

**A COMPARATIVE STUDY OF ORGANISATION AND MANAGEMENT
OF SUBSTANCE ABUSE TREATMENT AND REHABILITATION
CENTRES IN DELHI****

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ABSTRACT

This study is an attempt to explore the organization and management of centers involved in the treatment and rehabilitation of substance dependants in the metropolis of Delhi. The study further goes on to compare such centers falling in these sectors, government (GO), non-government (NGO) and private (PVT) on certain relevant parameters. No attempt has been made herein to compare the results of this study with those done earlier to maintain the true nature of explorative research.

The provision of facilities for physical, social and psychological health of the citizens is very well enshrined in the constitution of most independent nations of the world and is considered as one of the primary responsibilities of the state. To a considerable extent, the efforts of these independent nations have been successful in providing its citizenry protection against most of the diseases but for few.

Of all such diseases that inflict an individual, none is more menacing than the disease of substance abuse as its deleterious effect is not restricted to the individual alone but involves his family and the community. With the establishment of linkage with the dreadful HIV infection, this ailment (of substance dependence) has become all the more menacing.

While understanding the significance of this phenomenon, the nations of the world - both individually and collectively - have embarked upon a major frontal attack on this monster. Apart from exercising stringent controls over the production and usage and the prevention of trafficking of illicit drugs, efforts have simultaneously been made to help those unfortunate people who are already in the clutches of this demon.

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The role of UN and particularly WHO is very laudable in this regard. Under its various programmes, both these international bodies have been disseminating information, providing guidelines and financial support to various nations of the world, especially developing nations like India, as well as the necessary wherewithal to operate defensive and offensive maneuvers against this insidious adversary.

Geographically and geo-politically, India is located at the cross-roads of the major manufacturing and transit points for illicit drugs - the 'Golden Triangle' (comprising Myanmar, Thailand and Laos) and the 'Golden Crescent'¹ (comprising Pakistan, Afghanistan and Iran). Thus, India's location and extensive borders are vulnerable to drug syndicates and traffickers. They enter into the country, using it as a transit point in the metropolitan cities, the leakage and spillover of drugs during transit (also due to tightening of other international borders) has produced a large number of consumers and addicts, thereby establishing the roots of substance abuse in India.

The increasing trends in the twin problems of drug trafficking and drug abuse pose a grave threat to the future of the country. In order to handle these problems, the Government of India in the year 1985 enacted the Narcotic Drugs and Psychotropic Substances Act. Article 4 of this Act makes the following obligatory on the part of the Central Government:

- a. Coordination of actions of various officers, State Governments and other authorities;
- b. Obligations under the international conventions;
- c. Assistance to the concerned authorities in foreign countries and concerned international organizations with a view to facilitating coordination and universal action for prevention and suppression of illicit traffic in narcotic drugs and substances; and
- d. Identification, treatment, education, after care, rehabilitation and social reintegration of substance dependents.

In order to meet these obligations, the Government of India, through its Ministry of Health and Family Welfare, provides guidelines and financial aid to various centers in the Government (GO) and non-government (NGO) sectors to enable them to have effective identification, treatment, education, after care, rehabilitation and social integration of substance dependants.

This programme of aiding such centers is done by the government not only through its own funds but also through the financial support from multilateral agencies like WHO etc. and has been on for quite some time.

Much has been researched, written and discussed about the performance of these centers and their efforts lauded; still there is not enough documented information on the personnel, infrastructure!, financial and performance effectiveness profiles of these centers.

This study is an attempt to explore the organization and management of centers involved in the treatment and rehabilitation of substance dependants in the metropolis of Delhi. The study further goes on to compare such centers falling in three sectors Government (GO), non-government (NGO) and private (PVT) on certain relevant parameters. No attempt has been made herein to compare the results of this study with those done earlier to maintain the true nature of explorative research.

The study has been conducted over a period of 15 months under a special grant from World Health Organization (WHO) under their HSR programme which is being coordinated by the National Institute of Health and Family Welfare (NIHFW), New Delhi.

Statement of the Problem

The treatment and rehabilitation of substance dependants is relatively a recent phenomenon in India. It was introduced with the implementation of Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985 on the initiative of the Government of India. Hence the problems posed by this class of patients to themselves, their families and the society are yet unfamiliar and uncharted.

The major steps in handling the twin problems of drugs trafficking and abuse have been taken at the behest of the Ministry of Health and Family Welfare, Government of India.

