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PRIMARY HEALTH CARE ACTION: AN OPERATIONAL NEED FOR CONTROL OF TUBERCULOSIS

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ABSTRACT

The study was carried out at the District Tuberculosis Centre, Allahabad and details regarding the socio-economic characteristics of the patients, the treatment given to them and the pattern of subsequent drug intake for a period of twelve months was recorded. Analysis of the data revealed that the overall compliance rate for 12 drug collections was 23.9 per cent. It was more 31.5 per cent amongst the urban patients as compared to the rural ones in whom it was found only 18.7 per cent. The drug compliance for 12 months was best in the age group 26-40 years and least in patients under 15 years or over 40 years of age. No difference was observed in the compliance rate in regard to religion and the type of regimen followed for treatment. However, more males completed the treatment than the females. Default retrieval action was observed to be non-existent in 54.6 per cent of the treatment cards, the addresses were incomplete and illegible. Improved supervision and strengthening of the D.T.C. services at various levels were suggested as measures for improving the compliance rate especially amongst the rural people.

The prevalence of tuberculosis infection has not registered any change over the years as pointed out in the studies conducted by the National Tuberculosis Institute, Bangalore and the I.C.M.R.¹ It continues to be still as high as 37 per cent². Amongst the various components of the control programme, chemotherapy is the most potent weapon to sterilise lesions speedily and completely to render the open cases non-infectious and to prevent the occurrence of 'new' cases in the community. However, the purpose of chemotherapy has been defeated as a result of interrupted and irregular treatment on the part of the patients, the default rate being as high as 50-70 per cent. This was inevitable as the treatment has to be continued for a long period, hence the success of the programme depends not only on what has been given, but also how it has been done and by whom. The objective of this study was to consider the drug compliance rate, the various factors associated with it, and the measures to be taken to improve the situation at a D.T.C.

MATERIALS AND METHOD

The study was conducted at the District Tuberculosis Centre, Allahabad, which has been associated with the programme management responsibilities like

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planning, implementation, coordination and supervision of tuberculosis case finding and treatment. The sample size was estimated based on the percentage of rural patients 47 per cent obtained after analyzing 100 cards randomly selected from amongst the 4570 cases registered at the centre during the year 1989. Allowing for random sampling fluctuations and an error of at most 5 per cent of the actual value, the sample size worked out to be nearly 456. The cards were randomly selected till the estimated sample size was obtained. These records of the patients were analyzed to obtain information on the socio-economic characteristics of the patients, the treatment given and the number of visits paid by each of them for a subsequent period of 15 months. Information was elicited from the D.T.C. personnel about the actions taken for default retrieval and the referral services carried out by them. Twelve drug collections by the patient with gaps not exceeding two months in between two collections was taken as 'completion of treatment. The details of the drug regimen R₁-R₅ have been given in Table 1.

TABLE 1
DRUG REGIMENS

Regimen Cede	Drugs and Doses	Mode of Administration	Other Instructions
R ₁	INH - 300 mg. and TZN - 150 mg.	To be taken in a single or two divided doses orally (INH preferably to be given in a single dose)	To be self-administered at home; daily after meals; collected monthly from DTC/PHIs.
R ₂	INH -600 to 700 mg. and SM -1 g. or 0.75 g. Pyridoxins - 10 mg. if prescribed	INH to be taken in a single orally and SM by intra-muscular injection; both given at the same time under direct supervision of DTC/PHI staff.	Administered under full dose supervision by-weekly i.e. at intervals of 3 and 4 days drugs alternatively pyn'doxine may be given with every dose of INH.
R ₃	INH -300 mg. and PAS - 10 g.	To be taken in two divided doses orally (INH preferably to be given in a single dose).	To be self-administered at home; daily after meals; collected once a month from DTC/PHIs.
R ₄	INH - 300 mg.	To be taken in a single dose orally.	- do -
R ₅	Two-phase chemotherapy When ever practical DTO may prescribe in initial intensive chemotherapy for seriously ill TB patients with daily SM, INH and Ethomibutol or TZN for the first 8 weeks followed by less intensive chemotherapy with any one of the two oral drug regimens described above R _j or R ₃) for the rest of the treatment period.		

OBSERVATIONS

General Characteristics. A total of 456 cases registered for treatment at the local D.T.C. during the year 1989 were analyzed. Of them 60 per cent belonged to the rural area and the rest to the urban area of Allahabad. Patients from the urban area

were predominantly under 25 years as compared to the rural area, though the difference was not found statistically significant ($P > .05$) as has been described in Table 2. Out of the total cases 65 per cent were males and the rest females 34.9 per cent as has been shown in Table 3. Nearly 70 per cent of the female cases were observed to be in the age bracket of 21 to 40 years as compared to 55 per cent males in the same age group. However, the males outnumbered the females in the age groups 16-20 years and beyond 40 years, the difference being statistically significant $P < .01$. The occupation of the urban males was service while agriculturists formed the bulk of the rural population. Women were housewives in 96 per cent of the cases, the rest being employed in the urban areas. Majority, 65.4 per cent of the patients had been given R5 regimen of treatment and 32.9 per cent R₁ as has been given in Table 8.

Pattern of Drug Compliance/Drug Default: The drug pattern was assessed at quarterly intervals in relation to social and personal characteristics. It was observed that 91 per cent of the patients turned up for drug collection at the end of the first quarter as has been presented in Table 6. However, the percentage decreased to 43.4 per cent for nine drug collections and only 23.9 per cent had made 12 drug collections, considered essential for the patients to prevent relapses. After the 3rd visit, where the percentage for all the age groups ranged between 88-95 per cent, the number of defaulters increased in the age groups below 15 years and above 40 years for the 6th and the 9th visits. The default rate increased significantly ($P < .05$) in the 41 and above age group being 88 per cent at the time of the 12th visit, than the patients from the other age groups as has been shown in Table 4. Hindus were observed to be more regular in collecting their medicines from the centre as compared to the Muslims. Though the difference was not found to be statistically significant ($P > .05$) for 12 drug collections as has been shown in Table 5. The default rate was less in males than females ($P < .05$). Though 44 per cent of the females had made 6 drug collections the percentage dropped to 34 per cent for the 9th and to 10.7 per cent for 12 drug collections, whereas in males 31 per cent of them had made 12 drug collections. Only 38.2 per cent and 18.7 per cent of the patients from the rural area had paid 9 to 12 visits respectively, compared to 51 per cent and 31.5 per cent amongst the urban patients for the same visits. The difference being statistically significant ($P < .01$) has been indicated in Table 7. The compliance rate for complete 12 visits was best amongst patients on R1 regimen of treatment and worst amongst those on R₂ -R4 regimen. The compliance rate was 27.3 per cent amongst patients on R regimen followed by 22.5 per cent for patients from other groups for 12 drug collections. The number of sputum positive cases were only 8.77 per cent. No difference was noted between the sputum positive rural and urban patients at the 12th visit, the compliance rate being 20 per cent for both.

Default Retrieval Action. On appraisal of the addresses given on the treatment cards it was observed that 54.6 per cent of the cards had incomplete and inaccurate addresses written on them. Of these 72.4 per cent were for patients belonging to the rural areas and the rest from the city area of Allahabad. Default retrieval efforts are in the form of 'direct contact' with the patient of Pulmonary T.B. by the staff from the centre or 'indirect' when a letter or message written or verbal has

TABLE 2
DISTRIBUTION OF PATIENTS BY PLACE OF RESIDENCE AND AGE

Age Group	Place of Residence				Total	
	Rural	Per cent	Urban	Per cent	Number	Per cent
- 5	2	0.7	2	1.1	4	0.9
6-10	4	1.5	7	3.8	11	2.4
11-15	19	7.0	17	9.2	36	7.9
16-20	36	13.2	28	15.2	64	14.0
21-25	40	14.7	31	17.0	71	15.6
26-40	127	46.7	77	41.8	204	44.7
41-50	27	9.9	16	8.7	43	9.4
51 and above	17	6.2	6	3.3	23	5.0
Total	272	59.6	184	40.4	456	100.0

$\chi^2=7.04, d.f.=3, P>0.05$

TABLE 3
DISTRIBUTION OF PATIENTS BY AGE AND SEX

Age Group	Sex				Total	
	Male	Per cent	Female	Per cent	Number	Per cent
- 5	2	0.7	2	1.3	4	0.9
6-10	6	2.1	5	3.1	11	2.4
11-15	23	7.7	13	8.2	36	7.9
16-20	45	15.1	19	11.9	64	14.0
21-25	37	12.5	34	21.4	71	15.6
26-40	127	42.8	77	48.4	204	44.7
41-50	36	12.1	7	4.4	43	9.4
51 and above	21	7.1	2	1.3	23	5.0
Total	297	65.12	159	34.9	456	100.0

$\chi^2=15.4, d.f.=3, P<0.01$

TABLE 4
DISTRIBUTION OF PATIENTS ACCORDING TO DRUG COMPLIANCE AND AGE

Drug Collections	Age groups in years				Total	Z Test
	15	16-25	26-40	41 & above		
No. of 3 visits to the centre	46 (90.2)	128 (94.8)	180 (88.2)	61 (92.4)	415 (910)	Z=.2 P=>.05
No. completed 6 visits	39 (56.9)	110 (81.53)	155 (76.0)	32 (48.5)	326 (71.5)	z=4.5 P=<.05
No. completed 9 visits	16 (31.4)	59 (43.7)	109 (53.4)	14 (212)	198 (43.4)	z=3.7 P=<.05
No. Completed 12 visits	12 (23.5)	32 (23.7)	57 (27.9)	8 (121)	109 (23.9)	Z=2.5 P=<.05
Base Total	51 (112)	135 (29.6)	204 (44.7)	66 (14.5)	456 (100.0)	

Note. Figures in parentheses represent percentages. Z test has been applied between the age groups below and above 40 years.

TABLE 5
DRUG COMPLIANCE PATTERN AND RELIGION

Drug Collection	Religion		Religion		Total	
	Hindu	Per cent	Muslim	Per cent	No.	Per cent P value of Z
No. completed 3 visits	338	92.1	77	86.5	415	91.0 (P> .05)
No. completed 6 visits	269	73.3	57	64.0	326	71.5 (P< .1)
No. completed 9 visits	165	45.0	33	37.1	198	43.4 (P<0)
No. completed 12 visits	85	23.2	24	21.3	109	23.9 (P>0.5)
Base Total	367	80.5	89	19.5	456	100.0

TABLE 6
DRUG COMPLIANCE RATE ACCORDING TO SEX

No. of Drug Collections	Male	Sex Per cent	Female	Per cent	Total	Per cent	Z test and P value
No. completed 3 visits	274	92.3	141	88.7	415	91.0	z=1.03 (P>.05)
No. completed 6 visits	256	86.2	70	44.0	326	71.5	Z=4.89 (p<.01)
No. completed 9 visits	144	48.5	54	34.0	198	43.4	Z=2.82 (P<.01)
No. completed 12 visits	92	31.0	17	10.7	109	23.9	Z=4.76 (P<01)
Total	297	65.1	159	34.9	456	100.0	

TABLE 7
DRUG COMPLIANCE PATTERN ACCORDING TO PLACE
RESIDENCE

No. of Drug Collections	Rural	Place of Residence Per cent	Urban	Per cent	Total	Per cent	Z test and P value
No. completed 3 visits	241	88.6	174	94.6	415	91.0	Z=2 P<.05
No. completed 6 visits	188	69.1	138	75.0	326	71.5	Z=1.5 P>.05
No. completed 9 visits	104	38.2	94	51.1	198	43.4	Z=2.6 P<01
No. completed 12 visits	51	18.7	58	31.5	109	23.9	Z=3 P<.01
Total	272	59.6	184	40.4	456	100.0	

TABLE 8
COMPLIANCE ACCORDING TO DRUG
REGIME (Number of visits)

Type of Treatment		Base	Visits			
			3 rd	6th	9th	12th
R 1	U	66	59 (89.4%)	48 (72.72%)	38 (57.6)	25 (37.9%)
	R	84	78 (92.8%)	56 (66.7%)	32 (38.1%)	16 (19.0%)
						Av. 27.3%
R 2	U	2	2 (100%)	1 (50%)	0	0
	R	6	6 (100%)	5 (83.3%)	4 (66.6%)	1 (16.6%)
						Av. 16.6%
R 3						
R 4						
R 5	U	116	113 (97.4%)	89 (76.7%)	55 (47.4%)	25 (21.6%)
	R	183	157 (86.3%)	127 (69.8%)	69 (37.9%)	42 (23.1%)
						Av. 22.5%
Total		456	415	326	198	109

U = Urban R = Rural

been sent to the patient through another patient of the same village or a village level worker. Under DTP two defaulter actions were recommended for each treatment default. The first action was taken on the fourth day after the due date of drug collection. The second action was taken when the first action had failed to retrieve the T.B. patient till the 8th day after the first action. The method of contact in both times could be 'direct' or 'indirect' First action in the study had been taken occasionally and second action rarely. Referral of cases between the DTC and the PHC and other dispensaries of the district for drug distribution, X-ray and default retrieval was lacking. As a result the PHCs were proving ineffective in follow up of the cases.

DISCUSSION

In the National Tuberculosis Programme (NTB), an efficient treatment has been considered the chief tool for prevention and control of tuberculosis in the community. To ensure that the treatment has been received by each patient at least for a period of 12 months, a treatment organization with limited supervision and machinery for defaulter retrieval has been provided in each district in the form of the District Tuberculosis Centre (D.T.C.). The working of the DTC. was reviewed by the ICMR Review Committee and they pointed out the dismal functioning of the D.T.Cs. especially in regard to defaulter retrieval during the course of treatment⁴. It was envisaged that the situation would improve with the implementation of the multipurpose worker and the community health volunteer schemes as the workers would be closer to the homes of the patients and default retrieval would be easier.

However, in the study the drug compliance rate at the end of the 12th visit was observed to be 23 per cent. Similar figures have been reported by scholars in their studies carried out in different places of India. The default rate was observed to increase with the passage of time as the compliance rate was 91 per cent for three drug collections, 72 per cent for 6 drug collections and 43 per cent for nine drug collections. A sharp decline to 23.9 per cent was noted for twelve drug collections indicating that relief from symptoms made the patients careless towards their future treatment. Researchers have also described this to be an important cause for default during prolonged treatment courses. Another factor which added to the default rate was the problem of distance, as majority of the patients (60 per cent) came from far flung rural areas with difficult communication systems. As a consequence a comparatively high default rate of 81.3 per cent was observed in the rural patients as compared to 68.5 per cent amongst the ones from the urban area. The difference was observed to be statistically significant $P < .01$. Similar reports have been made in their studies carried out in the past^{4&9}. The situation could have been better if the referral services were functioning regularly and the drugs were available at each PHC for distribution to the rural patients. The worst effected patients were the ones at both the extremes of life, *i.e.*, those below 15 years and others beyond the age of 40 years, as the compliance rate amongst these patients was less than those in the age bracket of 16-40 years (Table 4). A statistically significant difference was also noted in the compliance rate which indicated that such patients form a 'special risk group'¹⁰. To these may be added the female patients, especially from the rural area who defaulted more often and much more in number than the males especially after the 3rd visit, the difference being significant $P < .01$ (Table 6). Religion did not appear to affect the compliance rate significantly especially at the time of the 12th visit (Table 5). Apparently, no special efforts had been made to give extra attention and motivation to the sputum positive cases as the compliance rate between the positive cases and the suspects was nearly the same, *i.e.*, in the range of 20-30 per cent. The figure of 8.7 per cent sputum positive cases was a much lower figure than the expected 1/4th of the total cases indicating further the malfunctioning of the D.T.C". No significant difference was observed in the compliance rate with the type of regimen followed for treatment though a study was carried out by the Chemotherapy Centre, Madras¹². Better compliance for patients had been pointed out on R1 regimen.

The above mentioned facts indicated that though many years have passed since the ICMR Review Committee met, the functioning of the D.T.C. has not changed. No improvement in the compliance rate can be expected in the face of a non-functioning default retrieval system, and the first step towards improving this would be proper recording of the patients' addresses³. Unfortunately, in the present study and also as has been reported in other studies 54-65 per cent of the addresses were either inaccurate or incomplete. This malady was more (72.43%) for the rural patients than the ones from the urban area for whom the percentage was comparatively low, only 28.3 per cent. So to bring about a marked change in the present picture, the most appropriate approach would be to strengthen the existing infrastructure and make all those functions viable which were lying defunct". The

primary health centre with its multitude of health workers offers the best scope for organizing a network of treatment facilities, making it accessible to a greater number of patients. Supervised by the Medical Officer, a check on drug regularity can be implemented with the help of the Community Health Volunteers and MPWs, male and female both. Through them, the chemotherapy compliance can be improved by prompt default retrieval motivation and health education of the patients at the very doorsteps of the community. Once an adequate supply of drugs has been ensured at the PHC and proper referral services were maintained by the D.T.C., the peripheral institutions through the primary health care system would prove effective for the control of tuberculosis in future.

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प्रस्तुत अध्ययन इलाहाबाद स्थित जिला क्षय-रोग केन्द्र में किया गया। केन्द्र में आने वाले रोगियों की सामाजिक-आर्थिक विशेषताओं, इलाज के लिए उन्हे दी जाने वाली सेवा-सुविधाओं और एक साल के दौरान उन्हे दी जाने वाली दवाओं के ढांचे के विषय में आवश्यक विवरण रिकार्ड किया गया। अध्ययन से प्राप्त आकड़ों के विश्लेषण से पता चलता है कि बारह दवाओं के संग्रहों की कुल स्वीकृति दर 23.9 प्रतिशत थी। यह दर ग्रामीण रोगियों की अपेक्षा शहरी रोगियों में 31.5 प्रतिशत अधिक थी। ग्रामीण रोगियों में यह दर 18.7 प्रतिशत पाई गई। एक साल के दौरान दवा की स्वीकृति दर 26-40 वर्षीय रोगियों में यह स्वीकृति दर अत्यन्त कम थी। धर्म और इलाज के लिए अपनाई गई। प्रणाली के प्रकार क संदर्भ में स्वीकृति दर में कोई अन्तर देखने में नहीं आया। इलाज कराने वालों में 54.6 प्रतिशत रोग दर करने के लिए किसी प्रकार की कार्यवाही हेतु सक्रिय नहीं पाये गये। उनके पते आधे अधूरे और ठीक से न पढ़े जा सकने वाले थे। विभिन्न स्तरों पर खासतौर पर ग्रामीणों में स्वीकृति दर में सुधार लाने के लिए आवश्यक प्रयासों के तौर पर उत्तम प्रबन्धन और जिला क्षय-रोग केन्द्र द्वारा विभिन्न स्तरों पर दी जाने वाली सेवा-सुविधाओं को सुदृढ़ बनाने का सुझाव यहां दिया गया है।

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**INFANT FEEDING PRACTICES AMONG EDUCATED MOTHERS IN AN
AIR FORCE COMMUNITY**

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ABSTRACT

One hundred graduate mothers from an Air Force community were studied for infant feeding practices. Maternal education was found to have no influence on acceptance of breast-feeding which is universally practiced by all mothers. The study has shown, inter-alia, that a poor knowledge regarding infant feeding practices was prevalent among these mothers despite their educational status. No formal health education on the traditional but wrong practices has been highlighted as means to remove this ignorance.

