio and television were effectively utilised to create awareness within a large audience but to move the audience to trial and adoption, radio and television were found to be ineffective; whereas, personal visits were effective in convincing individuals to take up new practice.

Limitations of IEC and Community Participation

The endline survey regarding IEC of Area Development Project in

Rajasthan showed that the radio covered quarter of the households, the television was limited to a much smaller audience and the newspapers and periodicals were confined still to a smaller proportion. The emphasis of IEC programme needs a total revamping with greater emphasis on folk forms of expression in local dialects in Rajasthan.

The IEC activities also suffered from lack of transport facility, inadequate supply of hardware and software of IEC, inadequate manpower and poor system of distribution of IEC materials at different levels in the project districts in Rajasthan. Further, it was observed that in spite of concern for community participation and involvement, there was hardly any worthwhile progress in it. The project and programme continued to remain official oriented.

The IEC efforts in Area Development Project in Gujarat could not succeed in educating and motivating the people of the Area Development Project as proposed in the project document to accept and adopt family planning practices. The use of audio-visual van was just limited to normal transport only. The component of community participation in the programme was totally neglected in the project districts in Gujarat. Though there were many innovative programmes, the cooperation of community in the programmes was poor. They were interested in incentives either in terms of cash or kinds before participating in any programme. However, the community appreciated the welfare programme while rejected the family planning methods, particularly the Muslim community.

Though the community participation was one of the explicit objectives of **ADP** in Orissa, the review suggests to have made only peripheral efforts. Except for holding OT camps for women, opinion leaders and organising mothers club only in ICDS block, participation or involvement of the community was not in fact sought in the real sense. The media here played a supportive role rather than independent role.

CONCLUSION

The comparative analysis of the study shows that experience in regard to community participation observed in Tamil Nadu, the experience gained by Karnataka regarding IEC work, particularly synchronisation of media and production of teaching-learning materials and their distribution pattern and integration of IEC activities in Orissa could be set as model of IEC activities in the country. It is also suggested that the example of Tamil Nadu in decentralisation of work at different levels by establishing District Communication Action Group at district level, Block Communication Cells at block level and Village Health Council at village level can also be tried in other States. It does not involve any additional inputs but certainly envisage dedication on the part of the health functionaries at

all levels.

RECOMMENDATIONS

- i. An active participation and involvement of local communities through multiple agencies such as panchayat, co-operatives, women and youth groups and organisations of the underprivileged is needed in all the States.
- ii. The efforts of IEC personnel, health and family welfare special committees and mass media may be intensified to strengthen communication activities in the States like Rajasthan, Gujarat and Orissa.
- iii. The linkages with other development agencies and voluntary organisations should be given importance in strengthening communication activities.
- iv. Specific tasks like communication orientation for programme managers, design and production of local need based materials, identification of local contact persons through group meeting and improving the quality and frequency of inter-personal communication may be stepped up further to enhance smooth functioning of communication activities in all the States under study.
- v. The procurement and distribution of education and training materials should be a regular phenomena at different levels. The State Governments may allocate a separate budget for the same.
- vi. Efforts may also be made to synchronise the media activities in each State. As far as possible the IEC efforts should be very systematic and location specific.
- vii. As followed in Orissa, the State Health Education Bureau, the Mass Education and Media, the Directorate of Family Welfare and IEC part of Area Development Project may be integrated to meet the requirements of IEC in the every State, though their financial sources are different.
- viii. Need based communication action plans for each block with the help of community members may be designed as practised in Tamil Nadu.
- ix. In regard to IEC and community participation, the accountability may be fixed and responsibility may be delegated at different levels in the State.

- x. The AV vans available in each State under study may be properly used for communication and education activities only.
- xi. The VCRs, VCPs, TV sets and other A.V. equipment may be kept in order and these equipment may be handled by trained personnel only.