Presently the Government of India (GOI) finances the efforts of not only the government hospitals, but also of various non-governmental organizations (NGOs) which have taken up the responsibility of cleansing the society of the drug menace by providing treatment, rehabilitation and reintegration of substance dependants into the mainstream of social life.

Since taking up this programme under NDPS Act, the Government of India has initiated and funded various research projects, awareness campaigns and also has made viable the efforts of various treatment and rehabilitation centers in the government and NGO sectors.

Despite such laudable efforts on the part of the Government of India, there still exists a great lacuna in meeting the demands of the situation, both quantitatively and qualitatively. The extent to which the efforts of these centers have been effective in meeting their objectives remains a matter of conjecture due to the non-availability of appropriate evaluative research.

The present study is an attempt to explore and assess the consequences of the efforts of the Government of India since 1985, which has been aiding and supporting various treatment and rehabilitation centers in government, NGO and private sectors. The thrust of the study is not only to assess the functioning of the centers in these sectors but also to do a comparative analysis of their organization, management and service effectiveness.

The study is exploratory in nature, taken up with the objective of culling-out and documenting facts pertaining to the nature and functioning of substances abuse treatment and rehabilitation centers in three sectors -government, non-government (NG) and private (PVT).

GENERAL OBJECTIVES

To explore the areas of organizational and human resource development interventions to improve the efficacy of the substance abuse treatment and rehabilitation centers in achieving their objectives.

SPECIFIC OBJECTIVES

- i. To have a comparative account of the centers in three sectors.
- ii. To explore the organizational structure and infrastructure Resources of the centers in three sectors.
- iii. To explore the demographic characteristics of the professional employed in the centers in three sectors for the treatment and rehabilitation of substance dependants.
- iv. To explore the performance adequacy of treatment professionals in three sectors in terms of their knowledge, skills and attitudes.

- v. To explore the demographic characteristics, drug abuse history, Treatment history and opinion on present treatment of the substance abuse, patients or substance dependants in three sectors.
- vi. To explore the treatment methodology and its effectiveness as Applied to the centers in three sectors.
- vii. To explore the opinion, expectation and satisfaction levels of the patients and family members of the patients with the treatment and rehabilitation programmes of the centers in three sectors.
- Viii. To list out the recommendations for improving the performance effectiveness of. these centres on the basis of the information generated.

SAMPLE

The sample of the study are the substance abuse treatment and rehabilitation centers in the following three sectors, selected using the purposive sampling technique.

The Government Sector

In consideration of the size of the universe, all the major centers/hospitals in the government sector providing substance abuse treatment have been included in the sample to make the sample representative. The total number of centers studied under this sample category is five in all and they have been drawn from and represent all the regions of the metropolis.

The Non-Government Sector

The size of universe in this sector is about 15. In order to make the sample representative, 50 per cent of such centers {numbering 7) have been included in the study the most active branch/centre of each NGO is taken as the representative of that NGO. Care has been taken that the selected centers are from all the regions of Delhi.

The Private Sector

A very limited number of centers in private sector are involved in the treatment and rehabilitation of substance abuse patients. Even the centers in this sector which are involved in this activity offer this as a secondary service, their

Primary concern being the psychiatric patients.

Three such centers from the private sectors, located in East, West and Central parts of Delhi have been included in the study. Other centers, especially in South Delhi refused to be a part of the research sample.

The information about the sample, i.e. the centers in each sector has been generated from the following sub-samples:

- i. The centre personnel or treatment professionals associated with these centers, which through their knowledge, skills and attitudes provide treatment and rehabilitation services to their clients (substance dependants) and fulfill their expectations.
- ii. The patients or the substance abuse who as clients are using these centers as in-patients (INP) or as out-patients (OP).
- iii. The family members of the patients who have their stake in the centers in terms of treatment and rehabilitation of their relations as patients.

FINDINGS

Organization and Structure

The organizational structure in the government centers is tall with multiple levels of hierarchy, whereas the NGO and private centers have flat structures with not as many hierarchies. On an average, the number of departments in the three sectors is two. The number of employees in the government centers is more in comparison to NGO or private centers as they cater to both psychiatric as well as substance abuse patients. Thus, the average number of people reporting to one superior is comparatively higher in government centers (Table 1).

The NGO centers, on an average, get more patients, daily as well as annually and thus, cater to a larger population of substance dependants. Due to such a large number of patients utilizing the services at NGO centers, the centre professionals versus the patients per day ratio is 1:1 in NGO centers, whereas it is 2:1 in government and 3:1 in private centers. In all, the NGO centers offer more number of beds to patients. Four times greater than that in government centers and many more times than that in private centers. Due to the non-availability of data, the average annual expenses incurred by centers per patient on treatment and rehabilitation could not be worked out.