It is a well established fact that infant feeding and rearing practices have a major effect on physiological, nutritional and immunological status of infants. These practices vary from country to country and even from place to place in the same country. Socio-economic status, maternal education and religion are some of the many factors, believed to influence these practices directly or indirectly. Breast feeding has been the traditional way of feeding in our country and usually is prolonged.

A number of researchers have studied infant rearing practices in different socio-economic and ethnic groups but few have focused on educated mothers though it has been established and widely believed that education of the female gives them access to the information which they can utilize for their benefit^{1,2,3,4}. The present study was conducted with a view to assess the impact of education, on infant feeding practices amongst the educated mothers in an Air Force community.

MATERIALS AND METHOD

The study was carried out in an Air Force Station in South India during January 1, 1991 to March 31, 1991. A list of all the graduate housewives in the Station having at least one child aged between 6 months to 3 years was obtained with the help of the Air Force Wives Welfare Association (AFWWA). Out of 106 such mothers only 100 (94.3%) could be interviewed. An initial contact was made with the mothers during one of the AFWWA meetings and thereafter house to house visit was carried out in a planned manner. The mothers were provided with a predesigned and pretested multiple choice questionnaire and were requested to fill in the information pertaining to infant feeding practices regarding the baby's first feed, whether colostrums was fed or not, reasons for discarding the colostrums, schedule of feeding, time and reasons for starting top feed, the method of cleaning the bottle, age at which semi-solids were

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given, nature of foods used for weaning and causes of delayed weaning. The mothers were asked to indicate the practices or write in detail if the same was not included in the questionnaire.

RESULTS

Honey was found to be the most commonly used (53%) first feed. This was followed by sugar water (22%), breast milk (21 %) and even plain water (4%). It was quite pertinent to note that breast milk ranked only third as a first feed to the new born.

TABLE 1
NATURE OF THE FIRST FEED GIVEN TO THE NEWBORN

Substance	Number (Percentage)
Honey	53 (53.0)
Sugar Water	22 (22.0)
Breast Milk	21 (21.0)
Plain Water	4 (4.0)

TABLE 2
TIME OF INITIATION OF BREAST FEEDING AFTER BIRTH OF THE CHILD

Time of Initiation (Hrs. after Birth)	Number (Percentage)
Less than 4	10(10.0)
4-12	58(58.0)
12-24	12(12.0)
More than 24	20 (20.0)

Most of the mothers (58%) started feeding within 4-12 hours after birth. Mothers started feeding their babies within 12 to 24 hours were 12 per cent. It was noteworthy that 20 per cent mothers fed their babies only after 24 hours.

It was interesting to find that a majority of mothers (56%) discarded colostrums either on the advice of family elders or considering it bad for the baby's health.

Bottle feeding was initiated in the first month itself by as many as 82 per cent mothers, among whom 61 per cent felt that top feed was required and another 21 per cent wanted to habituate their babies to bottle feeding. It was, however, gratifying to find that 79 per cent mothers cleaned and boiled the nipple and bottle after each feed, 11 per cent did the same twice a day whereas 10 per cent practiced the same just once a day.

TABLE 3
TYPE OF TOP MILK GIVEN TO INFANTS

Type of Milk	Number (Percentage)
Commercial Milk Formula	42 (42.0)
Undiluted Cow's Milk	38 (38.0)
Half diluted Cow's Milk	19(19.0)
Goat's Milk	1 (1.0)

It was noteworthy that 42 per cent of mothers preferred commercial milk-feed whereas 37 per cent mothers used cow's milk (38% undiluted and 10% half diluted).

Semi-solids were given before the age of 6 months by 16 per cent mothers, between 7-12 months by 33 per cent mothers and after 12 months by 11 per cent mothers. Thus, in nearly 44 per cent of the babies, weaning was delayed beyond 6 months. The common weaning feeds included *dal*, *khichri* and *dalia* (81%), commercial weaning formulas (11%) and both (8%). The reasons for delayed weaning were given as vomiting by the child (31%), refusal by the child (20%), advised by elderly persons (23%) and fear of indigestion (17%).

TABLE 4
AGE OF INTRODUCTION OF SEMISOLID
FOODS

Age of Infants (Months)	Number (Percentage)
Less than 6	56 (56.0)
7 -12	33 (33.0)
After 12	11 (11.0)

DISCUSSION

The study shows that mere general literacy of the mothers does not have much influence on the acceptance and practice of breast-feeding. Several traditional and wrong practices are continued because of the advice by elder family members¹²³⁴⁵. Health education of adolescent girls, pregnant and lactating mothers has been suggested to circumvent these wrong practices⁶⁷.

All the mothers in the study were breast-feeding their babies. Colostrums was discarded by 56 per cent mothers thus, depriving their babies of potent immunological protection⁸. Majority of mothers gave pro lacteal feed. However, 58 per cent mothers started feeding between 4-12 hours which was remarkably better than the findings of other studies⁹.

Early supplementation of breast milk was a common practice among educated mothers¹²³⁴⁵. In the present study also 82 per cent mothers initiated bottle feeding

in the first month. Most of them cleaned and boiled the bottle and nipple before each feed, thus, avoiding risk of infection⁰.

Semi-solid food was introduced by 56 per cent mothers before 6 months but delayed initiation of semi-solid was observed among 44 per cent mothers which resulted in decreased growth potential among infants around 3-5 months^{1,2,3,4,5} as breast milk alone is inadequate by that time". Therefore, it appeared from the present study that maternal education does not have much influence on the acceptance of breast-feeding in our country. Not only this, the case with regard to breast-feeding, it can as well as said, for all aspects of maternal and child care in our growing urban population. Added to this was the inescapable fact that most, if not all, educated mothers were increasingly attempting to go in for employment, for economic reasons. It further compounds the problems of breast-feeding of the infant which gets pushed back and become unimportant, despite the maternal educational status. A proper health education of such mothers has now perhaps become more important than health education of the illiterate mothers. It also appears that the deep rooted cultural heritage overtakes even the educated mothers, and thus focuses on special needs in maternal health education. However, the knowledge and attitude towards infant feeding needs to be improved further among all the mothers². The focus of attention should be on starting of breast-feeding within one hour of child birth, avoiding protracted feeds, feeding colostrums and starting supplementary feeding between 4-6 months of age to promote the nutritional status of the infant.

Lkkjk'k

शिशुओं को अपना दूध पिलाने संबंधी प्रवृत्तियों के विषय में वायु-सेना के एक समुदाय में से 100 स्नातक महिलाओं पर यह अध्ययन किया गया है। सभी माताओं द्वारा सर्वसम्मति से शिशुओं को अपना दूध पिलाने के सम्बन्ध में स्वीकृति पर उनकी शिक्षा-दक्षिण का कोई प्रभाव नहीं देखा गया। अध्ययन में दर्शाया गया है कि इन माताओं में उनके शैक्षणिक स्तर की अपेक्षा शिशुओं को अपना दूध पिलाने के बारे में कम जानकारी थी। इस अनभिज्ञता को दूर करने के प्रयास के तौर पर किसी भी विधिवत स्वास्थ्य शिक्षा द्वारा पारम्परिक परन्तुं गलत प्रवृत्तियों पर कोई प्रकाश नहीं डाला गया है।

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THE EFFECT OF COLOSTRUM ON INFANT MORTALITY: URBAN RURAL
DIFFERENTIALS

Kiran Singh* and Purnima Srivastava**

ABSTRACT

The study investigates the association between use and knowledge of colostrums on neonatal and post-neonatal deaths. Data from a 1987 survey, conducted under the auspices of the Centre of Population Studies, Banaras Hindu University, India, were used. It has been found that the neonatal and post-neonatal deaths were very low, for females familiar with the importance of colostrums and feeding it than for those who did not know about colostrums and were also not breast-feeding. Findings also revealed that there was no effect of social status on the use and knowledge of colostrums but at the same time a highly significant effect of residence was found on the use and knowledge of colostrums.

This century has witnessed a decline in the normal and natural practice of breast-feeding. This trend started in the West and has since, spread even to the poor communities of Asia, Africa, and South America because of socio-economic reasons, changes in living patterns, advertisements, and the availability of infant formulas and milk substitutes.

In the South Asian countries of Bangladesh, India, Nepal, Pakistan, and Sri Lanka, the pace of change in breast-feeding appears to be only modest^{1,2,3,4,5,6}. However, the differentials between urban and rural populations have been widening over time, suggesting that in urban areas, initiation and/or duration of breast-feeding were declining more rapidly.

Breast-feeding plays a very important role in child nutrition and health in developing countries. Breast-feeding provides protection against morbidity and mortality especially during the first year of life^{7,8}. Even partial breast-feeding has been found to be beneficial⁹. Recently, other researchers have also found that breast-feeding was associated with significant and consistent lower indices of infant morbidity and mortality in Asian countries.

Breast-feeding creates a unique bond between mother and child. When the mother breast-feeds and holds her baby close, she gives the child warmth, affection, and security, as well as food and protection. Since, the breast milk is produced by the mother's body especially for the baby, it contains all the nutrients a healthy baby needs. Breast milk has been known as rich in anti-infective substances and

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Provides the baby with the best protection against diarrhoea infections and food allergies.

The breast-milk which secretes during the first few days after the delivery is called colostrums. It forms a most suitable food for the baby during this particular period because it contains a high concentration of the nutrients the baby needs. It also contains substances that help to protect the baby against many infections. Thus, it is desirable that the infant should begin to be breast-fed as soon as possible after birth, preferably within six hours of birth. The unique nutritional and antibody properties of colostrums and the disadvantages to those infants not fed with colostrums were well documented. However, a review of the literature on the timing of initiation of breast-feeding after birth reveals that generally initiation of breast-feeding after delivery has been delayed considerably and in most cases the infants were deprived of colostrums. The colostrums is discarded because of the general belief that it becomes 'heavy' or 'not good for the newly born child'. As the color of the initial breast milk is not white, it supports the perception that during the first 1-2 days the mother's milk is not pure and hence could harm the child. Other studies showed that about 50 per cent of the cases, the delay in initiating breast-feeding was at the advice of health personnel".

During the first few days, breast milk changes in color but its nutritional and anti-infective qualities remain the same. Because of the anti-infective properties of breast-milk, breast-feeding has been especially found valuable during the first few weeks when the baby is exposed to new conditions. The present study examines the current knowledge and use of colostrum, the first breast-milk, and its effect on infant mortality in the urban areas of Varanasi district and also makes comparison with the rural areas of the same district.

DATA AND THEIR CHARACTERISTICS

The data presented here in the study were derived from two surveys: (i) "Breast-Feeding and Its Effect on Fertility, financed by the University Grants Commission, New Delhi; and (ii) "Effects of Socio-economic Factors on Determinants of Fertility in Eastern Uttar Pradesh", financed by the Indian Council of Medical Research, New Delhi. These surveys were conducted by the Centre of Population Studies, Banaras Hindu University, in 1987-90. The date for reference of both the surveys was 1 October, 1987.

Common objectives of these two surveys were to obtain reliable data relating to fertility to facilitate the study of socio-economic and behavioral factors affecting it. Several socio-cultural, economic, and other factors accounting for variation in duration of lactation and fertility were also taken into account. In addition, female partners of the eligible couples were interviewed on a comprehensive schedule. Use and knowledge of colostrums was recorded for women who gave birth between 1 April, 1986 to 31 January, 1988. A couple (or female) was defined eligible if both the partners were alive on the reference date and the female partner was less than age 50. The study has been based on the data from two types of residential areas -1227 urban and 1837 rural eligible couples of Varanasi, a district of eastern Uttar Pradesh.

The urban households were selected from the regions included in the urban area within last 30 years.

Several factors affect household and social status. Social status in India, particularly, in rural areas, is not only a function of caste and land holding but also of life-style¹². Distinctive life-styles were determined through the differences in the household and educational status, housing etc. The expenditure of rural households was not only determined by their income but also by their aspirations of either maintaining their status or achieving upward social mobility. The women in the study have been classified according to their social-status groups - low, medium and high, by an aggregated score that takes account of the following factors: (a) total household income; (b) household educational status; (c) housing; (d) land holding; and (e) possession of luxuries (for details, see Singh¹³).

RESULTS AND DISCUSSION

In Table 1, an indication of women's' awareness of the first milk after delivery (colostrums) has been given which also include information about infant survival during the neonatal and post-neonatal periods and the first year for children born between 1 April, 1986 to 31 January 1988 in the high social status households of urban and rural Varanasi district. The Table also revealed that more than half of urban mothers did not know about colostrums so they did not feed their children the first milk; the rural figure has been nearly the three-fourths. Of urban and rural mothers who did not feed colostrums to their newborn babies almost 10 per cent of their children died as infants. More interesting was very low percentage for urban children whose mothers were familiar with the importance of colostrums and zero in rural areas. Mothers who fed their infants colostrums experienced no neonatal deaths. The percentage of post-neonatal deaths was much larger for mothers not feeding colostrums to their babies. Infant deaths were also higher in rural areas than in urban areas, possibly because more urban mothers were aware of colostrums. Information about colostrums could not be obtained from 8.33 per cent of urban mothers and 10.71 per cent of rural mothers for various reasons.

In Table 2, the same information has been given as in Table 1 for the medium social status group. About two-thirds to three-fourths of mothers under this group did not know about colostrums. Information was unavailable for nearly 11 and 14 per cent of urban and rural mothers. In social status group an equal percentage of urban babies died as neonates and post-neonates with somewhat greater variation for rural infants. Total infant mortality has been slightly higher for rural areas, but the reverse was true among mothers who were not aware of colostrums. In the groups of babies whose mothers had knowledge about colostrums, only 5 died while mothers unaware of colostrums lost about 31 infants.

TABLE 1
PERCENTAGE DISTRIBUTION OF NEONATAL, POST-NATAL DEATHS AND CHILDREN
SURVIVING MORE THAN A YEAR ACCORDING TO KNOWLEDGE AND USE OF
COLOSTRUM IN URBAN AND RURAL AREAS OF VARANASI DISTRICT: SOCIAL
STATUS I

Knowledge and use of Colostrum	Urban				Rural			
	Neonatal death	Post- neonatal death	Children Surviving more than a year	Total	Neonatal death	Post- neonatal death	Children surviving more than a year	Total
Yes	0.00 (0)	1.67 (1)	98.33 (59)	35.72 (60)	0.00 (0)	0.00 (0)	100.00 (14)	16.67 (14)
No	4.26 (4)	5.32 (5)	90.42 (85)	55.95 (94)	8.20 (5)	1.64 (1)	90.16 (55)	72.62 (61)
N.A.	7.14 (1)	7.14 (1)	85.72 (12)	8.33 (14)	0.00 (0)	33.33 (3)	66.67 (6)	10.71 (9)
Total	2.98 (5)	4.17 (7)	92.85 (156)	168	5.95 (5)	4.76 (4)	89.29 (75)	84

NA: Not available;

Number of observations in parentheses.

TABLE 2
PERCENTAGE DISTRIBUTION OF NEONATAL, POST-NEONATAL DEATHS AND
CHILDREN SURVIVING MORE THAN A YEAR ACCORDING TO KNOWLEDGE AND USE
OF COLOSTRUM IN URBAN AND RURAL AREAS OF VARANASI DISTRICT: SOCIAL
STATUS II

Knowledge and use of Colostrums	Urban				Rural			
	Neonatal death	Post- neonatal death	Children surviving more than a year	Total	Neonatal death	Post- neonatal death	Children surviving more than a year	Total
Yes	2.17 (1)	4.35 (2)	93.48 (43)	24.21 (46)	3.70 (1)	3.70 (1)	92.60 (25)	12.22 (27)
No	5.69 (7)	7.32 (9)	86.99 (107)	64.74 (123)	4.91 (8)	4.29 (7)	90.80 (148)	73.76 (163)
N.A.	14.29 (3)	0.00 (0)	85.71 (18)	11.05 (21)	29.03 (9)	6.45 (2)	64.52 (20)	14.03 (31)
Total	5.79 (11)	5.79 (11)	88.42 (168)	190	8.14 (18)	4.53 (10)	87.33 (193)	221

NA: Not available; (): Number of observations in parentheses.

The information regarding low social status group has been presented in Table 3, in which only a fourth of urban mothers have information about colostrums while

fewer than 15 per cent of rural mothers were aware of it. The percentage of children surviving more than a year whose mothers had information about the importance of colostrums was very high in urban (90 per cent) and rural areas (100 per cent).

TABLE 3
PERCENTAGE DISTRIBUTION OF NEONATAL, POST-NEONATAL DEATHS AND CHILDREN SURVIVING MORE THAN A YEAR ACCORDING TO KNOWLEDGE AND USE OF COLOSTRUM IN URBAN AND RURAL AREAS OF VARANASI DISTRICT: SOCIAL STATUS III

Knowledge and use of Colostrums	Urban				Rural			
	Neonatal death	Post-neonatal death	Children surviving more than a year	Total	Neonatal death	Post-neonatal death	Children surviving more than a year	Total
Yes	10.00 (1)	0.00 (0)	90.00 (9)	26.32 (10)	0.00 (0)	0.00 (0)	100.00 (18)	14.40 (18)
No	17.39 (4)	13.04 (3)	69.57 (16)	60.53 (23)	11.36 (10)	3.41 (3)	85.23 (75)	70.40 (88)
N.A.	0.00 (0)	60.00 (3)	40.00 (2)	13.16 (5)	5.26 (1)	5.26 (0)	89.48 (17)	15.30 (19)
Total	13.16 (5)	15.79 (6)	71.05 (27)	38	8.80 (11)	3.20 (4)	88.00 (110)	125

NA: Not available; (): Number of observations in parentheses.

If Tables 1,2 and 3 were to be compared for urban areas, it would be observed that as the social status decreases, infant deaths also increase. The corresponding percentages were 7.15, 11.58 and 28.58 for high, medium and low social status groups respectively. In the high social status group, a higher proportion of mothers were found to be aware of colostrums, hence it may be that in a population where more women know about colostrums, the proportion of infant death was less. Almost an equal proportion of rural mothers in each social status group do not know the importance of colostrums.