सारांश

इस लेख में देश के पांच राज्यों अर्थात तमिलनाडू, कर्नाटक, उड़ीसा, गुजरात और राजस्थान में विभिन्न द्विपार्श्वीय और अन्तर्राष्ट्रीय एजेन्सियों की अनुदान सहायता से संचालित सूचना, शिक्षा एवं संचार गतिविधियों और सामुदायिक सहभागिता पर एक तुलनात्मक अध्ययन किया गया है। पांच राज्यों में किए गए सूचना, शिक्षा एवं संचार और सामुदायिक सहभागिता संबंधी विश्लेषण के आधार पर लेखक द्वारा यह निष्कर्ष निकाला गया है कि तमिलनाडू और कर्नाटक की अपेक्षा क्षेत्र विकास परियोजना से उड़ीसा, राजस्थान और गुजरात में सुनिश्चित रूप से नई संभावनाएं स्पष्ट होती हैं, किन्तु माध्यम समर्थन, स्वैच्छिक एजेन्सियों ग्रामीण स्वास्थ्य समितियों और सूचना, शिक्षा एवं संचार स्वास्थ्य कार्मिकों की सहभागिता और कार्यप्रणाली को और अधिक बेहतर बनाने की आवश्यकता है। तमिलनाडू में सूचना शिक्षा एवं संचार कार्यपद्धति और सामुदायिक सहभागिता श्रेष्ठ पाई गई थी। कर्नाटक में मीडिया का सामयिकरण और शिक्षण सामग्री का उत्पादन उच्च था। इसके अतिरिक्त, अध्ययन से यह भी पता चलता है कि क्षेत्र विकास परियोजना के अर्न्तगत श्रव्य-दृश्य उपकरणों की खरीद तथा सूचना, शिक्षा एवं संचार सामग्री का उत्पादन सर्वप्रथम कर्नाटक में किया गया था तथा तत्पश्चात इसका अनुकरण तमिलनाडू, गुजरात, राजस्थान और उड़ीसा द्वारा किया गया था।

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**SOCIO-ECONOMIC AND DEMOGRAPHIC FACTORS INFLUENCING THE USE OF
FERTILITY CONTROL REGULATING METHODS IN A TAMIL NADU VILLAGE**

N. Audinarayana* and R. Shakila Rani**

Abstract

This paper examines the influence of selected socio-economic and demographic factors influencing the use of fertility control regulating methods among those couples who have two and three living children. The findings suggest that educational status of wives closely followed by husbands, the overall socio-economic status (index) and age at marriage of wives have significant influence on the use of contraceptive methods. The socio-economic factors, except occupational status of wives, have significantly, at various levels, supported the expected phenomena only among those couples who have two living children while the demographic factors played a major role among those who had three living children.

Socio-economic and demographic factors constitute an important focal point in any field of activity. They assume greater significance and utility when it concerns human population, particularly in the field of population research and population control programme. The socio-economic and demographic characteristics of the couples play a pivotal role in influencing the use of family planning methods, observed by several investigators in India and abroad^{1,16}. While negligible attempt **has** been made to study such influence on the practice of fertility control regulating methods among those couples who have different number of living children. Such information is very much valuable for policy makers and also for family planning personnel to concentrate and motivate such couples among whom the socio-economic and demographic characteristics played a crucial role on their adoption of fertility control regulating methods.

With this background, an attempt is made in this paper to analyze the differential influence of the socio-economic and demographic factors on the

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use of fertility control regulating methods separately among those couples who have two and three living children.

MATERIALS AND METHOD

Data were collected for the study during June-July 1992 from 362 currently married couples, 239 with two living children and 123 with three living children residing at Pallapalayam village of Coimbatore district, Tamil Nadu. Six wards out of twelve wards of the village were selected following a systematic random sampling technique. From the households of these selected wards, the investigators obtained information from 362 couples who were currently married and had two and three living children only at the time of the survey.

In this paper, currently using/not using one or the other fertility control regulating methods by the couple, either husband or wife, has been treated as dependent variable. Socio-economic and demographic characteristics of these couples viz., caste, educational status, occupational status of both husbands and wives, monthly family income, overall socio-economic status of the couples, age at marriage of wives and number of living sons to the couples have been considered here as independent variables.. Number of living children, 2 and 3 only, has been used as a control variable. χ^2 - test was used to observe the significant association, if any, between each of the independent and dependent variables.

RESULTS AND DISCUSSION

Caste and Use of Fertility Control Regulating Methods

Caste is one of the major socio-economic characteristics which affects the use of fertility control regulating methods in India. Generally, the socio-economic status of the higher caste group members [viz., education, occupation and income) is comparatively much higher than the backward castes, whereas, the socio-economic status is much lower among the scheduled castes. Thereby, the adoption of family planning methods had been found as higher among the higher caste groups closely followed by the backward caste groups and the lowest among the scheduled caste groups.