TABLE 1
ORGANISATION STRUCTURE

S.No.	Sector	Levels of Hierarchy		Number of Departments	Average Number of People	Manpower Strength			Average Number of Patients per Day	
		Levels	Structure			Full Time	Part Time	Total	Inpatient	Outpatient
1.	GO1	Multiple	Tall	1	07	07	0	07	2	3
2.	GO2	Multiple	Tall	2	30	31	0	31	3	2
3.	GO3	Multiple	Tall	4	20	71	0	71	30	42
4.	GO4	Multiple	Tall	2	24	29	0	29	4	2
5.	GO5	Multiple	Tall	2	15	24	0	24	3	2
6.	NGO1	2	Flat	3	20	20	1	21	30	05
7.	NGO2	2	Flat	3	45	45	0	45	55	06
8.	NGO3	3	Flat	4	07	52	0	52	27	10
9.	NGO4	2	Flat	2	02	04	16	20	N.A.	11
10.	NGO5	3	Flat	1	14	42	0	42	21	5
11.	NGO6	3	Flat	2	08	30	0	30	13	47
12.	NGP7	2	Flat	1	06	04	02	06	N.A.	5
13.	PVT1	2	Flat	1	5.5	7	4	11	2	2
14.	PVT2	1	Flat	1	9	9	1	10	2	2
15.	PVT3	2	Flat	1	12	12	0	12	2	2

The infrastructural space and facilities in most of the centers are inadequate in terms of quantity as well as quality. Lack of infrastructural facilities has been cited as one of the major reasons for the centers not being able to meet their objectives satisfactorily.

A major lacuna in terms of infrastructure and facilities exists in the areas of diagnostic tools and equipments, counseling facilities and rehabilitation.

Thus, none of the centers can be called as completely equipped in terms of proper treatment and rehabilitation of substance abuse patients.

Professionals

The centre professionals are a young lot with average ages varying between 31 and 42 years. The professionals in the government sector are relatively older than those in the other two sectors.

The majority of professionals are males, in a ratio of 1:2 in favor of males, overall as well as sector wise, except in the NGO sector where it is approximately 1:1.

The income per month of the professionals varies significantly in the three sectors with most of the designations in the government sector earning higher than those in the other two sectors.

The professionals are quite experienced, but in many designations, the nature of earlier jobs is significantly different from that of the present job (e.g. Programme Officers, Counselors and Social Workers at NGO centers). This makes the relevance of their experience somewhat questionable.

All the professionals in the government and private centers have qualifications relevant to their present job, whereas 50 per cent of the key designations in NGO centers do not hold the right qualifications for their jobs. This could be hampering the latter from performing effectively in these positions. Thus, professionals in the NGO centers lack in the knowledge, skills and experience in comparison to those in government and private centers.

The majorities of the professionals perceive having only moderate levels of workload upon them and thus do not have to stretch themselves too much. The NGO centre professionals are busier than those in the other two sectors as they handle a relatively higher number of patients per week. Professionals in all the sectors spend adequate amount of time with patients in terms of quantity, but the real worth of this time in qualitative terms seems to be inadequate

Most of the professionals derive moderate levels of satisfaction from their work but the level of motivation is high in professionals across the sectors. Comparatively, a large percentage of professionals of NGO centres derive higher levels of motivation and satisfaction from their work.

The data reveal that the majority of professionals do not find themselves having adequate or sufficient amount of knowledge as their academic qualifications and experience might indicate. Most of them have expressed that the academic preparation for their jobs (studies etc.) is quite inadequate and fails to provide them with the requisite level of confidence in handling the intricacies of their jobs. Due to this reason, the self-esteem levels of the majority of the professionals are reported to be fairly low.

To sum up the professionals seem to need a lot of inputs in terms of their knowledge skills and attitudes to be able to derive satisfaction from their jobs and to be effective in achieving their performance objectives.

Patients

On the basis of Information obtained from the patients, it can be concluded that the majority of the patients are in the age group of 21 to 35 years, (Table 2) mostly school drop-outs, unemployed or self-employed, (Table 3) coming from large households with high household incomes in terms of substance abuse history. Most of the patients are single drug users with the majority dependent upon smack or brown sugar. On an average, patients spend above Rs.2000 per month on substance consumption. In most of the cases, this habit had led to a decline in earnings, besides having had a negative impact on their job status.

The majority of the patients had earlier been treated for substance abuse at NGO centers and had stayed as in-patients for above 66 days, but relapsed after each instance of treatment.