A summary of Tables 1, 2 and 3 has been given in Table 4. Close to a third of urban mothers were aware of colostrums but less than half that numbers of rural mothers were aware of it. Almost equal percentages of babies died as infants in urban and rural areas but the neonatal deaths were greater in rural areas in comparison to the urban areas.

An X²-test was applied to find a relationship between social status and knowledge of colostrums, the calculated value of X² has been found as 5.14 which seem to be insignificant at the 5 per cent level of significance at 2 degrees of freedom. Hence, it was concluded that there was no effect of social status on the knowledge of colostrums but if put to test, the hypothesis that there was any relationship between residence (urban or rural) and knowledge of colostrums, it was

TABLE 4
PERCENTAGE DISTRIBUTION OF NEONATAL, POST-NEONATAL DEATHS AND
CHILDREN SURVIVING MORE THAN A YEAR ACCORDING TO KNOWLEDGE AND USE
OF COLOSTRUM IN URBAN AND RURAL AREAS OF VARANASI DISTRICT: TOTAL
POPULATION

Knowledge and use of colostrums	Urban				Rural			
	Neonatal death	Post- neonatal death	Children surviving more than a year	Total	Neonatal death	Post neonatal death	Children surviving more than a year	Total
Yes	1.72 (2)	2.59 (3)	95.69 (111)	29.29 (116)	1.69 (1)	1.69 (1)	96.62 (57)	13.72 (39)
No	6.25 (15)	7.08 (17)	86.67 (208)	60.61 (240)	7.37 (23)	3.53 (11)	89.10 (278)	72.56 (312)
N.A	10.00 (4)	10.00 (4)	80.00 (32)	10.10 (40)	16.95 (10)	10.17 (6)	72.88 (43)	13.72 (39)
Total	5.30 (21)	6.06 (24)	88.64 (351)	396	7.91 (34)	4.19 (18)	87.90 (378)	430

NA: Not available; (): Number of observations in parentheses.

found that the calculated value of X^2 comes out to be 27.67 which was highly significant at the 5 per cent level of significance and one degree of freedom. Hence, it has been concluded that there existed a highly significant effect of residence on use and knowledge of colostrums.

सारांश

प्रस्तुत अध्ययन में प्रसव से पूर्व एवं प्रसवोत्तर मर जाने वाले नवजात शिशुओं के संदर्भ में कोलेस्ट्रम के प्रयोग एवं इसके विषय में आवश्यक ज्ञान संबंधों का विश्लेषण किया गया है। बनारस हिन्दू विश्वविद्यालय के अन्तर्गत जनसंख्या अध्ययन केन्द्र के तत्वाधान में 1987 के दौरान किए गये एक सर्वेक्षण से प्राप्त आंकड़ों का प्रयोग यहां किया गया है। कोलेस्ट्रम के महत्व को समझने और इसे देने के बारे में आवश्यक जानकारी रखने वाली महिलाओं में कोलेस्ट्रम के महत्व को न जानने और अपना दूध न पिलाने वाली माताओं की अपेक्षा, प्रसव से पूर्व एवं प्रसव के पश्चात शिशु-मृत्यु-दर बहुत कम पाई गई। अध्ययन से प्राप्त निष्कर्षों से पता चलता है कि कोलेस्ट्रम के प्रयोग तथा इसके महत्व के विषय में आवश्यक जानकारी का सामाजिक स्थिति पर किसी प्रकार का कोई प्रभाव नहीं था। लेकिन इसके साथ-साथ यहां यह भी देखा गया है कि आवास को कोलेस्ट्रम के प्रयोग एवं उसके विषय में आवश्यक जानकारी का गहरा प्रभाव पड़ता है।

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**INTERVENTIONS IN RURAL HEALTH: ORGANISATION AND MANAGEMENT OF
THE MULTIPURPOSE HEALTH WORKERS SCHEME - A CASE STUDY**

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ABSTRACT

The paper explores the managerial dimensions of the rural health care system and seeks to examine the managerial effectiveness of the Multipurpose Health Workers Scheme in the States of Karnataka and West Bengal. While analyzing critically the problem facing the health delivery system, the PHC system in particular the article endeavors to highlight the policy and programme implementation implications drawn from the intensive field studies conducted in the two States.

The MPHWScheme was launched in the year 1974 with the objective of establishing a health care delivery system in rural areas through a team of multipurpose health workers, one male and one female, in every sub-centre of the Primary Health Centre (PHC) set-up. The specific objectives of the MPHWScheme were: (i) to increase the accessibility of health care services in rural areas; (ii) to reduce the area and population allotted per health worker to improve the quality of health services delivered through trained Para-medical personnel and to extend the services at the periphery; (iii) to help develop a good rapport with the rural community; (iv) to convert all existing unipurpose workers at different levels into multipurpose workers after reorientation training; and (v) to integrate organization and structure of various health and family welfare programmes at the levels of primary health centre, district and the State.

The MPHWScheme and the PHC Network

The Multipurpose Health Workers (MPHWs) form the most peripheral category of health staff in the existing health services structure. The area of operation of the multipurpose health worker is about 5,000 populations in rural areas and 3,000 population in hilly and tribal areas. They provide an integrated package of health care services. The implementation of this scheme has necessitated conversion of the unipurpose health workers at different levels into multipurpose health workers. The unipurpose health workers like Basic Health Workers, Vaccinators and Family Planning Workers were brought together to form a cadre of multipurpose health workers for better delivery of inputs and services. The launching of the MPHWScheme thus, heralds an important phase in the country's rural health delivery system by way of a merger of the vertical programmes into an integrated health care

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delivery system. All this was aimed at strengthening the primary health centers. The progress of implementation of this scheme has, however, been slow, for it has taken more than a decade to implement the scheme in majority of the districts of the country. The Sixth and Seventh Five Year Plan mid-term appraisals found that the quality of implementation of this scheme was not satisfactory.

Past Studies of the MPH Scheme

A number of general studies have been carried out by social Scientists to understand the overall impact of the multipurpose health workers' scheme on the rural population of India (Maru et al 1976; Joshi et al 1978; Nayeem and Murthy 1979; Gupta et al 1986, Planning Commission, 1983). However, no systematic and comprehensive study was available on the management of multipurpose health workers scheme as such. Hence, the present field based study was conducted.

Objectives of the Study

(i) To study the organizational structure and management of health care services in the sample States of Karnataka and West Bengal in general, and of the Multipurpose Health Workers' (MPHW) Scheme in particular; (ii) To examine the functioning of the Multipurpose Health Workers' Scheme and its impact on the rural populations in the sample States; and (iii) To suggest improvements in the overall functioning of the Multipurpose Health Workers' Scheme.

Methodology

The study was conducted in two States, viz., Karnataka and West Bengal. Four districts in each of the sample States were chosen for study. Three Primary Health Centers (PHCs) from each sample district and 4-5 sub-centers (SCs) from each of the sample PHCs were randomly selected. Both male and female multipurpose health workers of the sample PHCs and SCs comprised the respondents. One hundred multipurpose health workers (Male and Female) were selected at random from each sample State. Thus, the total size of the multipurpose health workers studied was 200. Also, a hundred beneficiaries (users) from each of the States were interviewed to understand the nature of impact of the scheme on the status of their health.

The primary data were collected with the help of the following four Interview Schedules, viz., (i) Multipurpose Worker's Schedule; (ii) Health Supervisors' Schedule; (iii) Medical Officers' Schedule; and (iv) Beneficiary Schedule. The beneficiary schedule included aspects relating to awareness, perception and involvement of beneficiaries in various services offered by the multipurpose workers to the rural population through sub-centers and primary health centers.

Secondary information on matters relating to the policies and implementation of the MPH Scheme was gathered from the State Directorates of Health and Family Welfare, District Health Officers, PHCs and SCs. In addition detailed discussions were held with the officials of the sample PHCs as also the district and State level Officials.

Results and Discussion

Organization and Management. The State of Karnataka has been divided into four divisions, namely, Bangalore, Mysore, Gulbarga and Belgaum for the purpose of administering the health and family welfare activities by the State Government. Each division is headed by a Joint Director, who is the overall coordinator of the Division. All the District Health and Family Welfare Officers report to him and also submit their monthly progress reports.

District Level Organizational Set-up: The DHFWO is the overall controlling officer of all the health activities at the district level in Karnataka. He is responsible for planning, execution and evaluation of all the health programmes in the district. He is also in charge of the MPHWS programme at the district level. The DHFWO and other officers such as the District Malaria Officer, the District Tuberculosis Officer, the District Leprosy Officer and the District Immunization Officer are responsible for successful implementation of the MPHWS programme. All the PHC Medical Officers of Health (MOHs of PHCs) report to him and submit monthly progress reports.

The Chief Medical Officer (CMOH) is the overall controlling officer of all State financed health activities at the district level in West Bengal. He acts as the controlling officer of the MPHWS programme. The CMOH is assisted by 4 Deputy CMOHs and 3 ACMOHs. All the Block Medical Officers of Health (BMOHs) of all the PHCs in the district report to him and also submit their monthly progress reports.

Organizational Set-up at the Primary Health Centre (PHC) Level: The Primary Health Centre (PHC) occupies a key position in the nation's health care system. PHC is provided with 2 or 3 medical officers assisted by a number of paramedical staff. One of the senior medical officers is designated as Medical Officer of Health (MOH) in charge of the PHC in the State of Karnataka and Block Medical Officer of Health (BMOH) in West Bengal. Besides the doctors, the PHC team consists of Sanitary Inspectors, Social Welfare Officers/Block Health Educators, Block Public Health Nurse/Lady Health Visitors, Pharmacist, Laboratory Assistant, computer/statistical Assistant, Health Assistants (Male and Female)/Multipurpose Health Workers. The study revealed that the staffing pattern in both the sample States was nearly similar.

Organizational Set-up at Sub-Centre Level: At the sub-centre level, there are two main functionaries *viz.* the Multipurpose Health Workers (MPHW - Male and Female) who cater to the needs of about 5,000 population in about 5 villages each.

Management at the District Level: The District Health and Family Welfare Officer (DHFWO) in Karnataka or the Chief Medical Officer of Health (CMOH) in West Bengal is the district level manager of the health team. The MPHWS scheme is managed by a team comprising of District Health Supervisor, District Nursing Supervisor and the District Health Education Officer assisted by a Deputy Health Education Officer. The District Health Supervisors provide technical supervision and guidance to the PHC supervisory staff and also to the Junior Health Assistants (Male) of all the health programmes. The District Nursing Supervisor gives technical guidance and supervises the senior health assistant (female) at the PHC. The

District Health Education Officer guides the Block Health Educators of PHCs in educational activities such as orientation camps, mass educational media activities; film shows multi-media campaign, etc. The District Immunization Officer monitors the immunization programme at the district level. Similarly, the District Tuberculosis Officer, the District Malaria Officer and the District Leprosy Officer monitor the respective disease specific programmes at the district level. The monthly review meetings of the PHCs are held at the Office of DMFWO/CMOH once a month. All the BMOHs/MOHs of the PHC in the district attend the meetings and the performance of each PHC is discussed and reviewed. The district office compiles all the reports of the PHCs and prepares a consolidated progress report and sends it to the Directorate of Health Services and Family Welfare.

Management at the PHC/SC Level: The administrative unit for location of a Primary Health Centre (PHC) is a community development block in the rural areas.

In Karnataka, there are 502 PHCs and 5164 sub-centers (SCs) giving an average of 11 HCs to a PHC. But in the State of West Bengal, there are 1265 PHCs and 7665 sub-centers (Health Information of India, 1987), giving an average 6 SCs to a PHC.

At the PHC level, the administrative position of the Block Medical Officer of Health (BMOH) in West Bengal and the Medical Officer of Health (MOH) in Karnataka was similar. The BMOH/MOH of the PHC and his staff has been brought under the administrative control of the Directorate of Health Services and Family Welfare through the Chief Medical Officer of Health (CMOH) or the District Health and Family Welfare Officer (DHFWO) at the district level. The Medical Officer In charge of the PHC has the overall responsibility of providing integrated health care services to the population assigned to it. He has the assistance of 1 or 2 Medical Officers, Male and Female Health Assistants, one Sanitary Inspector and a Block Extension Educator to provide line and staff support to the MPHWS.

The sub-centre (SC) is the focal point for the delivery of health care services to the rural population. It forms the base of activities of two MPHWS, a male and female worker, who cater to the health needs of about 5,000 to 8,000 population. Besides dispensing medicines and conducting regular diagnostic/treatment exercises, weekly clinics comprise the major activities of a sub-centre.

Staffing Pattern in Sample PHCs: The staffing pattern is more or less uniform in all the sample PHCs in both the States. However, some variations, attributable mainly to the availability of staff and budgetary allocations/constraints do exist.

The staffing pattern in the sample PHCs of Karnataka revealed that majority (66.6 per cent) of the PHCs had 2 or more Medical Officers positioned. All the PHCs had one post of Block Health Educator each posted. Seven PHCs had 2 or 3 Sanitary Inspectors each positioned. Majority of the PHCs had 2 or 3 Lady Health Visitors positioned. It was found that the MPHWS (Male) were fewer than the MPHWS (Female) positioned in all the PHCs except the Daddi PHC of Belgaum district.

The study revealed that majority (91.7%) of the sampled PHCs in West Bengal had 2 or more Medical Officers' positioned. Fifty per cent of the sample PHCs had 2 Sanitary Inspectors positioned each. There was one post of Social Welfare Officer (SWO) positioned in majority of the PHCs. Two posts of Public Health Nurses (PHN) each were positioned in majority of (58.3%) of the PHCs. Most of the PHCs had one post of Pharmacist and one post of computer each positioned.

The total number of MPHWs (M) ranged from 14 to 26 in the sample PHCs whereas in the case of MPHw (F) it ranged between 11 and 35. In Karnataka, the number of male workers positioned in the sample PHCs was comparatively lower than that of the female workers. The number of female workers positioned was nearly the same as that of the number of sub-centers. A similar picture emerged in West Bengal where the number of female workers positioned was higher than that of the male workers in majority of the sample PHCs. In general, one PHC covered the entire population of a block in West Bengal, while in Karnataka 2 or 3 PHCs covered the population of a block/talk.

The Multipurpose Worker (Female) has an additional responsibility of providing maternal and child health care services and attending to deliveries. At the sub-centre level, as the MPHws (M and F) are treated as separate entities, they are given separate targets though they serve the same area and population. Therefore, it becomes necessary for both these MPHws to coordinate their activities to achieve the programme targets. However, for various reasons, such coordination does not exist in the field. The lack of coordination has been attributed to the cumbersome programme implementation procedures, mode of transport used, low availability of facilities at the sub-centre, etc. The structural constraints expressed by the MPHws included lack of horizontal links both in the organization and the management of services.

SUPERVISION

Both male and female workers have separate male and female Health Supervisors who are linked to the Block Medical Officer of Health of the PHC. The PHC is the meeting point for all the Health Workers. The structure envisages that the male and female Multipurpose Workers remain distinctly different as if their functions are mutually exclusive though they work in the same area and serve the same population. This imposes constraints in interaction between them. At the programme management level, particularly with regard to target setting procedures, the targets were not given to the sub-centre but to the individual Health Worker. Since, they work in the same area and serve the same population, this approach often leads to conflict and competition, and least of all, to collaboration between the Multipurpose Health Workers.

For reasons like meager financial resources and prioritization of allocation of scarce housing resources, residential accommodation is more accessible to female MPHws than male MPHws. As a result of this, the male MPHws by and large stay outside the SC village. Thus, logistical as well as other types of coordination between the male and female Health Worker gets adversely affected.

As almost all the first line Health Supervisors such as the Junior Health Inspector and Lady Health Visitor (both male and female) are promo tees from the rank of MPHWS, most Medical Officers often tend to relegate them to a workers' status or not "consciously" accord them the status due to them. At times, the Medical Officers directly interact with the MPWs and often, in the process, by pass the supervisors views and authority. Therefore, the supervisors tend to feel left out and aggrieved of the fact that they have not been taken into confidence. As a result, these junior level supervisors tend to identify themselves more with the workers than with their immediate senior supervisor or the doctors.

However, the senior level Health Supervisors such as the Senior Health inspector as in the case of Karnataka do supervise the performance of work of the MPWs. The Block Health Educator in Karnataka and the Social Welfare Officer in West Bengal supplement the supervision work of their senior supervisors (Doctors and others). They visit the sub-centre every month and assess the performance of the MPHWS by checking their daily diaries, various registers maintained at the sub-centre and also through the first line Health Supervisors' reports and diaries.

Supervision of Supervisors by Medical Officers: The Medical Officer (in charge of the PHC) is expected to supervise the work performance of members of his team at regular intervals. This is envisaged to be done by way of visiting the sub-centers

Periodically and through reviews of work done by the members of the team at the monthly review meetings presided over by him. Besides, the Medical Officer is also expected to talk to the MPHWS and people and get a feel of the supervisors' effectiveness as well as their work efficiency.

Supervision of the MPHWS, however, by the MOs is a rare phenomenon in our sample study PHCs. They rarely visit the sub-centers to supervise the work of the MPHWS at the field level. Our field interviews revealed that the MOs complained of not finding sufficient time to visit the sub-centers as they were busy attending to the outpatients and inpatients, apart from attending to the usual administrative works in the PHC. It was found that a good number of sub-centers were not easily accessible by road transport. The MOs did not want to take the trouble of visiting the sub-cent

res not accessible by road transport. Even if a vehicle was available, inadequate funds for petrol, oil and lubricants (POL) was voiced as a major reason for not visiting the sub-centers.

The MOs, therefore, generally assign the job of supervision in to their health supervisors. Supervision of Health Supervisors by the MOs is by and large done through checking of the daily diaries of supervisors and by reviewing the progress of work done by them at the monthly staff meetings presided over by the BMOH. The targets and achievements of each health programme with special reference to MCH and FW of each **MPHW** is reviewed and if there is any short fall in the achievement of targets he/she is asked to improve upon the performance. This is how the supervision of workers as well as the performance appraisal of the MPHW scheme has been done at the PHC level.