Data presented in Table 1 reveal that in the total sample, the percentage of current users of fertility control regulating methods is much higher among the respondents of forward castes (72%) followed by the backward castes (68%), whereas the corresponding percentage is the lowest among the scheduled castes (55%). Almost similar pattern is also noticed at somewhat significant level ($\chi^2 = 5.14$; $p = <.10$) among those respondents who have currently two living children,

but not among those who have three living children.

TABLE 1
USE OF FERTILITY CONTROL REGULATING METHODS BY CASTE* OF THE COUPLES AND NUMBER OF LIVING CHILDREN

Caste	No. of Living Children					
	Two		Three		Total	
	C.U	N.U	C.U	N.U	C.U	N.U
Scheduled Castes	48.8 (21)	51.2 (22)	66.7 (14)	33.3 (7)	54.7 (35)	45.3 (29)
Backward Castes	64.8 (105)	35.2 (57)	74.7 (65)	25.3 (22)	68.3 (170)	31.7 (79)
Forward Castes	72.4 (21)	27.6 (8)	71.4 (10)	28.6 (4)	72.1 (31)	27.9 (12)
	$\chi^2 = 5.14$ $p = <.10$		N.S		$\chi^2 = 4.95$ $p = <.10$	
TOTAL	62.8 (147)	37.2 (87)	73.0 (89)	27.0 (33)	66.3 (236)	33.7 (120)

* Only among the Hindus

Note: 1. Percentages are calculated horizontally for each category of couples.
2. C.U = Currently using one or the other fertility regulating methods, and
N.U = Not using any fertility control regulating methods at the time of survey.

Educational Status and the Use of Fertility Control Regulating Methods

Educational status of the eligible couples is the most crucial factor in influencing the practice of fertility control regulating methods. Generally, higher educational status of the couples increases their knowledge and change the attitude towards family planning which in turn the use of fertility control regulating methods may also increase to a higher level. The studies conducted in India as well as abroad have reported a positive association between the educational status of the couples and the adoption of family planning methods.

A glance at Table 2 suggests that there exists a clear and significant positive association between the educational status of both the partners and use of fertility control regulating methods. However, based on the χ^2 - results it may be concluded that the educational status of the respondents (wives) as compared to the educational status of their husbands has exhibited highly significant

TABLE 2

**USE OF FERTILITY CONTROL REGULATING METHODS BY EDUCATIONAL
STATUS OF THE COUPLES AND NUMBER OF LIVING CHILDREN**

Educational Status of the Couples	Two		No. of Living Children			
	C.U	N.U	Three C.U	N.U	Total C.U	N.U
1. Husband's Educational Status						
Illiterate	53.3 (8)	46.7 (7)	56.2. (9)	43.8 (7)	54.8 (17)	45.2 (14)
Primary	53.3 (40)	46.7 (35)	80.0 (32)	20.0 (8)	62.6 (72)	37.4 (43)
High School	57.4 (39)	42.6 (29)	80.0 (24)	20.0 (6)	64.3 (63)	35.7 (35)
Higher Secon- dary and above	80.2 (65)	19.8 (16)	67.6 (25)	32.4 (12)	76.3 " (90)	23.7 (28)
	X* = 14.90 P=- < .10		N.S		X ² =;7.93 p = < .05	
2. Wife's Educational Status						
Illiterate	58.3 (21)	41.7 (15)	72.4 (21)	27.6 (8)	64.6 (42)	35.4 (23)
Primary	46.4 (39)	53.6 (45)	74.5 (35)	25.5 (12)	56.5 (74)	43.5 (57)
High School	70.3 (45)	29.7 (19)	65.2 (15)	34.8 (B)	69.0 (60)	31.0 (27)
Higher Secon- dary and above	85.5 (47)	14.5 (6)	79.2 (19)	20.8 (5)	83.5	16.5 (13)
	X' = 23.66 P = < .001		N.S		X ¹ = 16.64 p = <.001	
TOTAL;	63.6 (152)	36.4 (87)	73,2 (90)	26.8 (33)	66.9 (242)	33.1 (120)

Note: 1. Percentages are calculated horizontally for each category of couples.
 2. C.U = Currently using one or the other fertility regulating methods, and
 N.U = Not using any fertility control regulating methods at the time of survey.

association with the adoption of one or the other family planning methods. Further, it is also very interesting to note that this positive trend is more conspicuous among those couples who have two living children, but insignificant among those couples who have three living children.