Most of the patients had gone for treatment due to the chronic effects of the substance abused, a reason which needs to be taken with a pinch of salt as it is far from the truth. The NGO centers and the in-patient treatment provided by them is more popular among the patients, especially for the restrictions that it imposes on them.

All the centers, barring those in the government sector, levy some charge or the other on the patients for in-patient treatment, the private centers being the most expensive in this regard.

TABLE 2
AGE DISTRIBUTION OF PATIENTS

S.No.	Age Range (years)	Number of Patients	Per cent
1.	15-20	1	1.40
2.	21-25	11	15.50
3.	26-30	29	40.84
4.	31-35	15	21.12
5.	36-40	9	12.68
6.	41-45	3	4.22
7.	46 and above	3	4.22
Total		71	100

TABLE 3
EMPLOYMENT STATUS

S.No	Status	Number of	Per cent
1.	Unemployed	24	33.80
2.	Temporarily	7	10.26
3.	Permanently	11	15.50
4.	Self Employed	25	35.21
5.	Other	4	5.63

Treatment Effectiveness

The following conclusions can be drawn on the basis of the information collected from the three sub-groups of the sample, namely:

- i. Professionals dealing with the treatment and the rehabilitation Programme:

- ii. Patients undergoing treatment and rehabilitation and
- iii. Patients' family members who have a stake in the content, Conduction and outcome of the treatment and rehabilitation programme.

The treatment and rehabilitation programme of the centers is normally a four stage process with specific objectives of improving patient's psychological and physical health. Unfortunately, none of the centers use any objective criteria (diagnostic tools, instruments or techniques) at any stage to assess the psychological, physiological or physical well-being of the patients and thus ascertain the extent to which the treatment objectives are met. In majority of the centers, progress in the patient is interpreted using non-systematic, unscientific and unreliable methods. In the absence of this feedback, the efforts of the centre personnel are more of a routine process which is more 'activity-oriented' than 'objective/result-oriented'.

Comparatively, the NGO and the private centers run a better treatment programme covering a larger domain of the patients' problem areas than government centers.

Counseling, which is considered to be the most crucial part of any treatment programme for attitudinal and behavioral modifications, is provided at each stage of the treatment and rehabilitation programmes of all the centers. The counseling process is a suspect in all the centers as patients and their family members report dissatisfaction with its quantity (number of counseling sessions) and quality (duration and contents of deliberations). The treatment professionals lack in counseling skills and commitment to their work and do not spend enough time on it. Counseling of the patient's family members is very limited at all the centers, despite being made an important part of the treatment process. Thus, the Counseling services of all the centers need immediate qualitative improvement to get anywhere close to being even satisfactory.

Similarly, the involvement of the family members of the patients in the treatment programme has been found to be more or less non-existent despite being one of the objectives of the treatment process. Most of the family members report being unaware of the treatment programme and to having never been made to contribute to it.

The rehabilitation programme offered by the centers is virtually non-existent, though it is considered by the entire centre' professionals as a compulsory ingredient of the treatment process. The treatment centers and their professionals seem to be totally confused about the configuration of the rehabilitation.

Programme and careless in not doing anything on this front, despite finding it inadequate. Thus, the rehabilitation programme of all the centers barring a couple in the NGO sector are quite shoddy due to the lack of clarity in the perception of objectives; lacuna in the expertise of the professionals; inadequacy in the infrastructure and other facilities at the centre.

The drop-out rate of the patients is fairly high in all the centers and lack of motivation in the patients is reported by the professionals to be the major cause of it. Professionals report taking extra¹ care of the patients who do not respond to the normal or standard mode of treatment that is offered by the centre but failed to specify the nature and the content of this extra care. Thus, it is evident that the centers do not take account of individual differences in the personality, drug habit and attitude of the patients and put them all through the same process of treatment irrespective of the outcome. This could be the reason for the high dropout rate of the patients from the treatment programme (Table 4):

TABLE 4
DROP-OUT RATE OF PATIENTS FROM THE TREATMENT PROGRAMME

S.No.	Drop-out Rate in Per Cent	Per Cent of Centers		
		GO	NGO	PVT
1.	1-20	40	42.85	33.33
2.	20.40	50	57.14	66.66
3.	40 and above	10	0	0

About 95 per cent of the centers studied do not have a completely drug free atmosphere in their in treatment facility. The process of 'detoxification' and counseling for keeping away from the illicit drugs goes side-by-side with the process of toxification or consumption of the same by the patients, especially in a majority of the government centers. Patients report continued consumption of the illicit drugs during their in-patient treatment, once the detoxification phase is over. The treatment professionals also confirm this, thereby indicating that they are not unaware of this very serious lapse in the treatment programme of the centre and its consequences on the outcome of the treatment. The agents bringing the illicit drugs into the centre and supplying them to the patients, according to the centre professionals are the 'employees of the centre and the family members' of the patients. The involvement of these two groups of people in this nefarious activity is an indicator of the quality of the treatment programmes offered by these centers

and the extent to which these two groups of people contribute' to the treatment Programme.