Monitoring of performance of MPHWS by the Medical Officer is to be followed up by personal supervision of workers at the sub-centre level. However, this was not

Carried out by them regularly. The MPHWs were supervised by their respective sector and block health supervisors but not very frequently. However, field observations revealed that they (MPHWs) did not get any guidance whatsoever for improving their performance. Moreover, supervision of MPHWs by the supervisors was very marginal. Supervision by the Block Sanitary (Health) Inspector and the Block Health Extension Educator was less frequent. Thus, supervision of the MPHWs was evidently very weak. This also indicates that whatever the type/quality of supervision was available was confined to the peripheral stratum of the MPHw scheme and thereby leaving much to be desired in terms of coordination with higher tiers of the scheme at the district and State levels.

in the present PHC set-up, supervision of field work of the paramedical staff, especially the MPHWs by the Medical Officer of the PHC is very much limited both due to lack of time and high coverage in terms of area and population expected to be serviced by the PHCs. It goes without saying that efforts to improve the image of the PHCs and sub-centers and to optimally utilize the staff services and of the PHCs are greatly dependent upon the vigor of supervision by the Medical Officers.

Programme Implementation: Effective programme implementation and delivery of health services require proper planning by the MO in charge of the PHC. As a leader of the health team, the MO is expected to involve his team-mates in the process of planning and decision-making.

The monthly review meetings and field visits are the two main mechanisms through which the BMOH/MOH keep track of the work progress as also consult the **health** functionaries on matters relating to the programme implementation and impact. However, monthly meetings held at the PHC were, by and large, utilized for completing progress reports of SCs/MPHWs and very little time was devoted to programme planning and implementation. The BMOH/MOH usually visited the SCs on very few occasions in a year. Moreover, these visits were more in the nature of inspection rather than identifying and solving the problems of the MPHWs. Communication was mainly downward in the form of instructions and guidelines. The bottom-up communication was mainly in the form of monthly progress reports and monthly review meetings which were not effectively used for communicating problems at the SC level. This communication was further restricted with fewer visits of the medical officer and very rare visits by the CMOH/DHFWO and the State level officers to the SCs. The monthly progress reports submitted by the MPHWs, health supervisors and the BMOH/MOH of the PHC, often were alone viewed as major sources of monitoring and appraisal. Other mechanisms such as personal visits and meetings were generally found to be not so effective. Reporting was not proper in the **sense** that the problems as well as progress at the PHC level, more so at the **SC level, was** not brought out clearly in these reports even when the problems were identified, very little follow-up actions were initiated at the PHC/SC level.

COORDINATION

Coordination amongst various health programmes and schemes at all levels of **health administration from the** Central and State Governments to the district and

PHC levels are of critical importance. It is not only a function of structural relationship, but is also a determinant of both the quality and extent of various activities and their outcomes. Therefore, coordination committees have been set up at various levels. At the Central Government level, a coordination committee has been constituted to provide coordination and direction to the State Government of Health and Family Welfare. Similar arrangements also exist at the lower levels of administration too, which are outlined below.

State and District Level Coordination Committees: At the State level, a coordination committee under the Chairmanship of the Minister of Health and Family Welfare has been made administratively responsible for all health programmes including the MPHW scheme. Representatives of the Directorate of Health Services and Family Welfare were the members of the committee. Each State has a state coordinator who ensures smooth functioning of the scheme. In West Bengal, the Deputy Director of Health Services (MPH) in the Directorate of Health and Family Welfare coordinates the scheme at the State level and is also in charge of the State level MPHW cell. Similarly, a senior officer of the rank of Joint Director in the Directorate of Health and Family Welfare of the Government of Karnataka coordinates the scheme at the State level. A nucleus of the Secretariat set-up in the Department of Health and Family Welfare of the State Government directs and monitors the progress of the MPHW scheme in the concerned States. One of the main objectives of the monitoring system was to streamline and improve the implementation of the scheme. Thus, the Coordination Committees and monitoring systems evolved by the State Government were expected to help and enhance the performance of the scheme.

The district level coordination committee was chaired by the President of the Zilla Parishad in the case of Karnataka and the Sabhadhipathi of the Zilla Parishad in the West Bengal. The Deputy Commissioner/District Magistrate was the vice-president of the committee. In Karnataka, at the Zilla Parishad level, there exists a 'Health Committee which comprises six members. The District Health and Family Welfare Officer (DHFWO) was its convener. The Committee meets once in a month, and reviews the progress of various health programmes including the MPHW scheme. The DHFWO submits to the committee monthly reports compiled from the monthly progress reports of the PHC under his jurisdiction. It was found that this committee was functioning satisfactorily in the sample district of Karnataka. The study also revealed that the committee met frequently in the year 1988 and reviewed the progress of health and family welfare programmes of the district.

The Sabhadhipathi of the Zilla Parishad was the chairman of the coordination committee at the district level in West Bengal. The district magistrate was the vice-chairman of the committee. Three members were also nominated by the Department of Health and the other three represented other departments/walks of life on the committee. The district coordination committees in the sample district of West Bengal too were found to be working satisfactorily though lacking in enterprise and experimentation. The committee met quite frequently, *i.e.*, once in three months, in the year 1988 and reviewed the progress of health and family welfare programme.

of the district. Besides, a review committee with the following officers was constituted in each district of West Bengal (i) Chief Medical Officer of Health (CMOH) Chairman of the Committee, (ii) All Deputy Chief Medical Officers of Health (Dy. CMOH), members of the committee, (iii) Karmadhyaktha of the Janaswasthya Sithayee Samithi of the Zilla Parishad, member and (iv) Assistant Chief Medical Officer of Health, convener of the committee. The committee met at least once in a month, to ensure effective functioning of the scheme. It reviews the progress of the scheme, finds out ways and means to improve the programme achievement status and make necessary adjustment in different categories of staff at the PHC and district levels.

PROGRAMME AWARENESS AND UTILISATION OF SERVICES BY BENEFICIARIES

The Multipurpose Health Workers' Scheme, as already outlined, primarily aims at providing simple primitive, preventive and curative health services to the people at their door-steps as also encourage community participation for effective delivery of primary health care. Toward assessing the utilization pattern of the scheme, it was considered important to obtain opinions and perceptions of the beneficiaries of the scheme. An analysis of the same is presented in the following section.

By and large, widespread and better levels of awareness among people were expected to facilitate better utilization of health care services. Data on levels of programme awareness and utilization of services rendered revealed that a majority of the beneficiaries (95.0 per cent) reported that they were aware of the activities and the services rendered under the MPHWS scheme. Further, the beneficiaries also reported that they used the services of the sub-centre regularly (Table 1).

TABLE 1
LEVELS OF PROGRAMME AWARENESS AND UTILISATION OF SERVICES
BY BENEFICIARIES

S.No	Indicator	Karnataka		West Bengal	
		Number	Percentage	Number	Percentage
1.	Aware of SC activities	98	98.0	94	94.0
2.	Aware of implementation of MPHWS scheme	85	85.00	92	92.0
3.	Utilized the services of SC	97	97.00	96	96.00
4.	Used SC services regularly	98	98.0	91	91.0

The variety of services rendered by the sub-centers and the data on most frequently utilized services in the past one year have been analyzed and have been shown in Table 2.

TABLE 2
SC SERVICES MOST FREQUENTLY USED BY THE BENEFICIARIES IN THE LAST
ONE YEAR

S.No	Services	Karnataka		West Bengal	
		Yes	No	Yes	No
1.	General Medical Care	26	74	33	67
2.	Ante/Post-natal Care	39	61	28	72
3.	Other Maternity Services	31	69	26	74
4.	Immunization	79	21	57	43
5.	Family Welfare	76	24	54	46
6.	Nutrition	59	41	73	27
7.	Health Education	53	47	77	23

In Karnataka, immunization turned out to be the most frequently used services with 79.0 per cent of the beneficiaries ranking it first and in West Bengal, Health Education with 77.0 per cent ranking it first. The other services utilized considerably by the beneficiaries in Karnataka were Family Welfare (2nd rank, 76.0 per cent), Nutrition (3rd rank, 59.0 per cent), and Health Education (4th rank, 53 per cent). Other services like medical care (26.0 per cent), ANC/PNC (39.0 per cent), and maternity care (31.0 per cent) were used less frequently. In West Bengal, apart from health education (1st rank with 77.0 per cent), the other services utilized included nutrition, maternity services, immunization and family welfare. All other services were used less frequently.

As regards, specific illnesses for which the beneficiaries have consulted the sub-centre, the data revealed that a majority of them (70.0 per cent in Karnataka and 78.0 per cent in West Bengal) approached the sub-centre to receive the treatment for fever. This was followed by ailments like cold and cough which ranked second in both the States. It may be inferred from the data that the rural people are mainly attacked by fever, cold and cough and diarrhea.

The beneficiaries visited the sub-centers for various reasons in preference to others. An analysis of the same revealed that the main reasons mentioned were free of cost treatment, quick relief and good medical attention: These three reasons were mentioned by majority of the beneficiaries. The other commonly heard of reasons such as easily accessible, no side effects, etc., were expressed by a few.

As regards, following the prescribed course of treatment recommended by the doctor over 90.0 per cent of the beneficiaries in both the States obtained treatment as prescribed, while only a few did not. The data also revealed that 82.0 per cent of the beneficiaries in both the States have reported that they were fully cured of their problems.

When asked which other medical care centers other than the sub-centre such as a primary health centre or district hospital or private clinics were visited by the

beneficiaries, over 77.0 per cent beneficiaries in Karnataka and 34.0 per cent in West Bengal said that they visited primary health centre or district hospital for the treatment; (56.0 per cent) in West Bengal and (13.0 per cent in Karnataka listed private clinics while 10.0 per cent) of the beneficiaries said that they had not visited any medical care centre other than the sub-centre.

A majority of the beneficiaries (52.0 per cent) preferred allopathic system of medicine in Karnataka while in West Bengal only 34.0 per cent of them preferred the same. in West Bengal, 19 per cent preferred Indian systems of medicines to others.

OPINIONS OF THE BENEFICIARIES AND MPHWS ON THE IMPACT OF MULTIPURPOSE HEALTH WORKERS (MPHW) SCHEME

(a) *Opinions of the Beneficiaries:* Toward assessing the nature of impact the MPHW scheme has had on the rural individual health scenario, the beneficiaries opinions were sought on usefulness, adequacy and timeliness of the MPHWS home visits first. Almost all (95.0 per cent) of the beneficiaries in both the States said that the MPHW visits were useful, while nearly half of them said that their visits were very useful as has been shown in Table 3 and 4.

TABLE 3
BENEFICIARIES' OPINIONS ON THE USEFULNESS OF THE MULTIPURPOSE HEALTH WORKERS' VISITS

S.No.	Opinion	Karnataka		West Bengal	
		Number	Percentage	Number	Percentage
1.	Very useful	46	46.0	45	45.0
2.	Useful	53	53.0	54	54.0
3.	Not useful	1	1.0	1	1.0
		100	100.0	100	100.0

TABLE 4
BENEFICIARIES OPINIONS ON THE ADEQUACY VISITS AND TIMELINESS OF MPHWS'

S.No.	Opinion	Karnataka		West Bengal	
		Yes	No	Yes	No
1.	Adequate	63	37	65	35
2.	Timely	63	37	67	33

Regarding adequacy of visits, 63.0 per cent and 65.0 per cent of the beneficiaries from Karnataka and West Bengal reported that the visits were adequate. About 35.0 per cent in West Bengal, however, wanted the MPHWS to pay more visits while as many in Karnataka desired so. Talking of timeliness of MPHWS' visits, nearly two-thirds of the beneficiaries in both the States reported satisfaction, while a third of them differed in their view in this regard.

Opinions of the beneficiaries on the functioning of the sub-centers were also sought. It revealed that 50.0 per cent and 29.0 per cent of the beneficiaries from Karnataka and West Bengal respectively opined that the functioning of the sub-centers was good while the rest (majority of them) in both States said that the functioning of the sub-centers was 'just about alright' or 'not very satisfactory'.

However, though intriguing data on improvements in general health of the beneficiaries as a result of the coming of the sub-centers showed that the general levels of health of beneficiaries of both Karnataka and West Bengal respectively had improved. Nearly, two-thirds of the respondents considered the MPHWS scheme a better programme than the unimproved scheme. In West Bengal, over three-fourths of the beneficiaries reported that the MPHWS scheme was better when compared to the unimproved scheme.

To understand how the positive impacts of the MPHWS scheme can be enhanced/sustained, it was deemed important to seek from the people their suggestions for the improvement of the working of the MPHWS scheme. The suggestions included (i) *pucca* buildings with all the infrastructure facilities to house the PHC and various medical equipments; (ii) regular supply of medicines; (iii) provision of facilities for delivery and maternal care at all the sub-centers; (iv) increase in the number of the PHC/SC working hours; (v) the multipurpose workers and doctors must pay more and regular visits to the villages; (vi) family planning should be made compulsory and incentives for the same should be increased; (vii) the population and the area a MPHWS was supposed to cover intensively appears rather high. Hence, the authorities would do well if they could think of reducing the coverage of population per worker. This would certainly enhance the qualitative impact of the scheme in terms of greater client satisfaction, improved overall health conditions of the people and consequently, enhanced confidence of the people in the scheme; (viii) Supervision of health supervisors needs to be strengthened as supervision was considered the link pin between PHC and the grass root level workers and also for the potential users; (ix) The Multipurpose Health Workers Scheme aims at as wide a coverage of health problems in as much as it envisages totality of health viz. integration of both programmes/activities and services. Hence, the role of MPHWS should be considered pivotal and his status and perks increased accordingly.

Towards obtaining critical views of the MPHWS themselves on the working of the MPHWS scheme, the following opinions seeking themes were administered to the MPHWS: (i) advantages of the MPHWS scheme; (ii) problems and inadequacies of the scheme; (iii) nature of and scope of work relations and supervision; and (iv) community related aspects of the scheme. Summarized analysis (for detailed analysis of this and other sections, please see Dr. P. Durgaprasad, *et al.* "Health Care Delivery Systems in Rural Areas: A Study of the MPHWS Scheme", NIRD, 1989, Mimeo.). Over 90.0 per cent of the MPHWS in West Bengal opined that (a) The training given to them was inadequate while over half of their counterparts in Karnataka felt so. This has obvious and serious implications for the implementation of the scheme, (b) Over three-fourths of all MPHWS in both the States felt that MPHWS scheme had led to dilution of rigor in disease specific action and cure (e.g., Malaria). (c)

Majority of MPHWs in both the States felt that the cooperation extended to the scheme both by the community members as well as their leaders was better when compared to what was witnessed in the unpurposed scheme, (d) The MPHWs views as regards to the relative strengths and weaknesses of the MPHw scheme revealed that while 'wider coverage of health' was considered a major strength in Karnataka, the same was not shared by their West Bengal counterparts. However, surprisingly, in both the States, family planning was not considered a strength by majority of MPHWs. Whereas in West Bengal, as regards MCH, over half of them viewed it as a major strength while their Karnataka counterparts assigned little significance to it 'poor or at times no supply of medicines was considered a very major setback, particularly in West Bengal. A tenth of all the workers also mentioned that the so-called 'multi-work' does not allow them to concentrate on any one of their dimensions of work completely.

SUGGESTIONS AND IMPLICATIONS

- A. There appear enormous logistical problems like perennial shortage of medicines (e.g., wide spectrum antibiotics), non-availability of proper equipments (e.g., oxygen cylinder), storage facilities (cold and ordinary) and most important of all, inadequate transport facilities. For efficient and effective implementation of the MPHw scheme, these critically important logistical problems need to be solved urgently.
- B. The population and the area an MPHw is supposed to cover intensively appear rather high. Hence, the authorities will do well if they could think of reducing the coverage of population per worker. This would certainly enhance the qualitative impact of the scheme in terms of greater client satisfaction, improved overall health conditions of the people and consequently, enhance confidence of the people in the scheme.
- C. It would be better if female MPHws (ANMs) alone were made to work for family planning and thereby, relieve the male workers of their family planning responsibilities so that they can concentrate on their multipurpose work more rigorously and cover a larger number of clientele.
- D. Some of the workers, particularly the male, do not appear fully confident and professionally capable of conducting their duties in a manner desired by all. Hence, they need to be reoriented and given refresher/crash courses periodically.
- E. Private practice by PHC doctors permissible in Karnataka should be stopped and arrangements for commensurate compensation should be made. This would hopefully help increase their attendance at PHCs and SCs.
- F. Towards vesting the privileges and powers with the PHC Medical Officers for rewarding the subordinate staff or awarding punishment to them, conferment of authority and delegation of power to MOs by the district and State level health bodies needs to be effected immediately.
- G. Supervision of Health Supervisors needs to be strengthened for, supervision has been considered the link pin between PHC and the grass root workers and present and potential users.

H. The present method of uniformly allocating financial resource to the PHCs irrespective of their size in terms of population served, disease profiles and geographical/location considerations, should be changed and a rational method of financial allocation needs to be followed.

I. The Multipurpose Health Workers Scheme aims at as wide a coverage of health problems in as much as it envisages totality of health, viz. integration of both programmes/activities and services. Hence, the role of the MPHWS is considered pivotal. However, the purported multipurpose orientation appears to be exhortative and confined to the MPHWS alone, as if they alone mattered exclusively. But, what is required is multipurpose orientation at all levels and categories of staff. However, such a development is rarely found in the implementing agencies beyond the PHC/SC. The legacy of the unpurposed health work philosophy and its erstwhile practitioners tends to manifest itself in a variety of forms. For example, at the district level, unpurposed oriented programmes/departments continue to exist. Similarly, the erstwhile Unpurposed Health Coordinators/Supervisors continue to exhibit biases that lack of their parental discipline orientation (For example those that work in the area of malaria tend to emphasize the component of malaria work more than the others in the multipurpose work with the result that, willy nilly, conflicting and counterproductive instructions ensue). Therefore, one needs to carefully reexamine the concept of multipurpose work as also reorient both the office and field based staff to the new requirements and the philosophy of the MPHWS scheme.

J. In view of the perennial shortage of medicines at the PHCs and SCs, the doctors and MPHWS should arrange to display information boards about the availability of the medicines. This would help to erase the wrong notions that people have as regards the integrity of the PHC staff vis-a-vis availability of medicines.

K. In view of the limited reach ability of PHCs (the servicing zone being by and large confined to a radius of three to five kilometers), there is a strong need to strengthen the sub-centers by way of supplying adequate medicines and also be ensuring that the MPHWS are available for most part of the day and night.