Occupational Status and Use of Fertility Control Regulating Methods

Occupational status of a person is an important indicator of his/her socio-economic status. In general, higher occupational status will be associated with higher rate of practice of contraception. Further, women working in incompatible jobs may likely to prefer and adopt fertility control regulating methods as compared to the women engaged in compatible jobs^{2,3,5,6,8,9,10,14}.

In the study area, the percentage of current users of fertility control regulating methods has been observed to be higher ($X^2 = 5.46$; $p = <.10$) among the business, clerical, professional and administrators and the mill workers than among the agricultural labourers (panel 1 of Table 3). Such pattern is moderately significant among those couples who have two living children ($X^2 = 8.88$; $p = <.05$), but insignificant among those who have three living children.

Based on the data given in panel 2 of Table 3, it may be concluded that the use of fertility control regulating methods by the occupational status of the respondents (wives) did not show a clear cut trend and thus did not support the expected phenomenon in this regard.

Monthly Family Income and Use of Fertility Control Regulating Methods

A higher level of income generally means a higher standard of living. Once the people, particularly belonging to the middle class, attain a higher standard of living, they tend to maintain it by limiting the number of their children through the use of fertility control regulating methods. Majority of the studies^{1,3,5,6,8,13-16} in this regard have highlighted a significant positive association between the economic status of the family (couple) and the use of fertility control regulating methods.

From panel 1 of Table 4 it is evident that, in the total sample, the percentage of current users of fertility control regulating methods is only 59 among those couples whose monthly family income is Rs. 500 or less, but this percentage has steadily increased to 65 and then to 74 as the income level of the couples increased to Rs. 501-1000 and to Rs.1001 and above, respectively. However, the X^2 - results in this regard have shown less significant association ($X^2 = 5.47$; $p = <.10$). But this association has been found statistically highly significant ($X^2 = 9.91$; $p = <.01$) only among those couples who have two living

children, whereas insignificant among those couples who have three living children.

TABLE 3
USE OF FERTILITY CONTROL REGULATING METHODS BY OCCUPATIONAL STATUS
OF THE COUPLES AND NUMBER OF LIVING CHILDREN

Occupational Status of the Couples	No. of Living Children					
	Two C.U	N.U,	Three C.U	N.U	Total C.U	N.U
1. Husband's Occupational Status						
Agricultural Labourers	44.2 (19)	55.8 (24)	77.2 (26)	27.8 (10)	57.0 (45)	43.0 (34)
Mill Workers	65.7 (69)	34.3 (36)	69.8 (30)	30.2 (13)	66.9 (99)	33.1 (49)
Petty Business/ Lower & Higher Professional/Administrative Workers	70.3 (64)	29.7 (27)	77.3 (34)	22.7 (10)	72.6 (98)	27.4 (37)
	X ² = 8.88 p = < .05		N.S		X ² =5.46 p = < .10	
2. Wife's Occupational Status						
Housewives	63.5 (120)	36.5 (69)	72.7 (56)	27.3 (21)	66.2 (176)	33.0 (90)
Agricultural Labourers	56.0 04)	44.0 01)	77.4 (24)	77.6 (7)	68.0 (38)	32.0 (18)
Non-agricul- tural Workers	72.0 (18)	28.0 (7)	66.7 (10)	33.3 (5)	70.0 (28)	30.0 (12)
	X ² = 23.66 p = <.001		N.S		X ² = 16.64 P = < .001	
TOTAL	63.6 (152)	36.4 (87)	73.2 (90)	26.8 (33)	66.9 (242)	33.1 (120)

Note: 1. Percentages are calculated horizontally for each category of couples.
2. C.U = Currently using one or the other fertility regulating methods, and
N.U = Not using any fertility control regulating methods at the time of survey.