All these inadequacies existing in the treatment and rehabilitation programmes of the centers are aptly reflected in the high relapse rates in the patients who undergo treatment unfortunately, most of the centers do not keep any systematic data on the relapse rate of the patients who undergo treatment at their premises. Nevertheless, treatment professionals identify lack of motivation in-patients, lack of family support and inadequacy in the treatment programme as the major causes for the occurrence of relapse; but no centre has made any effort to rectify the situation.

The patients of substance abuse and their family members have very realistic expectations from the centers - curing substance dependence, improving health, preventing relapse and helping in the economic rehabilitation. Although fulfillment of these expectations is very much a part of the treatment objectives of the centre, no efforts are made to satisfy the genuine desires of their clients.

Due to non-fulfillment of the desires and expectations, the patients and their family members have reported low levels of satisfaction with the services of the treatment centre.

Patients have suggested various ways in which the centers can improve their services and thereby fulfill the patients' desires and expectations. These suggestions relate to centre professionals, centre infrastructure and facilities and the treatment programme

Similarly, the centre professionals have put forth some suggestions on the changes and modifications in the centers infrastructure and services, which if incorporated, would lead to an overall improvement in the performance of the centre.

Comparatively, the NGO centers show a better performance in almost all respects than the government and private centers.

It can be concluded on the basis of the analysis of the information available that there is a lot of scope for improvement in the services of the centers studied, perhaps through changes and modifications suggested in all the aspects of their functioning.

RECOMMENDATIONS

Since the Government of India has more control in the functioning of the government and non-government (NGO) centers as per the NDPS Act, 1985; hence the recommendations given here relate more to the centers in these two sectors.

The following recommendations emerge from the study:

1. Separate facilities for the in-patient treatment of the substance abuse patients should be created in the government centers.
2. The in-patient treatment services, in terms of the number of beds and other infrastructural facilities for the same, should be upgraded in both the government and NGO centers.
3. A special training course for the improvement in the knowledge, skills and attitudes of the treatment professionals involved in the treatment and rehabilitation of substance dependants should be started by the government. This course can be developed through a network of all the government and non-government centers.

Such training course will enable the professionals to understand better the uniqueness of this class of patients, give them an opportunity for experience sharing with the professionals at other centers and thus make them more confident in their dealings with substance dependants. The imperativeness of such a training course can be understood from the fact that the conventional degrees (like Masters in Psychology or Social Work or diploma in counseling and career guidance from NCERT) that most of these counselors or social workers possess in no way provide them with the requisite knowledge, skills, attitudes, understanding and confidence to deal with the complexity and intricacies of the problems of substance dependence.

4. The duration of the treatment programme should be increased to at least 30 days and an objective and diagnostic methodology for the assessment of the status of the patient's health at each stage of the treatment should be introduced.
5. Day-care facility for the out-door patients should be created as a separate entity with emphasis on the economic rehabilitation of the patients.

6. The community awareness programme should be made more active so that treatment for substance abuse may be popularized and more patients come forward to utilise this service. This will ensure social support and empathy to the substance dependants from the community.
7. The case histories and the patient's treatment records should be computerized and fed into a centralized data base so that any centre may have access to this data, as and when required. This information network will facilitate follow-up. On patients and the success or failure of the treatment programmes the reasons for the same can thus be better understood.
8. The salary structures of the treatment professionals, especially the counselors, social workers programme officers, therapists and the nurses at the NGO centers should be upgraded and made at par with the same in the government centers.
9. Erstwhile substance dependants (ex-addicts) should be involved in the treatment and rehabilitation programmes after confirmation that they have left substance abuse. This would not only act as the morale booster to the patients being treated by them, but will also opens up appropriate avenues for the economic rehabilitation of cured patients.
10. The charges levied on patients for utilizing various services during treatment (like registration fee, security deposits, payments for meals, medicines and clinical tests) in various NGO centers should be rationalized.
11. The recreation facilities in terms of in-door games and reading materials should be upgraded at the centers so that patients are kept involved in some constructive activity while undergoing inpatient treatment.