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प्रस्तुत लेख में ग्रामीण स्वास्थ्य परिचर्या सेवा-सुविधा प्रणाली के प्रबन्धन परिणामों का अन्वेषण करने के साथ-साथ पश्चिम बंगाल और कर्नाटक राज्यों में चल रही बहुद्देशीय स्वास्थ्य कार्यकर्ता योजना के प्रबन्धन एवं इसकी प्रभावशीलता की जांच-पड़ताल भी की गई है। स्वास्थ्य सेवा-सुविधाएं उपलब्ध कराने के लिए अपनाई गई पद्धति विशेषतः प्राथमिक स्वास्थ्य परिचर्या सेवा-सुविधा प्रणाली के मार्ग में आने वाली कठिनाइयों का सूक्ष्म विश्लेषण इस लेख में किया गया है। इसके अतिरिक्त, इन दोनों राज्यों में किए गए गहन अध्ययनों के दौरान सामने आने वाले झंझटों को ध्यान में रखते हुए कार्यक्रम नीति एवं क्रियान्वयन पर प्रकाश भी इस अध्ययन में डाला गया है।

**COMMUNITY AWARENESS ABOUT LEPROSY ERADICATION SERVICES - A STUDY IN
ANDHRA PRADESH AND ORISSA**

S.N.M. Kopparty*, A.K. Mishra and M.S. Raju*****

ABSTRACT

Community awareness is essential for its participation in any public health programme. The present paper studies the extent of awareness in the community about leprosy eradication services in rural areas in two endemic States - Andhra Pradesh and Orissa. Both the States were under monotherapy at the time of this investigation. Of the two States, in Andhra Pradesh the awareness about the appropriate source of treatment (52.7%) and the correct day of operation of leprosy clinic in the village or neighboring village (23.3%) was better than in Orissa (5.3% and nil respectively). About the Para-medical worker's visit to the village, the frequency of his visit and the nature of work done by him the awareness in the Community was equally poor both in Andhra Pradesh and Orissa (6-20%). This calls for increased level of performance of the leprosy workers at the grassroots level to increase the visibility of their services in the community. Further, health education input in the leprosy eradication programme need to be given adequate thrust to spread awareness in the community.

The success of any programme depends upon its awareness in a community and the community's participation in it. Leprosy, being a public health problem, has its own medical and social dimensions. The Government of India has shifted its focus from control of leprosy (NLCP) to eradication of leprosy (NLEP) in 1981 -82. The leprosy services have been provided to the people through a vertical programme operating at the Centre, State and district levels with the Leprosy Control Units (LCUs) in rural areas and Urban Leprosy Centers (ULCs) in urban areas, manned by a Non-medical Assistant (NMA) or Para-medical Worker (PMW) at the grassroots level with whom people come into contact directly and regularly. The Government of India resolved to eradicate leprosy by the year 2000 A.D. In view of the targeted year fast approaching, an urgent need has been felt to understand the extent of awareness of the community about the leprosy services provided by the Government to plan suitable interventions to increase community participation in the programme. An attempt has been made in this paper to understand the

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awareness of the community, in two endemic States - Andhra Pradesh and Orissa -having cultural similarities with different levels of overall development including health care services.

Though, various studies were conducted to understand the community's knowledge about leprosy, adequate attention has not been paid to study the awareness of the community about leprosy eradication services^{1,2,3,4,5,6,7,8}. However, other scholars in their study on "Community Awareness about Leprosy and Participation in NLCP", conducted in some villages of Chingleput district (Tamil Nadu) and urban slums and a ward in Madras City briefly dealt with this aspect⁷. It was found in this study that 32 per cent of the community members, mostly from slum and urban areas, were not aware of Government efforts being made to control leprosy and majority of others only knew about the free medical treatment of leprosy. Further, it was observed that early detection of patients, rehabilitation and health education, etc. were very poorly perceived.

MATERIALS AND METHOD

The basic data for this study were drawn from the project 'Evaluation of the Impact of Health Education in SET Pattern'* conducted by CSSRL, GMLF, Wardha during 1985-88, and the same has been re-analyzed.

Two States, Orissa and Andhra Pradesh, were selected in view of their high prevalence rate (11 -12 per thousand) and relative cultural similarities. In each State 2 LCUs - one the oldest and the other which started recently at the time of investigation in the State - were selected for the study. The selected LCUs fall in the districts of Nalgonda and East Godavari in Andhra Pradesh and Kalahandi and Sambalpur in Orissa. All the LCUs in the study, were under Monotherapy.

in each LCU, one sector was selected reflecting the rural characteristics broadly. All the villages in each sector were categorised into three groups based on the number of households in each village viz., up to 300, 301 -500 and above 500. The number of the villages to be considered for the sample from each of the above group was decided on the basis of the following formula:

$$\frac{\text{No. of the villages selected from each group} \times \text{Total No. of households in the sector (in the three groups)}}{\text{Total No. of households in the group}} = \text{X in the group}$$

Thus, the decided numbers of the villages from each group were selected using random sampling method. In turn, the households of community members in each sampled village were selected from the total list of households of that village randomly for collection of the data. The total sample for the study was 1199 community members with 600 belonging to Andhra Pradesh and the rest (599) to Orissa. The data were collected with the help of an interview schedule.

Characteristics of the Respondents: The socio-demographic characteristics of the respondents have been presented in Table 1. On comparison of both the

*The project was directed by R.K. Mutatkar and S.P. Tare, CSSRL GMLF, Wardha.

States, it was observed that males, married persons, and agricultural laborers were more in the sample in Orissa than in Andhra Pradesh. On the other hand, the sample consists of more unmarried persons, people from high castes, illiterates and low income group in Andhra Pradesh than in Orissa.

TABLE 1
CHARACTERISTICS OF THE RESPONDENTS

Variable	Category	Orissa N 599 %	Andhra Pradesh N 600 %
Age	Working age group (15-59)	04	83
	Non-working age group	16	17
Sex	Males	96.7	67.5
	Females	3.3	32.5
Marital status	Married	92.2	86.5
	Unmarried	7.8	13.5
Average family size		5.4	5.5
Caste	High caste	15	50.6
	Low caste	85	49.4
Education	Illiterate	57.3	72.0
	Literate	42.7	28.0
Occupation	Agricultural labor	85	66
	Others	15	34
Economic position	Low income group	68.4	77.7
	Others	31.6	22.3

RESULTS

a. Awareness About the Place of Treatment: To avail any service, a member of the community was expected to be aware of the place where it was being provided. In leprosy programme, the Non-medical Assistant (NMA/PMW) conducts clinic in some of the villages under his jurisdiction on fixed days. At clinics, he examines the patients, distributes the tablets and render necessary advice. Clinics attached to sub-centre (SC), LCU, SET Centre, Medical Colleges, etc. are other sources of treatment for leprosy. The NMA/PMW also visits the houses of patients and distributes tablets under domiciliary treatment.

To understand the awareness of the people about the place of treatment the respondents were asked to indicate the sources where the treatment for leprosy was available. It was interesting to note that less than one per cent in Orissa were found to be aware of the availability of clinic in their village or in a neighboring village while 36 per cent in Andhra Pradesh were aware of this source. About 5 per

*In some States the grass roots level worker is known as Non-Medical Assistant (NMA) and in some as Para-Medical Worker (PMW).

cents were aware of LCU/ Sub-centre/SET Centre or domiciliary treatment in Orissa whereas it was 16 per cent in Andhra Pradesh. About half of the respondents in Orissa were not aware of the exact source of treatment for leprosy but indicated a commonly available source for treating any illness, *i.e.*, Hospital, while it was only 13 per cent in Andhra Pradesh. About 44 per cent and 34 per cent of the respondents in Orissa and Andhra Pradesh respectively were not aware of any source of treatment for leprosy. In all, while only 5 per cent of respondents in Orissa indicated the appropriate sources for treatment, (leprosy clinic in village/neighboring village, LCU, SC, SET Centre, and domiciliary treatment) more than half of the respondents (53%) in Andhra Pradesh were aware of these sources.

TABLE 2
AWARENESS OF THE COMMUNITY ABOUT THE PLACE OF LEPROSY
TREATMENT

Place of Treatment	Orissa	Andhra Pradesh	Total
Leprosy clinic in the village/ neighboring village	4 (0.7)*	217 (36.2)	221 (18.4)
GLCU/SC/SET Centre	14 (2.3)	98 (16.3)	112 (9.3)
Domiciliary treatment	14 (2.3)	1 (0.2)	15 (1.3)
Hospital	298 (49.7)	78 (13)	376 (31.4)
Other sources (<i>Vaidya</i> . Quack, etc.)	8 (1.3)	3 (0.5)	11 (0.9)
Not aware of any source of treatment	261 (43.6)	203 (33.8)	464 (38.7)
Total	599 (100)	600 (100)	1199 (100)

(*Percentage in parentheses)

b. Awareness about the Days of Operation of the Clinic. Those members of the community who reported awareness about the existence of leprosy clinic in their village/neighboring village were further asked to indicate the actual days of its operation in the village. It was of interest to observe that no respondent out of the 4 respondents from Orissa who were aware of the clinic in their village/neighboring village reported correct information about the day of operation of the clinic. On the other hand, 64 per cent of respondents from Andhra Pradesh reported correct information. About 32 per cent of the respondents in Andhra Pradesh were not sure of the day of operation of the clinic.

TABLE 3
AWARENESS OF THE MEMBERS ABOUT THE DAYS ON WHICH THE LEPROSY CLINIC IS IN OPERATION ON

Day of Clinic	Orissa	Andhra Pradesh	Total
Correct	-	140 (64.5)	140 (63.3)
Wrong	1 (25)	9 (4.1)	10 (4.5)
Can not say	3 (75)	68 (31.3)	71 (32.1)
Total	4 (100)	217 (100)	221 (100)

(Percentage in parentheses)

c. Awareness about the Leprosy Worker's Visit to the Village. In order to know the awareness of the community about the visit of leprosy worker, the respondents were asked to indicate whether they were aware of the leprosy worker's visit to their village. Generally, visits were conducted in the villages so that the community members and the worker come into close contact with each other or the community members could know about the leprosy worker. Most of the respondents (80-85%) were not aware of the leprosy worker visiting their village in both the States. However, slightly more number of respondents were aware of the leprosy worker's visit in Andhra Pradesh (20%) than in Orissa (15%)

TABLE 4
AWARENESS OF THE COMMUNITY ABOUT THE LEPROSY WORKER'S VISIT TO THE VILLAGE

Worker's visit to the village	Orissa	Andhra Pradesh	Total
Aware of the leprosy Worker's visit to the village	88 (14.7)	118 (19.7)	206 (17.2)
Not aware of the leprosy worker's visit to the village	511 (85.3)	482 (80.3)	993 (82.8)
Total	599 (100)	600 (100)	1199 (100)

(Percentage in parentheses)

d. Awareness about Frequency of Worker's Visit: Frequency of visits by a worker to villages under his jurisdiction increases his visibility and contributes to the awareness in the community. To understand this, all the respondents who reported awareness about the worker were further asked to indicate how frequently he visits their village. In general, majority of them (70 per cent) reported that the worker visits their village with varying frequencies stretching from once a week to once in more

than a year. Twenty one (21 per cent) of them indicated that the worker visits once in a week, 16.5 per cent once in a month, 11 per cent once in a year, 8.7 per cent once in more than a year, etc. In Orissa, while the worker visits villages once a week more frequently (32 per cent against 14 per cent in Andhra), in Andhra Pradesh it was the monthly visits of the worker which were more frequent (23 per cent) against 8 per cent in Orissa) than in Orissa.

TABLE 5

AWARENESS OF THE COMMUNITY ABOUT THE FREQUENCY OF WORKERS VISIT TO VILLAGE

Frequency of Visit	Orissa	Andhra Pradesh	Total
Once a week	28 (31.9)	16 (13.5)	44 (21.4)
Once in 15 days	4 (4.5)	3 (2.5)	7 (3.4)
Once a month	7 (8.0)	27 (22.9)	34 (16.5)
Once in 3 months	5 (5.7)	4 (3.4)	9 (4.4)
Once in 6 months	3 (3.4)	7 (5.9)	10 (4.9)
Once in a year	9 (10.2)	13 (11.0)	22 (10.7)
Once in more than a year	12 (13.6)	6 (5.1)	18 (8.7)
Do not know	20 (22.7)	42 (35.6)	62 (30.0)
Total	(100)	118 (100)	206 (100)

(Percentage in parentheses)

e. **Awareness about Nature of Work done by Worker.** The work done by a worker in the village would also contribute to the awareness of the community about his role and the activities of the programme. The respondents were asked to indicate the various jobs the worker performs during his visits to the village. In general, majority of them (57 per cent) were not aware of what he performs. One fourth of them (26 per cent) reported that the worker treats the patients, followed by survey in the village (15 per cent), survey in the school (2 per cent) and health education (0.5 per cent). This general picture was true more or less in both the States. However, comparatively more respondents in Andhra Pradesh (30 per cent) reported treatment of patients as the work performed by the worker than those from Orissa (22 per cent).

TABLE 6
AWARENESS OF THE COMMUNITY ABOUT THE NATURE OF WORK DONE BY THE
LEPROSY
WORKER

Nature of work	Orrisa	Andhra Pradesh	Total
treating patients	18 (20.5)	36 (30.5)	54 (26.2)
Survey in school	1 (1.1)	3 (2.5)	4 (1.9)
Survey in village	16 (18.2)	14 (11.9)	30 (14.6)
Health education	1 (11)	-	1 (0.5)
Do not know	52 (59.1)	65 (55.1)	117 (56.8)
Total	(100)	118 (100)	206 (100)

(Percentage in parentheses)

DISCUSSION

The above results indicated broadly the extent of awareness about the leprosy eradication programme in the community. Though the National Leprosy Eradication Programme has been in operation for more than three decades in our country and for varying length of periods in different areas in Andhra Pradesh and Orissa, in general only 30 per cent of community members were aware of some appropriate source of leprosy treatment. The rest were either not aware of any source of treatment (40 per cent) or indicated a source where general health services were being provided, *i.e.*, hospital (31 per cent). Of the two States, the awareness was far greater in Andhra Pradesh (53 percent) than in Orissa (5 per cent). The actual day of operation of leprosy clinic in the villages or neighboring villages was known to still fewer people. Interestingly, in the entire sample in Orissa no respondent could inform the correct day of operation of the clinic in the village/neighboring village, while 23 per cent of the community members in Andhra Pradesh could inform correctly.

About the leprosy worker's visit to villages and his work, the picture was still more glaring. In general, only 17 per cent of the community members were aware of the worker's visit to their villages. Of the two States, the position in Andhra Pradesh was comparatively better (20 per cent) than in Orissa (15 per cent). Further, only 12 per cent of the community members were aware of the frequency of worker's visit to their villages ranging from once in a week to once in a year. This position was more or less prevailing to the same extent in both Andhra Pradesh (13 per cent) and Orissa (11 per cent). Regarding the awareness about various activities being performed by the leprosy worker, only a small number (7 per cent) reported their

awareness. This picture was more or less the same in Andhra Pradesh (9 per cent) and Orissa (6 per cent).

TABLE 7

CORRECT AWARENESS ABOUT THE LEPROSY ERADICATION SERVICES

Category	Orissa n=599 %	Andhra Pradesh n=600 %	Total n=1199 %
Place of treatment	5.3	52.7	29
Correct day of operation of clinic	-	23.3	11.6
Leprosy worker's visit to village	14.7	19.7	17.2
Frequency of worker's visit (once in a week, once in a fortnight and once in a month)	6.5	7.6	7.1
Nature of work done by worker	6.0	8.8	7.3

(Each category is separate)

In all, the community's awareness about the place of treatment for leprosy was far better in Andhra Pradesh than in Orissa. About awareness regarding correct day of operation of the clinic, the community members in Orissa were not aware at all while about one-fourth of the community members were aware in Andhra Pradesh. With regard to leprosy worker, about his visit, frequency of his visits and the nature of the work done by him, the extent of awareness in the community, though not much encouraging in both Andhra Pradesh and Orissa was more or less the same. This partly reflects on the level of functioning of leprosy workers at the grassroots level. This requires the PMW/NMAs to work with greater sincerity, commitment and involvement with the local community, to enhance the programmer's visibility in that community so that it can seek appropriate health care for leprosy.

CONCLUSIONS

If any community programme is to be made successful, community participation is very vital. For community participation, community awareness is the basic requirement. The results indicated that the awareness about the programme was very low among the community in general. Of the two States Andhra Pradesh and Orissa - the former indicated better awareness than the latter. This reflects broadly on the functioning of the grassroots level workers in the community. This calls for concerted efforts to be put in to increase the level of awareness among the community in general and more so in Orissa. The programme personnel should be motivated to work efficiently and use all possible resources in the community to increase its awareness and participation in the programme. The opinion leaders, school teachers, educated youth, officials, etc., could also be motivated and trained

to increase the awareness of the community about the leprosy eradication programme to realize the goal of 'Health For All By 2000 AD.

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किसी भी जन-स्वास्थ्य कार्यक्रम में भागीदारी हेतु सामुदायिक जागरूकता आवश्यक है। प्रस्तुत लेख में आन्ध्र प्रदेश और उड़ीसा राज्यों के ग्रामीण क्षेत्र में कुष्ठ-निवारण सेवा-सुविधाओं के विषय में सामुदायिक जागरूकता के बारे में अध्ययन किया गया है। अध्ययन के दौरान किए जाने वाले अन्वेषण के समय दोनों राज्यों में एक ही पद्धति अपनाई गयी थी। दोनों राज्यों में से आन्ध्र-प्रदेश में इलाज के सही स्रोत के विषय में जागरूकता 52.7 प्रतिशत थी। गांव और इसके आस-पास के क्षेत्र में कुष्ठ-रोग के इलाज के लिए निश्चित दिन की जानकारी के बारे में उड़ीसा (क्रमशः 5.3 प्रतिशत या शून्य) की अपेक्षा अच्छी (23.3 प्रतिशत) थी। अर्ध-चिकित्सक कार्यकर्ता के गांव में आने के विषय में उसके आने की आवृत्ति, उसके द्वारा किए जाने वाले कार्य-कलापों के आकार-प्रकार के संदर्भ में आन्ध्र प्रदेश और उड़ीसा में सामुदायिक जागरूकता सामान्यतः 6.2 प्रतिशत थी, जो कि अच्छी नहीं थी। इससे कुष्ठ -निवारण में जुटे निम्नतम स्तर तक के कार्यकर्ताओं के कार्य-स्तर में सुधार की संभावनाओं की आवश्यकता का पता चलता है। इसके अतिरिक्त, कुष्ठ निवारण कार्यक्रम में स्वास्थ्य-शिक्षा द्वारा सामुदायिक जागरूकता लाने के लिए भरपूर प्रयास की सख्त जरूरत है।

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DEVELOPMENT OF NURSING EDUCATION IN INDIA Nirmala

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ABSTRACT

Nursing and medical profession had independent origin but as practice of medicine and surgery became more complex, requiring specially trained persons with understanding of scientific principles that these two disciplines came together. In India, era of nursing professionalism started with the establishment of first degree course in nursing education, in 1946 on the recommendations of Bhore Committee. Since then, there has been gradual progress in the nursing education but not as desired. At present, nursing component of health care delivery system especially at the peripheral level is being managed by semi-professionals and auxiliaries like Multipurpose Workers and Trained Birth Attendants, etc. but time to come, in this age of high galloping technology, professional nurses have to take over to provide a kind of health services aspired for, to achieve 'Health for All by 2000 A.D.