TABLE 4

**USE OF FERTILITY CONTROL REGULATING METHODS BY MONTHLY FAMILY INCOME
AND SOCIO-ECONOMIC STATUS (INDEX) OF THE COUPLES AND NUMBER OF LIVING
CHILDREN**

Socio- Economic Status of the Couples	Two		No. of Living Children Three		Total	
	C.U	N.U	C.U	N.U	C.U	N.U
1. Monthly Family Income (In Rs.)						
< 500	48.1 (25)	51.9 (27)	74.4 (29)	25.6 (10)	59.3 (54)	40.7 (37)
501 - 1000	62.5 (65)	37.5 (39)	72.2 (31)	27.9 (12)	65.3 (96)	34.7 (51)
1001 and above	74.7 (62)	25.3 (21)	73.2 (30)	26.8 (11)	74.2 (92)	25.8 (32)
	X ² = 9.91 p = < .01		N.S		X ² = 5.47 p = < .10	
2. Socio-economic Status (Index)						
Lower (3-6)	47.9 (35)	52.1 (38)	75.0 (33)	25.0 (11)	58.1 (68)	41.9 (49)
Middle (7-10)	68.7 (79)	31.3 (36)	70.2 (40)	29.8 (17)	69.2 (119)	30.8 (53)
Higher (11-14)	74.5 (38)	25.5 (13)	77.3 (17)	22.7 (5)	75.3 (55)	24.7 (18)
	X ² = 11.65 p = < .01		N.S		X ² = 6.81 p = < .05	
TOTAL	63.6 (152)	36.4 (87)	73.2 (90)	26.8 (33)	66.9 (242)	33.1 (120)

Note: 1. Percentages are calculated horizontally for each category of couples.
 2. C.U = Currently using one or the other fertility regulating methods, and
 N.U = Not using any fertility control regulating methods at the time of survey.

Socio-Economic Status (Index) and Use of Fertility Control Regulating Methods

For a broader and meaningful generalization, an index of overall

socio-economic status has been prepared and examined its association with the use of contraceptive methods (panel 2 of Table 4). The results highlight a linear positive association between the socio-economic status (index) of the couples and the use of fertility control regulating methods. For example, in the total sample, the percentage of current users is 58 among those whose socio-economic status is lower, which has increased to 69 and then to 75 as their socio-economic status increased to middle and higher levels respectively. The X^2 - results have exhibited a moderately significant ($X^2 = 6.81$; $p = <.05$) association between the socio-economic status (index) and the use of fertility control regulating methods. Nevertheless, this pattern is highly significant ($X^2 = 11.65$; $p = <.01$) among those couples who have two living children, but insignificant among those couples who have three living children.

Age at Marriage of Wives and Use of Fertility Control Regulating Methods

Age at marriage of females is one of the important socio-demographic variables influencing the fertility as well as adoption of family planning. Generally, higher age at marriage will be significantly associated with higher education by which modern outlook will be developed, which in turn reduces the fertility level and thereby increases the family planning practice^{4,8,12,14}

Data provided in panel 1 of Table 5 suggest that, in the total sample, the percentage of current users of contraceptive methods has increased from 54 to 72 and then to 73 as the respondents age at marriage increased from 14-17 years to 18-21 years and thereafter to 22 years and above. Though similar increasing pattern in use of fertility control regulating methods by age at marriage of wives is noticed among both the categories of respondents who have two and three living children, it is more conspicuous among the latter group. The X^2 -results also showed that the association between wives' age at marriage and use of contraception is highly significant (at .01 level) among the total and those who have currently three living children, but not significant among those who have currently two children. Couples belong to the latter group may be still in the process of achieving their desired family size may be one of the plausible reasons for this type of insignificant association.

Number of Living Sons and Use of Fertility Control Regulating Methods

Preference for son(s) is more prevalent in India, for various social, economic and religious functions. In view of this, the married couples may produce more number of children so as to get one or more number of sons and thus after getting sufficient number of children only, the couples may try to use one or the other contraceptive methods^{3,8,11,14,15,16}.