The incorporation of these recommendations in the treatment and rehabilitation programmes is bound to result in a palpable improvement in the effectiveness of the services offered at the centers.

प्रस्तुत अध्ययन में दिल्ली महानगर में आश्रितों के उपचार एवं पुनर्वास से जुड़े केन्द्रों के संगठनात्मक एवं प्रबन्धकीय पक्षों के बारे में अन्वेषण करने का एक प्रयास किया गया है। अध्ययन में कुछेक प्रासंगिक पैरामीटरों के आधार पर सरकारी, गैर-सरकारी तथा प्राइवेट क्षेत्रों के अर्न्तगत आने वाले केन्द्रों का तुलनात्मक अध्ययन करने का भी प्रयास किया गया है। इस अध्ययन में अन्वेषणात्मक अनुसंधान के वास्तविक स्वरूप को बनाये रखने की दिशा में प्राप्त परिणामों की, इसके पूर्व किए गए अध्ययनों से प्राप्त परिणामों के साथ तुलना करने का कोई प्रयास नहीं किया गया है।

**A STUDY OF SOME OF THE FACTORS RELATING TO
CONTRACEPTIVE USE IN AN URBAN SLUM**

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ABSTRACT

An attempt is made in this study to improve the contraceptive use in the slum population by ascertaining some of the demographic, cultural, social, psychological and service factors which influence the use of contraceptives. The study has revealed that even though majority of the slum dwellers are aware of contraceptive methods, the inaccessibility and non-availability of the services to the urban slum dwellers had contributed to a large extent to the non-use of contraceptives.

Use of contraceptives is deeply rooted in the social structure of the society through the institution of marriage, family, religion, socio-cultural norms and social behavior. The slum population ranges from 40-70 per cent, according to the 1991 census and is characterized by segmentation of society, on the basis of culture, religion, caste, etc(it is ideal to study as the urban slum dwellers are territorially urban but their social and cultural values are similar to their rural counterparts and some attitudinal misconceptions prevail in the slums which hampers the use of contraceptives. Acceptance of contraceptives could be made possible only when we are able to understand the social values, perceptions and attitudes, which people have towards the use of contraceptives Since growing slum constitutes a major portion of the population in urban area, an attempt is made in this study to improve the health status of the slum population by ascertaining some of the demographic, cultural, social, psychological and service factors which influence the use of contraceptives in an urban slum.

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OBJECTIVES

The present study was conducted to identify (i) some of the factors which influence the contraceptive use in urban slum dwellers; (ii) the factors which deter the use of contraceptives among non-users in an urban slum; and (iii) the availability and quality of. Services which influence the contraceptive use.

METHODOLOGY

The study was conducted in Sonia Gandhi Jhuggi Camp in Tughlakabad in 1995 which fulfilled the two criteria for the study *he*. (i) An urban slum which has no health facilities in the distance of 2 kms from the slum; and (ii) the slum should have representation of people from various regions to study the influence of various socio-cultural factors, beliefs and attitudes on contraceptive use.

Two hundred three eligible couples and 65 non-eligible couples out of 481 households were included in the present study. Sixty-five non-eligible couples were included in the study because it is seen in villages and study area that it is the older women who advice the younger women regarding the use of contraceptives. Data were collected by interviewing and having group discussion with eligible and non-eligible couples. Data were also collected regarding the socio-economic profile of the respondents; knowledge, awareness and practice of contraceptives and of various factors influencing the use of contraceptives. Suitable statistical tests were applied after compilation of data.

RESULTS

The study shows that in the study area 75.7 per cent of the females and 73.8 per cent of the males are within the reproductive age group of 15-44 years. Of them, 77 per cent belonged to scheduled castes/scheduled tribes/other backward castes and only 23 per cent belonged to Rajput and other castes. 98.1 per cent belong to nuclear families. 40.7 per cent have stayed in the slum for more than 10 years and 59.3 per cent for less than 10 years.

DEMOGRAPHIC FACTORS

Age at Marriage

The mean age at marriage for wives and husbands in the eligible group was 15.4 years and 16.8 years respectively while it was 13.9 years and 14.9 years respectively for wives and husbands in the non-eligible group. 66 per cent of the wives in the eligible group were married below 14 years of age and 15.1 per cent were married below 9 years.

Age at Consummation of Marriage

The average age at consummation of marriage for wives of non-eligible group was 14.9 years whereas it was 16.9 years for husbands. The average age of consummation of marriage is 16.14 years and 17.2 years respectively for wives and husbands in the eligible group.