Nursing is not a product of modern medicine in the sense that social service, dietetics and occupational therapy are. Medicine and nursing had independent origin and existed as such for many centuries without much contact because practice of medicine and surgery was relatively simple and undeveloped and required no technical skill. During the middle ages, nursing needs were met by a group of uneducated or untrained women, by members of the family, by religious or military groups whose prime function was other than nursing. It was the development of medicine, surgery and public health into complex technologies requiring specially trained persons with an understanding of scientific principles that brought the two professions more closely together.

There is little evidence that any organized group of women nurses existed before the Christian era. The idea of brotherhood, service, charity and self sacrifice were preached by the earlier Christian Church. These groups of workers whose main function was to care for the sick and needy developed and became organized. Often nursing of the poor was a way of atoning for sin. The concept of nursing as an economic, independent and secular vocation, an art requiring intelligence and technical skill as well as devotion and moral purpose, was developed first by

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This paper has been based on the thesis "A Study of Functioning of Rajkumari Amrit Kaur College of Nursing" under the guidance of Prof. J.P. Gupta and Dr. R.S. Gupta.

Florence Nightingale. She placed nursing on a powerful foundation of organization, sound educational principles, high ethics and inspired it with enthusiasm that gave it an impetus under which it is still progressing. The Nightingale School of Nursing at St. Thomas Hospital established in 1860 A.D. is considered to be the first school of nursing.

Historically, the development of nursing seems to fall into the three periods, *i.e.* (1) From the earliest times to later part of 18th century; (2) From the later part of 18th century to the establishment of first modern school for nurses at St. Thomas Hospital, England in 1860 A.D.; and (3) From 1860 A.D. to the present time.

First period was a long preparatory one. There was no special training or education for nurses. The most obvious and most pressing needs of the patient, a natural adaptation, liking for this work and sometimes appointment by a religious group, started the nurse in her work. The practical training received at the patient's bedside constituted the training.

The second period is marked by a definite attempt at reforms and actual training. In 1798 A.D. Dr. Valentine Seaman began a series of lectures for nurses in a New York Hospital, U.S.A. In 1833 A.D. Paster Fliender founded his noted Institute of Deaconesses where Miss Nightingale received her only formal education in nursing.

The third period is characterized by the establishment of schools/colleges for nurses, specialization in nursing, development of nursing organization, expanding of opportunities for graduate nurses for research, passing of such legislation affective for the nurses and nursing and for the development of community interest in health and medical activities.

During the 19th century, a greater sense of Social responsibility for community health and welfare developed. Medical science was advancing more rapidly than ever. It was a time for development of formal education for nurses. By this time, it was increasingly realized that Miss Nightingale was right when she said that education of nurses like that of doctors is a public duty and must be supported by public funds and schools of nursing must be administratively independent although closely connected with the hospitals. Subsequently, several schools for Nursing Education were established in England and U.S.A. Close relationship between Florence Nightingale and early Nursing Leaders in U.S.A. resulted in similarities between the early schools in U.S.A. and those in England.

India presents a few points of special interest to nurses. It had Miss Nightingale's attention more than any other country. Although, she never set foot on Indian soil, she was in close touch with every important official who went from here to England. India's culture was not primitive or under developed yet this great civilization remained for many years untouched by industrial revolution and all that it implies, including medical and nursing advances and modern hygiene. Women were confined by narrow social cultures and their activities restricted by caste and religious considerations. The social structure offered a resistance to western civilization and to the progress of modern medicine. It was hard to the western mind.

to understand that people with so high a culture should be allowed to live and die as they please. This was the motivating force in Florence Nightingale's work for India. It was she who planned the public health reforms. In India, as in other British colonies, nursing was greatly aided by the support given by the nobility. In 1885, Queen Victoria instructed Lady Dufferin, the wife of Governor General of India, to plan work to bring the advances of modern medicine to Indian women. Funds were created and great emphasis was laid upon education of doctors and nurses. It was a difficult task because the women to be trained were illiterates and did not have even elementary education. The social order was against their education.

But interestingly, training of nurses in India preceded even the 1st Nightingale School. For example, in Madras Hospital it began in 1854 and several hospitals followed suit. Especially, after 1880 the mission hospitals began to realize its importance and they established a United Board of Training for missionary nurses.

By the beginning of this century, a number of training centers were established in Madras, Bombay and Calcutta. The apprenticeship system of training for nurses was started in hospitals but there was no uniform standard. These schools used to train nurses as per their own requirements. The earliest measures for obtaining uniform standards in nursing were taken in Bombay by the formation of Bombay Presidency Nursing Association in 1909. The First World War opened another field, the Indian Military Nursing Service. In 1918, training of nurses for public health was started and Lady Reading Health School was established at New Delhi for the purpose.

The first nurses registration act was passed in Madras in 1926 and this followed by Bombay Nursing Council Act in 1935. By 1939, Nursing Councils were started in several provinces, but the need was to have a proper coordination between various councils to have uniform standards throughout the country. The Indian Nursing Council Act was passed in 1947, for the said purpose². The courses in general nursing were started for two grades - junior grade and senior grade. Junior grade course was of three years duration and a senior grade nurse had to follow it by one year of midwifery training. The midwifery training of one year duration was gradually reduced to nine months and then to six months. In 1981, the Indian Nursing Council recommended restructuring of this course. The course was reorganized and condensed to three years duration of Integrated General Nursing and Midwifery. All these schools were managed by different hospitals and students work their way through serving more as an employee of hospital than as a student in school.

In the early 1930's, the Trained Nurses Association of India (TNAI) began to plan for an independent school which would have its own endowment and provide advance training/education by sound academic methods. For higher education, the Indian nurses used to go to Royal College of Nursing, London or to the United States but the courses abroad were planned to meet the needs of those countries and also cost of education was very high. The need to establish a course in India was apparent. The committee set up by Trained Nurses Association of India to study the situation could see that the huge amount being spent on few nurses could be used to the advantage of a large number of nurses and institutions and also courses could

be planned to meet the needs of the country. The Committee recommended that three types of courses be set up for qualified nurses - one in nursing administration, one for the teaching school of nursing and one for public health nursing.

The Trained Nurses Association of India was in the midst of starting such a school when world war second broke out. The entire attention was focused on the emergency demands of the Military Nursing Service and all plans were postponed. In April 1943, on the request of Defense Ministry, School of Nursing Administration was set up by the Ministry of Health to conduct an intensive three months post certificate course for military nurses preparing them for administration and teaching in Military Nursing Service. Lady Linlithgow performed the opening ceremony of this school. This pioneer experiment was housed in Lady Reading Health School at New Delhi. Miss Margarette Craig was appointed the Director and Miss Edith Buchanan, the Sister Tutor of this school³.

When the army reported that their needs were met, this course was extended to one academic year and civil nurses were admitted. In this course, students were prepared to work in the hospitals/community and also to deal with health problems and morbidity conditions in India and fill in the gaps in nurses' basic preparation especially in biological sciences and social sciences that were required to help them understand the "why and wherefore" of each nursing procedure. This meant that a nurse after passing out from this course could make the necessary adjustments intelligently as the situation demanded. It was realized that nursing teachers and administrators should work together to achieve the desired progress. Therefore, although each group specialized in their own field, the teachers got enough of administration and the administrators got enough of the principles of education to assure intelligent cooperation.

In 1943, The Health Survey and Development Committee were set up by the Government in British India under the Chairmanship of Sir Joseph Bhore, to make a broad survey of the existing conditions in regard to health and health organisations. Its other constituent members were the representatives from Delhi University, Ministry of Health, Medical Profession and Nursing. To ensure that recommendations were of practical nature, the advice of the representatives of civil nursing profession and the Army Nursing Service were also considered. This Committee popularly known as the Bhore Committee made the following recommendations.

It is recommended that there should be two grades in the nursing profession with corresponding type of training, a junior grade and a senior grade. Senior grade female nurses had to follow it by one year of midwifery training. In addition to these two grades, a university degree course in nursing should be established. Whenever possible a postgraduate course for nurses should be instituted in order to train selected nurses for assuming the more responsible duties of their profession. Degree course in nursing should be instituted in India as early as possible in order to provide leaders for the nursing profession. It is-

proposed that as a first step, the School of Nursing Administration at New Delhi should be transferred in a College of Nursing⁴."

In July 1946, School of Nursing Administration, New Delhi was converted into College of Nursing. It was established as a constituent College of the University of Delhi maintained by the Government of India. Plans were carefully developed by an expert committee of seven members, consisting of the Deans of the faculties of Art and Sciences, head of the department of English of Delhi University on the one hand and the government officers representing the Ministry of Health and nursing and medical profession on the other. The best projects in nursing education in Canada, U.S.A., England and Scotland were visited. A four year programme leading to the degree of B.Sc. (Hons.) Nursing from Delhi University was introduced. The course was especially designed to meet social and health problems of the country. The college spearheaded a new phase in the training of nurses in India. The programme was started to serve as a model for other States interested in introducing similar courses of studies. In course of time, other States also started B.Sc. (Hons.) in Nursing. At present, there are about 31 such programmes in the country⁵.

ROLE OF NATIONAL AND INTERNATIONAL AGENCIES FOR DEVELOPMENT OF NURSING PROFESSION IN INDIA

Trained Nurses Association of India (TNAI), established in 1908, is accepted as the voice of nurses in India. It works in close association with Indian Nursing Council (INC), Central Council of Health and other committees formed by the official and non-official agencies. It carries out its educational objectives by providing various scholarships and maintains Nurses Welfare Fund and Staff Welfare Fund for the students and the staff in adversity. Scheme of national awards for nurses started by the Government of India was on the suggestion of Trained Nurses Association of India. It also conducts a number of courses in continuing education in nursing of its own or in collaboration with other agencies. The Association brings out a monthly magazine "The Nursing Journal of India" and has also brought about some books on nursing education and practice at low price to make these accessible to all categories of nurses.

International agencies have also contributed greatly to the advancement of nursing in India. Aid in the form of fellowships, stipend, teaching and hospital equipment and Nursing Teachers Fellowship for study abroad have given nurses opportunities to excel in their profession. Stipends by United Nations International Children's Emergency Fund (UNICEF) have enabled a number of midwives and Public Health Nurses to join the profession and have given the course a good start by assuring a steady flow of students. The aid received from United Nations International Children's Emergency Fund has also been used for planning refresher courses and making it possible to bring nurses together from all parts of the country and update them in their respective field. This also provided the means to a more uniform pattern of nursing education. In addition, United Nations International Children's Emergency Fund has supplied schools of nursing with teaching equipments which have contributed to the improvement in teaching programmes.

The most valuable help given by the international agencies has been the contribution of International Nurses. Nurses from World Health Organization have helped in establishing various projects in nursing such as nursing administration, nursing education and nursing research. Nurses assigned through United States Agency and under the Columbia Plan for international development have helped to develop collegiate courses in nursing both at States and Central level.

The Red Cross movement also had an influence on the profession. Red Cross, founded in 1864, concentrated on training nurses to serve in wars and natural disasters. However, in time of peace, nurses were also trained for private duties, visiting nurses and hospital service. 'Red Cross Schools of Nursing' throughout the world have taken women from the upper middle and even higher social classes thus raising the standards of the profession.

PRESENT SYSTEM OF NURSING EDUCATION IN INDIA

In India, health being a State subject, training of nurses has been primarily a State responsibility. Central Government has only one College of Nursing, three schools of nursing, two centres for training of public health nurses and one centre for diploma course in Psychiatric Nursing under the Ministry of Health and Family Welfare. Autonomous bodies like Postgraduate Institute of Medical Education and Research, Chandigarh; All India Institute of Medical Sciences, New Delhi; and National Institute of Mental Health and Neuroscience are also conducting training of nurses at different levels. A three tier system for training of nurses has been followed:

1. Schools of Nursing: The schools of nursing are generally affiliated to various hospitals and conduct certificate course of 3 years duration preparing General Nurse cum Midwife (GNM). Unlike the professional who enrolls as a student in the university, GNM is on the roster of the hospitals and is used as source of cheap labor. In all, there are about 167 such schools and approximately 8200 GNM qualify every year.

2. Auxiliary Nurse cum Midwifery (ANM) Schools. These schools conduct one and half years duration course preparing auxiliaries to perform simple routine tasks. There are 446 schools and approximately 11,200 candidates qualify every year. These are designated Female Health Workers (FHW) in the field but registered as ANM. They form the largest task force.

3. Colleges of Nursing: These are affiliated to various universities and conduct degree programmes to prepare professional nurses by providing broad based education in basic sciences and clinical-medical sciences. At present, there are 19 basic B.Sc. programmes of 4 years duration and 12 post basic B.Sc. programmes of 2 years duration graduating approximately 450 nurses every year.

In addition, there are eight colleges in the country offering Masters' Degree in Nursing. Apart from these there are Diploma Courses in Psychiatric Nursing, Pediatric Nursing, Public Health Nursing and Nursing Education and Administration.

As early as 1946, Health Survey and Development Committee (Bhore Committee) recommended balanced health manpower for independent India. It gave high priority to the development of the nursing profession for hospitals, community, school health, industrial health, maternal and child health, etc. It recommended one Nurse/500 population, one Midwife/100 births and one Public Health Nurse/5000 population. Accordingly, requirement for 844 million populations, the nursing manpower envisaged by Bhore Committee and existing (approximately) in relation to Degree Nurse, Certificate Nurse (GNM) and Auxiliary Nurse Midwife (ANM) was as follows:

	Degree/ Public Health Nurse	GNM	ANM	Total
Envisaged by Bhore Committee	1,68,000	16,88,000	2,11,000	20,67,800
Existing	8,000	2,37,500	1,51,000	3,97,300
Gap	1.60,000	14.50,500	60,000	16,70,500

From time to time various surveys and studies conducted by the Directorate General of Health Services, Vishwa Nathan (1953), Shetty Committee (1954), Mudaliar Committee (1959-61), Institute of Applied Manpower Research and National Institute of Health Administration and Education (1965), Directorate General of Employment and Training, Labor Ministry (1975) and Bajaj Committee (1986) indicated critical shortage of nursing personnel and recommended that extra incentives like free lodging, messing and stipends be provided to attract candidates to this profession. An extensive study of nursing in India, done at the request of USAID and India's Ministry of Health and Family Welfare (1983), has shown that nursing profession especially, the educational component has some serious lacunae⁶. The institutions charged with the task of training nurses, lack both in the physical and human resources to do so; the professional and financial incentives necessary to attract and retain qualified individuals are inadequate. It recommended the establishment of Department of Nursing Education and Research at the existing National Institute of Health and Family Welfare to look into the problems and find solutions.

At present, the state of nursing education and practice in India resembles that of United States in 1950s. Indian nursing has most of the components in place to expand and flourish. Nursing has strong support from Central Government and Nursing Educators are continuously working to upgrade nurses education. But the profession does not have an avenue for the coordination and development activities needed to bring about the desired change.

If India is serious to improve its health system of which nursing is a vital part, due stress should be laid to improve production of nursing personnel both qualitatively and quantitatively. At present, there is an unbalanced health team. There are more doctors than nurses and to this we are adding (approximately) 13,000 allopathic

doctors and an equivalent number of Indian System of Medicine/Homoeopathy doctors every year whereas production of nurses including mid wives is only 8,000 (approximately) per year.

WHO Expert Committee on the education and training of Nursing Teachers and Managers (1983) has also laid emphasis on the production of nursing graduates capable of functioning effectively at all levels of health care⁷.

At the peripheral level, nursing personnel are often involved in providing direct care to the community either on an individual basis or as a member of the team. Generally, their role includes, arousing the interest of the community in the benefits of the positive health approach and collaborating in identifying the health and health related problems and priorities for action. In meeting the health needs, nursing personnel are often involved in training community health workers and in fact are essential for the effective functioning of these workers by providing supportive supervision and continuing education to them. Nursing personnel are also required to sustain their motivation and to monitor their quality of work.

At the intermediate level, in the health centers, the role of the nurse may involve, in addition to the direct care function, the planning, development and management of district programmes and guidance to and supervision of local level staff and community level activities.

At national level, nursing personnel may function within the Health Ministry and keeping in view of the current trends in health care system to adopt a team approach, the nursing personnel have to participate in planning, implementation and evaluation of health programmes.

The nature of these functions requires education of very high standard based on sound scientific background. The knowledge acquired by the bed-side of the patient would not suffice. It is time to realize the potentials of professional nurses and steps taken to accelerate their production. It is an age of high galloping technology and medical/nursing profession has to keep pace with it. To understand and keep pace with this fast changing technology, scientific mind is required. It is a known fact that trained scientific mind will make its way in a new situation even if the particular subject matter and technique involved have not been learnt in college. Keeping this in mind, certificate programme in nursing should be changed to degree programme in a phased manner depending upon the resources. Till the production of professional nurses is not sufficient, health care delivery system can be managed by the semi-professionals and auxiliaries but as Shrivastava Committee has pointed out, these semi and Para-professionals can be supplementing to these professionals, but not their substitute. Ultimately professional nurses have to take over to provide the kind of health services aspired for achieving "Health For All By 2000 A.D.".

सारांश

कभी नर्सिंग और चिकित्सा व्यवसाय दो अलग-अलग स्वतन्त्र व्यवसाय माने जाते थे। औषध विज्ञान और शल्य-चिकित्सा की जटिलता के कारण इन दोनों ही क्षेत्रों में वैज्ञानिक सूझ-बूझ रखने वाले विशेषतः प्रशिक्षित एवं कुशल व्यक्तियों की आवश्यकता को अनदेखी नहीं किया जा सका। अतः ये दोनों व्यवसाय एक-दूसरे के पूरक माने जाने लगे। भारत में नर्सिंग व्यवसाय-युग

का शुभारम्भ भोरे कमेटी की सिफारिशों पर 1940 में नर्सिंग शिक्षा के लिए पहला डिग्री कोर्स शुरू किए जाने से हुआ। तत्पश्चात, नर्सिंग शिक्षा में उत्तरोत्तर प्रगति होती रही, परन्तु यह प्रगति ऐच्छिक रूप में न हो सकी। आजकल, खासतौर पर पैरीफैरल स्तर पर प्राथमिक स्वास्थ्य परिचर्या सेवा-सुविधा प्रतिपादन प्रणाली के अर्न्तगत नर्सिंग का काम अर्द्ध-व्यवसायियों, बहुउद्देशीय स्वास्थ्य कार्यकर्ताओं और प्रशिक्षित दाइयों जैसे सहायक कार्यकर्ताओं द्वारा सम्भाला जा रहा है। लेकिन तेजी से होने वाली जरूरत पड़ने पर और 2000 तक सभी के लिए स्वास्थ्य का लक्ष्य प्राप्त करने के लिए प्राथमिक स्वास्थ्य परिचर्या सेवा-सुविधाएं उपलब्ध कराने के लिए व्यवसायी नर्सों को शीघ्र ही इनका स्थान लेना पड़ेगा।

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**EFFECT OF DISTRICT TUBERCULOSIS PROGRAMME TRAINING ON KNOWLEDGE OF
LABORATORY TECHNICIAN TRAINEES**

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ABSTRACT

Case finding is a vital activity for National Tuberculosis Programme. The National Tuberculosis Institute, through a 10 weeks training, tries to provide the necessary knowledge to the key personnel, to achieve a positive attitude towards the programme. This paper attempts to report an exercise to measure the change in the knowledge level after the training among the laboratory technicians.