TABLE 5

**USE OF FERTILITY CONTROL REGULATING METHODS BY AGE AT MARRIAGE OF
WIFE AND NUMBER OF LIVING SONS TO THE COUPLES AND NUMBER OF LIVING
CHILDREN**

Age at Marriage of Wife and No. of Living Sons	Two		No. of Living Children Three		Total	
	C.U	N.U	C.U	N.U	C.U	N.U
1. Age at marriage of Wife (In Years)						
14 - 17	56.4 (31)	43.6 (24)	52.1 (25)	47.9 (23)	54.4 (56)	45.6 (47)
18-21	65.4 (100)	34.6 (53)	85.5 (59)	14.5 (10)	71.6 (159)	28.4 (63)
22 +	67.7 (21)	32.3 (10)	100.0 (6)	-- (27)	73.0 (10)	27.0
	N.S		X ² = 17.80		X ² = 10.19	
			p = < .01		p = < .01	
2. Number of Living Sons						
0	64.0 (32)	36.0 (18)	43.4 (10)	56.5 (13)	57.5 (42)	42.5 (31)
1	65.2 (75)	34.8 (40)	79.4 (32)	25.6 (11)	67.7 (107)	32.3 (51)
2-3*	60.8 (45)	39.2 (24)	71.6 (48)	28.4 (9)	71.0 (93)	29.0 (38)
	N.S		X ² = 13.79 p = <01		N.S	
TOTAL	63.6 (152)	36.4 (87)	73.2 (90)	26.8 (33)	66.9 (242)	33.1 (120)

Note: 1. Percentages are calculated horizontally for each category of couples.

2. C.U = Currently using one or the other fertility regulating methods, and
N.U = Not using any fertility control regulating methods at the time of survey.

* Only 16 couples with three living children included here.

From panel 2 of Table 5 it is evident that as the number of living sons increases the percentage of current users also increases. For instance, among the total sample, the percentage of current users is only 58 among those respondents who have no living sons, which has increased to 68 and then to 71

per cent when the couples have one and two-three living sons respectively. However, these differentials in use of contraception are turned out to be statistically insignificant. Though, more or less, similar pattern is noticed among the two groups of couples, it is highly significant among those who have three living children only ($X^2 = 13.79$; $p = <.01$ level). Not having sons and the desired family size may be the reasons for the insignificant pattern among those couples who have two living children.

CONCLUSION

In the preceding discussion it has been clearly noticed that all the selected socio-economic and demographic characteristics (except the occupational status of the wives), in general, have exhibited considerably positive influence on their use of fertility control regulating methods. Educational status of the respondents (wives) has been observed as the most crucial variable which has a tremendous positive association with the use of contraceptive methods. Next in that order the credit goes to the educational status of the husbands, the overall socio-economic status (index) and age at marriage of wives. Further, it is interesting to note that all the socio-economic characteristics (except occupational status of the wives) under consideration have been significantly (at various levels) supported the expected phenomena only among those respondents who have currently two living children. On the contrary, the demographic variables played a crucial role in the adoption of fertility control regulating methods among those couples who have three living children only, plausibly they are still in the process of child bearing and not achieved their desired family size (number of sons). Therefore, it may be suggested that the future policies and programmes have to be evolved, on the one side, for those couples with less parity (one or two) and socio-economically poor and on the other side, for those couples with higher parity whose wives got married early and do not have a son (or less number of sons). Such steps would likely to give prolific results in terms of curtailing the growth of population.

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प्रस्तुत लेख में दो और तीन जीवित शिशुओं वाले दम्पतियों द्वारा प्रजनन नियन्त्रण नियामक विधियों को प्रभावित करने वाले चयनित सामाजिक-आर्थिक तथा जनांकिकीय घटकों की विवेचना की गई है। अध्ययन से प्राप्त निष्कर्षों से पता चलता है कि पतियों की अपेक्षा पत्नियों का शैक्षिक स्तर, समग्र सामाजिक-आर्थिक स्तर और विवाह के समय पत्नियों की आयु का गर्भ निरोधक साधनों के प्रयोग पर उल्लेखनीय प्रभाव पड़ता है। विभिन्न स्तरों पर सामाजिक-आर्थिक घटकों द्वारा पत्नियों के व्यवसायिक स्तर के अलावा केवल दो जीवित बच्चों वाले दम्पतियों के अपेक्षित प्रत्यक्ष दृष्टिकोण को महत्वपूर्ण रूप से समर्थन दिया गया है, जबकि तीन जीवित बच्चों वाले दम्पतियों के विषय में जनांकिकीय घटकों की महत्वपूर्ण भूमिका रही है।

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