Age and Parity of Woman

The study shows that as the age of the mother increases the parity also increases. 17 (73.9%) wives in the age group of 15-19 years had 1 or 2 child birth, while 23 (48.9%) wives in the age group of 20-24 years had delivered 3 or more than 3 children. 46 (63.9%) women and 40 (80.8%) of the women in the age group of 25-29 years and 30-34 years had 3 or more than 3 children.

TABLE 1

DISTRIBUTION OF WIVES ACCORDING TO PARITY

Age Group	Number of Births							Total
	0	1	2	3	4	5	>6	
15-19	6	10	7	0	0	0	0	23(11.3)*
20-24	4	10	10	15	8	0	0	47(23.1)
25-29	4	3	8	23	10	5	19	72(35.5)
30-34	0	0	5	10	11	4	15	45(22.2)
35-39	0	0	1	1	1	1	9	13(6.4)
40-44	0	0	0	2	1	0	0	3(1.5)
>45	0	0	0	0	0	0	0	0
Total	14	23	31	51	31	10	43	203

*Figures in parentheses represent percentages.

Contraceptive Users According to Education of the Couples

It may be seen from Table 2 that among couples where both the couples were illiterate, 12 (16.9%) and 2(4.6%) of eligible and non-eligible couples were using contraceptives while among couples where husband was literate and wife illiterate, 20 (20.4%) and 4(19.0%) but of 98 eligible and 21 non-eligible couples were using contraceptives. In couples where husband was illiterate and wife literate, 1 (100%) among one eligible couple were using contraceptives. Among couples where both husbands and wives are literate, 3 (9.0%) out of 33 eligible couples were using contraceptives.

TABLE 2
DISTRIBUTION OF CONTRACEPTIVE USERS ACCORDING TO
EDUCATION

Education of Couples	Eligible Couples		Non-eligible Couples	
	Acceptors	Total number of couples	Acceptors	Total number of couples
Both illiterate	12(16.9)*	71	2(4.6)	43
Husband literate wife illiterate	20(20.4)	98	4(19.0)	21
Husband illiterate wife literate	1(100)	1	0(0.0)	0
Both iterate	3(9.0)	33	0(0.0)	1
Total	36	203	6	65

*Figures in parentheses represent percentages.

ECONOMIC STATUS

Occupation of Husbands and Wives

Majority (70.8%) of the contraceptive users were skilled workers whereas only 26.2 per cent of contraceptive users were unskilled workers. 19.2 per cent of the wives in the eligible group and 20 per cent among the non-eligible group were working mainly as daily wagers.

Contraceptive Users According to Income

It is evident from Table 3 that 11 (26.2%) couples out of 42 eligible and 3(12.5%) out of 24 non-eligible couples in the income group of Rs.501-1000 were using contraceptives while in the income group of Rs 1001-1500, 10(10.3%) couples in the eligible and 2 (8%) out of 25 non-eligible couples were using contraceptives. 10(27.7%) couples out of 36 in the eligible and 1(12.5%) couple out of 8 non-eligible couples were using contraceptives in the income group of Rs1501-2000 while in the income group of Rs.2001-2500, 5(31.2%) couples out of 16 eligible couples were using contraceptives. There were no contraceptive users among 4 couples in the non-eligible couples in the income group of > Rs.2501.

TABLE 3
DISTRIBUTION OF CONTRACEPTIVE USERS ACCORDING TO INCOME

Income (in Rs.)	Eligible Group Acceptors	Total Number of Couples	Non-Eligible Acceptors
1-500	0(--)	3	0(--)
501-1000	11 (26.2)*	24	3(12.5)
1001-1500	10(10.3)	25	2(8.0)
1501-2000	10(27.7)	8	1(12.5)
2001-2500	5(31.2)	4	0(--)
>2501	0(0.0)	1	0(--)
Total	203	36	656

*Figures in parentheses represent percentages.

PSYCHOLOGICAL FACTORS

Infant and Child Mortality

Infant Deaths In Relation to Age of the Mother

Majority (48.3%) of the infant deaths have occurred when the age of the mother was between 15-19 years, 37.4 per cent between 19-24 years, 11.6 per cent between 25-29 years and only 2.7 per cent of infant deaths have occurred between 30-34 years. Thus majority (85.7%) of infant deaths had occurred when the age of the mother was between 15-24 years.

Time of Death in Children

Table 4 shows that majority of deaths among children occurred between 0-28 days followed by 28 days-1 year. In case of the death among children between 1-5 years, the percentages were 11.6 in eligible group and 23 in non-eligible group.