Twenty one laboratory technician trainees were interviewed before and after the training on a structured schedule comprising of 78 questions regarding the laboratory procedures required under the programme. Before training, 80 per cent of the trainees answered 60 to 80 per cent of the questions correctly, whereas after training, this reached 95 per cent level. For some questions, the change in the knowledge level was significant.

This exercise favorably indicated the potentiality of the schedule to be used as a teaching guide by the District Tuberculosis Centre laboratory technician to train the health workers at the peripheral level, in the laboratory procedures under the National Tuberculosis Programme.

Case finding is a vital activity for National Tuberculosis Programme (NTP). Numerous factors could be attributed to the short fall in case finding. The knowledge regarding the disease and the programme to control it among the key personnel involved was one of the factors.

National Tuberculosis Institute (NTI) strives to provide this knowledge through a 10 weeks training to the key personnel who as a team manage the programme at the district level.

This paper has been an attempt to report an exercise to measure the change in the knowledge level after training among the laboratory technician trainees.

METHODOLOGY

A structured schedule comprising 78 questions was developed by the Chief Medical Officer of the Bacteriology Section of the NTI. These questions sought

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information on a few individual characteristics of the respondents general knowledge about tuberculosis as a disease, details of the laboratory procedures like sputum collection, preparation of smear, staining methods, reading the smears and recording the results, etc. It also included questions on general maintenance of laboratory, microscope, disposal of infected material, etc. A few questions regarding supervision, follow up as prescribed in NTP were also included. Respondents were encouraged to talk about the problems faced at their place of work.

Social investigators interviewed the trainees before and after the training, using the same schedule. The respondents were encouraged to answer the questions voluntarily. If the answers were not forthcoming, a few answers were suggested, of which one would have been the correct answer.

The answers could have been correct answers, wrong answers or no knowledge.

STUDY POPULATION

Twenty one laboratory technicians were interviewed, of which 16 were from District Tuberculosis Centers (DTCs), two from Medical College Hospitals, two from Primary Health Centers and one from a State Tuberculosis Centre. There were 20 males and one female laboratory technician. Only 20 interviews were considered for the final analysis one laboratory technician could not be interviewed before the training as he joined the training beyond the stipulated time.

Four persons were between 20 and 30 years of age, 12 were between 31 and 40 years, three were between 41 and 50 years and the other two were about 50 years of age.

Eleven persons had less than 10 years of experience six had 11 to 20 years, three had 21 to 30 years and one had more than 30 years of experience to their credit. Only one was a non-matriculate, the other 14 were matriculates and beyond, with training or certificate in laboratory technology. The other six were graduates with diploma in laboratory technology.

JOB RESPONSIBILITIES

All the respondents claimed that they conducted sputum examination. Apart from sputum examination, 11 did blood and urine tests, 12 said they maintained records and reports, five claimed that they would supervise, visit camps and train the laboratory technicians at peripheral level.

FINDINGS

There were 55 questions which could be specifically assigned to the right answers, wrong answers and no knowledge, before and after the training. These questions were specifically categorized into six groups to facilitate analysis. Right answers were given one score, wrong answers and no knowledge were given zero score. However, zero scores were maintained separately for wrong answers and no

knowledge, to know the changed status after the training.

Group I: General Knowledge About Tuberculosis: There were six questions in this group. They were knowledge about cardinal symptoms of tuberculosis, cause and infectiousness of disease, mode of transmission and discovery of tubercle bacilli by Robert Koch.

Group II: Knowledge About Sputum Collection: There were eight questions regarding the procedures prescribed in the programme for sputum collection.

Group III: Knowledge About Fixation of the Smears: There were six questions in this group.

Group IV: Staining Method: There were eight questions in this group.

Group V: Smear Examination: There were 15 questions in this group regarding grading of the smear and correct microscopy technique involved, maintenance of microscope, etc.

Group VI: Knowledge About NTP Procedures: There were 12 questions in this group regarding laboratory procedures prescribed in the NTP.

The pattern of answers in different groups before and after the training in terms of percentage of right answers, wrong answers and do not know have been shown in Table 1.

TABLE 1
PERCENTAGE ANSWERS IN PRE AND POST-NATAL TRAINING -
GROUP WISE

Groups	Pre training			Post-		
	Right %	Wrong %	Do not know %	Right %	Wrong %	Do not %
I	87.5	7.5	5.0	95.8	4.2	0.0
II	71.3	27.5	1.3	81.3	18.8	0.0
III	74.2	24.2	1.7	86.7	13.3	0.0
IV	70.0	23.8	6.3	80.0	19.4	0.6
V	65.3	26.0	8.7	86.3	13.3	0.3
VI	67.0	28.3	4.6	89.2	10.8	0.0

It may be observed that even before the training the knowledge level was quite high. Minimum level of right answers for any group considered was as high as 65 percent. The highest level of right answers for any group was 87 per cent. Similarly, the highest level of right answers that could be achieved after the training was 96 per cent (Group I). Maximum level of improvement in the knowledge was observed in Group V and Group VI after training. It could be observed that there was considerable drop in the wrong answers after training, ranging from 3.3 per cent in

Group I to 17.5 per cent in Group VI. it was interesting to note that even after training there were wrong answers to some questions and the elevation in the percentage of right answers after training being influenced by the reduction in 'no knowledge' category.

DISCUSSION

Twenty interviewed was too small a number to draw any meaningful conclusions regarding the effect of training. This paper could be considered more as a methodological exercise than an evaluative one. In fact, this exercise would be more meaningful if the attitude could be measured by constructing objective measurement scales. But these limitations do not preclude the observations made in this enhancement of the knowledge at the end of the training programme.

For all the 55 questions CHI Square values were calculated. The percentage of CHI Square values for the questions failing in different ranges are; Range I (CHI Sq. value 0-4.99) had 44 questions, Range II (CHI Sq. value 5-5.99) had two questions and Range III (CHI Sq. value 5.99) had nine questions. The CHI Square (with two degree of freedom) has been obtained applying the Stuart and Maxwell statistic. The CHI Square values falling in the Range III (16 per cent) are significant at 5 per cent level indicating the marked effect of the training programme. The CHI Square values in Range II (4 per cent) perhaps would have been significant; but for a small sample size. They are significant at 10 per cent level. Values falling in Range I were not at all significant. The non-significance could be due to the reason that the training had no effect or due to the factors inherent in the schedule. The fact that 16 out of 20 laboratory technicians interviewed were already working in DTCs and were familiar with the procedures of the programme cannot be ignored.

The CHI Square values and corresponding degree of freedom for different groups have been depicted in Table 2.

TABLE 2
EFFECT OF TRAINING ON DIFFERENT ASPECTS
STUDIED

Groups	CHI Square	Degree of freedom	P Values
Group I	11.7	1?	P>0.1
Group II	24.33	16	P>0.01
Group III	13.14	12	P>0.01
Group IV	16.64	16	P>0.1
Group V	6123	30	P< 0.001
Group VI	46.59	24	P<. 0.005

CHI Square was highly significant for Group V and VI (p 0.005) and for other groups it was not at all significant (p > 0.1).

The answering profile of questions which showed significant change. It could be observed that the percentage of right answers rose from 47 per cent to 92 per cent and wrong answers dropped to 8 per cent after completion of the training. The percentage of no knowledge dropped to zero level as has been presented in Table 3.

TABLE 3

ANSWERING PROFILE OF QUESTIONS WHICH SHOWED SIGNIFICANT CHANGE (11 QUESTIONS)

	Pre -training	Percentage	Post-train ing	Percentage
Right	103	468	202	91.8
Wrong	96	436	18	8.2
Do not know	21	9.6	0	0

There were a few questions on varied aspects for which their opinion was sought. More than half of the respondents favored targets for sputum examination. All of them approved supervision by the medical officer and they had positive reasons also for the necessity of the supervision.

Better logistics, better quality of reagents, better equipment appeared to be the technical problems faced by them. However, after the training they emphasized the need for better and cleaner laboratory.

All the trainees expressed the importance of the role of laboratory technician in DTP.

The pattern of felicitation of answers changed after the training. Before the training, for all the questions asked to the respondents, interviewer had to suggest the answers on 169 occasions, whereas after the training, it was only on 57 occasions that the respondents had to be prompted.

The findings of the study showed another interesting trend. There were some questions which drew wrong answers even after the training, pointing at the need for certain correctional actions by the trainers and also on the need for improvement of the schedule. The wrong answers concerned the staining techniques, microscopy and procedures prescribed in NTP.

CONCLUSION

The study no doubt was exploratory in nature. But the exercise. holds promise for use as a procedure to assess the knowledge of other categories of trainees coming to NTI, by developing appropriate and standardized schedule. It could also be used to assess the knowledge of other health workers involved in tuberculosis work at the peripheral level.

The schedules have a potential to be used as a teaching guide by the DTC staff during their supervisory visits, mainly because of the simplicity.

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सारांश

राष्ट्रीय क्षय-रोग कार्यक्रम हेतु केस ढूँढना एक अत्यन्त महत्वपूर्ण कार्यवाही है। इस कार्यक्रम की महत्ता को ध्यान में रखते हुए इसे सफल बनाने के लिए 10 सप्ताह के एक प्रशिक्षण कार्यक्रम द्वारा प्रमुख लोगों की आवश्यक जानकारी उपलब्ध कराने का प्रयास किया गया। प्रयोगशाला टैक्नीशियनों के ज्ञान स्तर में प्रशिक्षण प्राप्त करने के पश्चात आने वाले बदलाव(कार्य क्षमता एवं कुशलता) के संबन्ध में जानकारी प्राप्त करने के लिए प्रस्तुत लेख में एक प्रश्नावली प्रस्तुत करने का प्रयास किया गया है।

कार्यक्रम के अन्तर्गत प्रशिक्षण से पूर्व एवं प्रयोगशाला में काम करने के लिए तौर-तरीकों के बारे में बनाई गई 78 प्रश्नों वाली प्रश्नमाला के आधार पर 21 प्रयोगशाला टैक्नीशियन-प्रशिक्षणार्थियों से साक्षात्कार किया गया। प्रशिक्षण प्राप्त करने से पूर्व प्रशिक्षणार्थियों में 80 प्रतिशत प्रशिक्षणार्थियों ने पूछे गए प्रश्नों के 60-80 प्रतिशत उत्तर सही दिए, जबकि प्रशिक्षण प्राप्त करने के पश्चात यह स्थिति 95 प्रतिशत तक के स्तर तक जा पहुँची। कुछ प्रश्नों के बारे में प्रशिक्षणार्थियों के ज्ञान में परिवर्तन का स्तर गौरवपूर्ण एवं आश्चर्यजनक था।

जिला क्षय-रोग के प्रयोगशाला टैक्नीशियनों को निम्नतम स्तर तक के स्वास्थ्य कार्यकर्ताओं को राष्ट्रीय क्षय-रोग कार्यक्रम के अंतर्गत प्रयोगशाला में काम करने के तौर तरीकों के बारे में प्रशिक्षित करने के लिए एक गाइड के रूप में इस प्रश्नावली ने एक शैड्यूल की संभाव्यता का अनुमोदन किया।

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**SATISFACTION AND UTILISATION OF PRIMARY HEALTH CARE SERVICE
FACILITIES IN KARNATAKA**

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ABSTRACT

A study to find out the utilization pattern of primary health care service network and the reasons associated with various actions were taken up in Rural Karnataka State.

The study has observed 1.1 per cent point prevalence rate of Handicapped persons, 6.8 per cent point prevalence of sickness and 11.4 per cent 30 days period prevalence of sickness. In a period of one year 1.2 per cent of the persons had hospitalization for sickness.

Normally 56.2 per cent of the HHs take treatment mostly from the Government institutions and 41.3 per cent from the private medical practitioners. Considerable proportion of them has to travel 6 kms or more to get the treatment. The level of satisfaction for treatment at the Government sources was 44 percent. The referral system also needs improvement.

House to house services were availed by 23 per cent of the HHs in three months period and only 5 per cent of the population received some services. The people were not satisfied with the regularity of the services provided by the health workers.

A study of the utilization pattern and satisfaction level of the primary health care services by the community at this juncture have attracted lot of importance since the country has been heading towards health for all by 2000 AD with intensified programme inputs and expanded health infrastructures under primary health care system. Utilization and satisfactory services depended upon the quality of services provided their availability and accessibility as nearer as possible to the beneficiary.

As far as the curative services were concerned it has generally been accepted that most of the health service seekers at the health institutions were those who came from within 5 kms radius or from the area having very good transport facilities'. In general, about two thirds of the communities prefer to seek redressal of their health problems from the Government health institutions though their satisfaction level fell far below.

Baseline surveys conducted in the Area Project districts have studied the level of utilization of health services by the rural community, some of them limited it to

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MCH services or family welfare services. Further, these surveys were confined to different aspects of the problem^{2,3}. The End line Survey in the Area Project districts showed improved utilization of Government Health Institutions by providing additional inputs⁴.

The objectives of the study were: (1) to estimate the morbidity rate; (2) to study the pattern of utilization of services from the primary health care service network; (3) to find out the reasons for not using the services from the above sources; and (4) to study the level of satisfaction with the services with reasons for dissatisfaction among dissatisfied users.

STUDY AREA AND STUDY POPULATION

This survey was confined to the rural area of Karnataka State. The samples were drawn by adopting four stage multistage sampling design. In the first stage, one district was selected at random from each of the four administrative divisions. For the second stage, four PHC areas were randomly sampled in each of the selected districts. The PHCs with urban headquarters were excluded. The third and fourth stages were villages and households respectively. The village boundary was used by the health staff for their routine surveillance work. These villages having less than 80 households were combined with the adjacent village, covered by the same ANM to form a village unit. The records maintained by the ANMs were the basis for this action.

The village units in the sampled PHC areas were grouped into three strata based on the availability of health facilities.

Stratum I (ST I)	All villages with health facilities for curative services, <i>i.e.</i> Villages having either PHC or PHU or dispensary or any other health facility under the primary health care network.
Stratum II (ST 2)	Villages not having any such health facilities within their boundary but having one or more such facilities within a radius of 5 kms.
Stratum III (ST 3)	the remaining villages without any health facilities within a radius of 5 kms.

In each stratum, the villages were arranged according to the size of the population and a fixed number of 20 villages were sampled from each district. The number of villages sampled from each stratum was proportionate to their number.

In the final stage a fixed number of 40 households were sampled in each of the study villages on systematic sampling basis.

In case any of the sampled household could not be surveyed because of non availability of elderly persons in the household or refusal to give information even after all persuasive efforts made, they were substituted by the next available household. Proxy interview was not entertained. The survey was conducted during the months of January 1989, April 1989 to September 1989, November 1989 and March 1990.

MATERIALS AND METHOD

All the households in the sampled village unit boundary were listed in order by the investigators of the Field Survey Unit (FSU) of CBHI. The area health workers (HWs) also participated in the survey. The households were given consecutive serial numbers and the normal residents were registered in the household list. Two trained investigators interviewed all the available elderly normal residents of the sampled households. The interview was done in a free form manner. The data required for the survey was collected from the respondents in the Household Health Schedule (RF/21) designed specifically for the study objectives.

In all, 17,672 households were registered for the study in 80 village units. Of these 3200 households were sampled for the study as per the design. The main respondents in about 67 per cent of the households were female members. In 33 per cent of the households, the head of the households responded. At the time of interview, only 46.8 per cent of the non dependent age group persons were available at home.

Availability of Health Facilities: Of the 80 villages included for the survey, by design 16 villages had health institutions, 4 from each district. Another 28 villages had health institutions within 5 kms. Radius, 25 of them was either PHU or PHC and 2 general hospitals. The rest of the 36 villages did not have health institutions within 5 kms Radius.

In 29 villages private medical practitioners were either visiting a minimum of 2 times a week or staying in the village and in 34 villages either health institutions or medical practitioners were available. Of the 20 villages selected in each district in 11 villages of Gulbarga district, 10 villages of Dharwad district, 5 villages of Tumkur district and in 3 villages of Chickmagalur district the services of private medical practitioners were available.

In 36/80 villages female health workers were residing in the village. However, the female health workers had no supply of drugs to treat general ailment. In 52/80 villages trained dais were available and in 29/80 villages both female health worker and the trained dai were residing. In other words in 59 villages either trained dai or female health worker was residing. Anganwadi scheme was in operation in 35 villages.

Characteristics of Households: The 3200 households included for the study consisted of 851 (26.6 per cent) from SC and ST communities, 2044 (63.9 per cent) from other Hindus, 276 (8.6 per cent) from Muslims and 29 (0.9 per cent) from others.

The family economic status was classified as higher level (H), middle level (M) and lower level (L) according to the land holdings and other additional income. Those who owned five or more acres of land were classified as high economic status group, i.e., medium and large farmers, landless households, with one or more persons engaged as daily wage laborers were classified as lower level economic status group and the rest were classified as middle level economic status group. In all 90.3 per cent of the households were in the lower level economic group, 46.3 per cent in the middle level group and 34.4 per cent in the higher level group.

The availability of mass media in the households were also studied. It was found that 60.3 per cent did not possess any of the media, 38 per cent had audio or visual media and a meager percentage of 1.6 per cent had printed media. Reading room facilities were available in 11 (13.8 per cent) villages only.

Literacy rate among non-dependent age group population was 44 per cent. The same was 39 per cent for Gulbarga district and 56 per cent for Chickmagalur district.

Demographic Characteristics of the Study Population: In the 3200 households covered by the survey there were 18,799 persons residing giving an average family size of 5.9. The study population had 163.5 eligible couples per 1000 population an 44.4 per cent in dependent age group (less than 15 years and 60 and above. Of the eligible couples 37.3 per cent were sterilized, of the remaining 7.2 per cent were currently pregnant and 18.2 per cent delivered within one year period. Among the non dependent age group population 74 per cent were economically active. Again in them, 60.5 per cent of the females and 87.1 per cent of the males were economically active (as per census definition).

Educational Facilities in the Sampled Villages: All the 80 villages had primary level educational institutions. However, 52.5 per cent had higher middle primary level educational institutions and 22.5 per cent higher secondary level educational institutions.

RESULTS

Morbidity

Prevalence of Handicapped: Of the 3200 households surveyed, 200 (6.2 per cent) had one or more handicapped persons. In all 215 handicapped persons were observed giving a prevalence rate of 1.1 per cent.

The handicapped included 26.5 per cent defective limbs, 16.3 per cent defective limbs due to polio, 23.2 per cent blindness, 14.4 per cent deafness, 11.2 per cent mentally retarded and 2.4 per cent deaf and dumb. Further, 59.1 per cent of the handicapped were males and 40.9 per cent were females. Regarding age composition, 11.2 per cent were in 0-4 years, 31.2 per cent were in 5-14 years, 32.6 per cent were in 15-44 years and 25.1 per cent were in 45 or more year's age groups.

Prevalence of Sickness: The prevalence of sickness were studied for 30 days period, 30 days spells of sickness and point prevalence. This was compared with districts, stratum, caste and economic status.

it could be seen from Table 1 that the point prevalence of sickness was 6.8 per cent and the prevalence of sickness for 30 days duration was 11.4 per cent. During one year period 1.2 per cent had hospitalization (in patient) for various ailments. Gulbarga district and stratum 3 had less prevalence rate as compared to others in that group. The difference was statistically significant. There was not much difference between SC and ST groups and others. However, low level economic status group had higher prevalence of sickness. The trend chi-square also showed

TABLE 1
PREVALENCE OF
SICKNESS

Factor	Population	Point prevalence	Period prevalence (30 days)	Period prevalence (spells 30 days)	Incidence of Hospitalization (1 year)
Total	18799	6.8	11.4	11.8	1.2
District					
Chickmagalur	4434	8.6	14.2	14.8	2.6
Dharwad	4973	6.7	11.1	11.6	0.9
Tumkur	4516	6.5	11.0	11.3	0.7
Gulbarga	4876	5.5	9.4	9.9	0.7
Stratum					
ST1	3568	7.5	12.0	12.5	1.0
ST 2	6699	7.2	12.1	12.5	1.6
ST 3	8532	6.2	10.5	11.0	0.9
Caste					
SC & ST	4803	7.8	12.1	12.5	1.2
Others	13996	6.4	11.1	11.6	1.2
Economic stratum					
Low level	2836	9.3	14.2	14.8	1.6
Middle level	8163	7.2	12.1	12.6	1.1
High level	7800	5.4	9.5	10.0	1.1

significant difference suggesting that the prevalence of sickness may be inversely proportional to economic level. Chickmagalur district had higher rate of incidence of hospitalization.

There were 2225 spells of sickness which occurred to 2136 persons during the period of one month and 1297 spells of sickness to 1278 persons on the day of survey. Nineteen persons had two spells of sickness concurrently. Among 2225 spells of sickness 128 (5.8 per cent) had hospitalization. About 12.1 per cent of spells of sickness in Chickmagalur district had hospitalization whereas in other districts it ranged between 2.9 and 3.3 per cent.

The sick persons were studied by age, sex, duration of sickness and by the morbidity classification. About two thirds of the sickness occurred to the adult age group and 51.3 per cent of the sick persons were females. The symptoms or

sickness reported by the respondents were classified using WHO classification for lay reporting and have been presented in Table 2.

TABLE 2
DISTRIBUTION OF SPELLS OF SICKNESS BY MORBIDITY
CLASSIFICATION

S. No.	Morbidity Classification	Point	Prevalence (Spells)	Period	Prevalence (Spells)
		Number Percentage	Percentage	Number	
1.	Fever of any kind	139	10.7	436	19.6
2.	Skin lesions	141	10.9	182	8.2
3.	Diarrhoea and vomiting	65	5.0	174	7.8
4.	Other abdominal problems	98	7.6	152	6.8
5.	Cough	135	10.4	226	10.2
6.	Upper Respiratory Infections	118	9.1	222	10.0
7.	Breathing problems	106	8.2	111	5.0
8.	Urogenital manifestations	36	2.8	49	2.2
9.	Eye manifestations	54	4.2	70	3.2
10.	Other head and neck manifestations	43	3.3	69	3.1
11.	Neurological manifestations	57	4.4	63	2.8
12.	Maternal and new born	10	0.8	24	1.1
13.	General problems	192	14.8	274	12.3
14.	Injuries	66	5.1	120	5.4
15.	Other and unknown causes of morbidity	9	0.7	12	0.5
16.	External causes of injuries	16	1.2	25	1.1
17.	Cancer/Tumour	12	0.9	16	0.7
Total		1297	100.0	2225	100.0

The most prevalent conditions were fever, skin lesions, cough, URI and general problems. They include 50 to 60 per cent of the sickness. General problems include all forms of aches and weaknesses.

The Pattern of Action Taken for Sickness

Normal Place of Action. The households were asked, where they normally or mostly go for treatment of their sickness? If not satisfactory services received at the first source of action or for any kind of major illness where do they go for treatment? The responses obtained were analyzed as first source of action and second source of action. Whenever the households replied that they did not have such sickness, they were asked to give their perception still, if they could not answer, it was taken as no such sickness. For the first source of action 41.3 per cent of the households replied that they visited private practitioners and 56.2 per cent replied that they go to

Government institutions or to the source provided by the employer. Others (2.5 per cent) replied that they consulted health workers or did not take any treatment or nobody was sick. The private practitioners were mostly unqualified allopathic medical practitioners. Some of them were qualified in the Indian system of medicine but practicing allopathic system of medicines. The results have been presented in Table 3.

TABLE 3
NORMAL SOURCE OF TREATMENT FOR MINOR AILMENT FIRST
SOURCE

Factor	No. of Households	Source		
		No. Treatment	Private	Government
Total	3200	2.5	41.3	56.2
District				
Chickmagalur	800	1.2	12.2	86.5
Dnarwad	800	4.9	44.6	50.5
Tumkur	800	1.7	39.0	59.2
Gulbarga	800	2.3	69.2	28.5
Stratum				
ST 1	640	0.5	28.6	70.9
ST 2	1120	2.4	27.0	70.5
ST 3	1440	3.5	58.0	38.5

Among stratum I and II villages 70 per cent of them take action at the Government institutions for their minor ailments. It is surprising to note, about 35-40 per cent of the SC and ST communities, low and medium economic status group prefer to take treatment from private sources. However, in Chickmagalur district more percentage of households sought treatment from Government sources than in Gulbarga district. Regarding the availability 1798 households who sought treatment from the Government sources, 35 per cent have to travel more than 6 kms, 40 per cent within 5 kms. and the rest 25 per cent in the same village. On the contrary those who got treatment from private sources, 49 per cent have to travel more than 6 kms, 17 per cent within 5 kms. and the rest 34 per cent in the same village.

Considering first and the second source together it was observed that 32.2 per cent got treatment only from the private sources, 41.3 per cent only from the Government sources and 26.0 per cent from either the private or the Government sources.

Actual Place of Action: The morbid cases were enquired about the place where they have taken treatment for that episode.

TABLE 4
SOURCE OF TREATMENT BY THE MORBID
CASES

Factor	No of sickness (spells)	No. treatment	improper care (Self. HW)	Government source	Private source
Total	2225	15.3	9.3	38.3	37.1
District					
Chickmagalur	655	13.1	8.6	56.0	22.3
Dharwad	579	14.8	8.6	31.6	41.8
Tumkur	510	15.9	7.0	38.8	38.2
Gulbarga	481	18.1	8.7	21.6	51.6
Stratum					
ST 1	446	9.4	7.4	52.2	30.9
ST 2	840	15.1	8.7	44.8	31.4
ST 3	939	18.2	10.9	25.9	45.0

In contrast to 2.5 per cent who had replied that they do not take any treatment, about 25 per cent of the sickness did not have proper medical care. 38.3 per cent had it from the Government sources and 37.1 per cent from the private sources. It could be noticed from the table that 16.8 per cent of stratum I households, 23.8 per cent of the stratum II households and 29.1 per cent of stratum III households did not have treatment at all or proper medical care. It may be observed that for every increase in the distance of the availability of the Government facilities there was a decrease in the proportion availing proper medical care. In Chickmagalur district 56.0 per cent had treatment from the Government sources and in Gulbarga district only 21.6 per cent had treatment from the Government sources. It was stated by many that reason for choosing that particular place for treatment was due to convenience, treatment was good and it was the normal place of action. About 40.8 per cent had travelled 6 or more kms for treatment, 7.4 per cent 4 to 6 kms. and 9.5 per cent 1 to 3 kms, the rest did not have any treatment.

Reasons for Not Using Government Facilities: There were 62.9 per cent households who used the Government health facilities at one time or the other for one or more persons. The remaining 37 per cent of the households did not use the Government health facilities at one time or other. This 37 per cent of the households were asked for the reasons for not using the Government health facilities and their replies were classified in very broad following categories. In them as much as 23.8 per cent replied that they did not have faith in the Government health facilities hence not used it, 7.6 per cent felt facilities provided at the Government sources were not

proper or not suitable and 5.6 per cent expressed other reasons for their non-utilization. The category 'not suitable, stated above was in terms of distance, conveyance facilities and for the clash in their timings and the hospital service timings.

The households using private facilities at one stage or other were asked the reasons for selecting that service for treatment. There were 56.3 per cent of the households in this category and the remaining 43.7 per cent were non users of private facilities. When the replies of this 56.3 per cent of the households were classified, 43.8 per cent were grouped under the category faith in the services, 9.9 per cent were in the borderline, *LB.*, they had no faith in the Government services hence availed private facilities and the remaining 2.5 per cent gave other reasons.

Satisfaction Level

The households who have used the Government sources for curative purposes at any time, say, within 5 years, when asked their difficulties faced at the source, 44 per cent did not experience any difficulties. About 5.2 per cent experienced difficulties due to improper functioning of the system. Improper functioning of the system means either doctor was not available or have not attended in time or the staff was not available or discourteous or medicines were not available and given only prescription. In 26.7 per cent, the source failed to generate faith in the system. It was due to ineffective treatment which failed to provide relief, the practices by which treatment was not made available free of cost and other allied reasons.

Referral System. In the primary health care system referral of patients to the next higher level of institutions is one of the components of action. However, it was not the scope of this study to find out how many needed referral and how many referred. Only a meager 27 episode of sicknesses were referred to higher level institution for treatment. In them 11 did not get satisfaction in the referral system.

Among the 224 hospitalized patients within previous 1 year period, 28 were referred and 7 did not derive satisfaction in the referral system. On the whole the referral system has not taken roots.

Services From the Primary Level Health Workers

Those who are in the active reproductive period were asked where they avail ANC check-ups. About 28.3 per cent replied that they were not in the habit of availing ANC check-ups, 37.4 per cent used to have it only from ANM and the rest 34.3 per cent used to have institutional check-ups or from qualified doctors. This may be in addition to the ANM care. The factor-wise details have been given in Table 5.

The ANC check-ups were neglected in stratum III households (37.5 per cent), in Gulberga district (54.1 per cent) and among SC and ST population (33.3 per cent). Where institutions were available at the same village only 47.2 per cent (stratum I households) availed the institutional ANC check-ups. Among the districts studied, Chickmagalur district had more proportion using institutions for ANC check-up (48.5

TABLE 5
PATTERN OF ANC CHECK-UP

Factor	No. of Households	Not done	ANM only	Institutional/Doctor
Total	1274	28.3	37.4	34.3
District				
Chickmagalur	299	15.4	36.1	48.5
Dharwad	335	19.4	47.8	32.8
Tumkur	298	21.8	46.6	31.5
Gulbarga	342	54.1	20.5	25.4
Stratum				
ST 1	235	19.1	33.6	47.2
ST 2	444	20.9	43.2	35.9
ST 3	595	37.5	34.6	27.9

per cent). Regarding delivery services still 46.5 per cent of the households prefer to have the services of the traditional birth attendants. The services of trained dais were preferred by 13.5 per cent, ANM by 17 per cent and the health institutions by 22.8 per cent. This preference may be conceived with their experience of immediate availability of services at the time of delivery and content themselves with that reality.

The services provided by the field staff were studied for the past three months. During the period of three months, 77 per cent of the households did not receive any services from the health workers at their doorsteps. Only 5 per cent of the total persons residing in the households received one or more services. The distribution of these services was 31 per cent for family welfare or MCH or immunization services, 36 per cent for other health programmes, 11 per cent for environmental sanitation and 22 per cent for advising or providing treatment for minor ailments or registration of births and deaths.

The service of ANM was at the satisfactory level for 54 per cent of the households and 44 per cent of them wanted their routine visits to the households to be improved. The main complaints of the households were that the health workers both male and female do not visit the houses regularly as scheduled. Regarding male health workers 58.4 per cent said that they do not visit regularly. The services of the trained dais were known to 58 per cent of them and almost everybody was satisfied with their services.

DISCUSSIONS

in this study 1.1 per cent of the population were handicapped and 11.4 per cent had one or more episode of sickness during a period of 30 days and 1.2 per cent

were hospitalized during the period of one year. Among eligible couples 7.2 per cent were currently pregnant and 18.2 per cent were delivered within one year period. Out of 80 villages 34 had either health institutions or medical practitioners. The rest have to seek medical relief in places with varying distances. With this background the pattern of action taken has to be studied.

The action taken for relief of any ailment was not based on availability and distance of the facilities alone but on the severity of the disease, degree of inability to do the job, the availability of finance, suitability, *i.e.* pressure of work etc. Priority-wise, infants and working males were provided preference over others in taking action and old people were given least priority. Hence there was a sort of selection taking place for the type and source of action, often it was done at a later stage, sometimes it was so delayed an action which lead to increased economic loss to the households and deterioration in the general health condition of the patients themselves. Quite good proportions do travel more than 6 kms. to seek treatment. However, they prefer to have an institution nearer to their villages say within 2 kms. For the current episodes about 25 per cent did not take any proper treatment, *i.e.*, from health institutions or from medical practitioners. But for the question, normally where do you take treatment, only 2.5 per cent replied that they have not taken any treatment. The gap may be due to delayed actions or resorting to home remedies.

The action taken was not uniform and at one source it seemed a mix of the Government and the private sources. The choice depended upon so many factors. The main factors were the type of sickness, the time at their disposal and the public transport timings. For injuries and dog bites they had gone to the Government institutions. Further, if they failed to derive benefits from the first source, only then they had gone to the Government source. In this context it may be noted that different figures were obtained from different level of enquiries, *i.e.*, pattern of action taken, satisfaction level with Government institutions and reasons for using various facilities and actual place of action taken for the prevalent cases. After going through all these figures it can be assumed that roughly about 20 per cent do not use Government facilities and about 40 per cent do not use private facilities. Again roughly 40 per cent of the users of the Government facilities were dissatisfied users. Looking at the reasons for dissatisfaction and the improvements suggested for the Government institutions, the major cause for dissatisfaction was not providing free treatment and dispensing drugs. The next reason was non-availability of doctors or quality treatment.

In the primary health care system, one of the essential requisites was the development of proper referral facilities. These facilities were still in the process of introduction in a phased manner. Though the functioning of the referral system was not studied systematically in this study for obvious reasons certain amount of inferences could be drawn from this data. While enquiring about their perception regarding the action to be taken 56.2 per cent said that they would normally go to the Government institutions for treatment. Among them 43.3 per cent informed that they go to another Government institution, mostly next higher level if they do not get satisfactory response to the treatment at the first source, another 28.6 per cent go to

private source and 28 per cent do not go anywhere or no such occasion arose. Amongst the 2225 episodes of sickness studied, it was seen that 1.2 per cent of the episodes had referral to higher level of institutions and 5.8 per cent had hospitalization. Further, 26 per cent reported that they did not derive satisfactory treatment from the earlier source hence second source was selected. Of the hospitalized patients 12.5 per cent were referred and 25 percent responded that they did not derive satisfaction with the referral system. With these, it can be concluded that the referral system in the primary health care system can work and needs immediate attention and improvement.

House to house services provided by the health workers were yet another dimension of the system. Services in connection with health programmes were carried out through them at the doorsteps of the people. It is surprising to note that 77 per cent of the households did not receive any service in three months time and only 5 per cent of the population was serviced during this period. Further, the people are dissatisfied with their services since health workers do not visit regularly. Inspire of the services provided at the doorsteps still 28.3 per cent of the eligible do not avail ANC check-ups. On the other hand, 34.3 per cent of them had it from the qualified doctors in addition.

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Lkj'k

प्राथमिक स्वास्थ्य परिचर्या सेवा-सुविधा नेटवर्क के उपयोगिता ढांचे और इससे संबद्ध विभिन्न कार्यवाहियों से संबंधित कारणों का पता लगाने के लिए एक अध्ययन कर्नाटक राज्य के ग्रामीण क्षेत्र में किया गया।

लोगों के अपाहिज होने की दर 1.1 प्रतिशत प्वाइंट देखी गई, बीमार होने की दर 6.8 प्रतिशत प्वाइंट पाई गई और एक महीने तक 11.4 प्रतिशत प्वाइंट बीमार होने की दर अध्ययन के दौरान देखने को मिली। एक साल के दौरान कुछ व्यक्तियों के 1.2 प्रतिशत बीमारी के कारण अस्पताल में भर्ती हुए।

सामान्यतः, दम्पतियों के 56.2 प्रतिशत द्वारा अधिकतर सरकारी अस्पतालों में इलाज कराया, 41.3 प्रतिशत ने प्राइवेट मैडिकल प्रैक्टिशनर्स से इलाज कराया। इनके सामान्य अनुपात को इलाज के लिए 6किलोमीटर या उससे भी अधिक चल कर जाना पड़ा। सरकारी स्रोतों से इलाज कराने वालों की संतुष्टी का स्तर 44 प्रतिशत था।

तीन महीनों के दौरान घर-घर में सेवा-सुविधाओं का लाभ उठाने वाले दम्पतियों का प्रतिशत 23 था। केवल पांच प्रतिशत लोगों को ही कुछ सेवा-सुविधाएं प्राप्त हुईं। स्वास्थ्य कार्यकर्ताओं द्वारा दी जाने वाली सेवा सुविधाओं की नियमितताओं से लोग संतुष्ट नहीं थे।

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