Child Death and Spacing

Among 95 couples who had infant and child death in the family, the couples who had birth interval of one year had 59 (62.1%) child deaths. Among couples who had 2 year birth interval, the number of child death was 29 (30.6%), the number of child death was 6 (6.3%) for couples having birth interval of 2-3 years while there was 1 (1.0%) child death among couples with 3-4 years birth interval. This shows that more child death occurs in couples who do not space

their children (Table 5).

TABLE 4
DETAILS REGARDING THE TIME OF DEATH IN CHILDREN

Time of Death	Number of Children in Eligible Group	Number of Children in Non-Eligible Group
0 < 28 days	41 (43.1)	29 (55.8)
> 28 days-1 year	43 (45.3)	11(21.2)
> 1 year-5 years	11 (11.6)	12(23.0)
Total	95	52

*Figures in parentheses represent percentages.

TABLE 5
DISTRIBUTION OF CHILD DEATH ACCORDING TO SPACING

Spacing	Number of Child Deaths
1 year	59(62.1)*
2	29(30.6)
2-3	6(6.3)
3-4 years	1(1.0)
Total	95

*Figures in parentheses represent percentages.

MYTHS, FEARS AND BEUEFS ABOUT CONTRACEPTIVES

Reasons for Not Using Contraceptives

Of the 226 eligible and non-eligible couples who did not use contraceptives(9.3 per cent indicated that the use of contraceptives is against their religious belief and 0.5 per cent indicated that they are afraid of side effects like bleeding, weight gain, palpitations and perforation with IUDs None of the male respondents was in favor of vasectomy as they feared that vasectomy causes impotence and that men loose virility after operation(many feared that if they undergo sterilization what will happen if their children die as infant mortality is high in the slums)

AVAILABILITY OF CONTRACEPTIVES AND QUALITY OF FAMILY WELFARE SERVICES

Knowledge about Methods to Limit Child Birth

90.7 per cent of the couples were aware of the contraceptive methods to limit the family and only 9.3 per cent were not aware of the contraceptive methods to limit the family. This shows that though majority of the couples are aware of contraceptive methods but they did not use them.

Knowledge of Availability of Family Planning Services

95.2 per cent of the couples indicated that they were aware of the places from where family planning services can be availed, while 4.8 per cent had indicated that they did not know about family planning services and from where they can be availed.

Availability of Contraceptives

All the 9 contraceptive users, 4 male respondents who were using condoms and 5 female respondents who were using oral pills, indicated that they were buying contraceptives from the chemists.

Awareness of Family Planning Workers/ ANMs/Doctors in their Area

All 268 couples, both eligible and non-eligible, had indicated that they were not aware of any doctors/ANMs/family planning workers who are providing health/family planning services in their area.

Source of Knowledge about Contraceptives

Majority of the couples (44.3%) came to know about contraceptives from their friends. 69.2 per cent of eligible couples came to know about it through their neighbors. Only one per cent came to know about contraceptives from doctors and 2.6 per cent through television.

Time Taken to Reach Family Planning Centre

Of the 268 couples, majority (64.9%) said it took between 1 hr. and 1-1/ 2 hrs to reach family planning centre while 30.2 per cent said it took 1/2 hr- 1 hr to reach family planning centre.

Place and Conduct of Delivery

94.8 per cent of the deliveries were domiciliary while only 5.2 per cent of the deliveries were institutional and of the domiciliary deliveries, 90.1 per cent of the deliveries were conducted by untrained Dai, relatives and other persons. All the institutional deliveries were conducted by doctors.

Views about Contraceptives

Majority of the eligible couples (75.8 per cent of the husbands and 85.7 per cent of the wives) approved the use of contraceptives while among the non-eligible couples, majority (90.8%) of both husband and wives disapproved the use of contraceptives.

90.6 per cent of the respondents were of the view that contraceptives should be used only after third child and only one (0.5%) was of the view that contraceptives should be used after first child while none of the couples were in favor of delaying the first child.

Contraceptives Used by Couples

It can be seen from Table 6 that of the 42 users (15.6%) of contraceptives among 268 eligible and non-eligible couples, majority (9.3%) had undergone tubectomy while 1.9 per cent were using oral pills and another 1.9 per cent were using methods such as herbs and natural rhythm method. Only 1.5 per cent of the husbands were using condoms and 1.1 per cent of the wives were using IUDs.

TABLE 6

DISTRIBUTION OF ACCEPTORS AMONG ELIGIBLE AND NON-ELIGIBLE COUPLES ACCORDING TO USE OF CONTRACEPTIVES

Choice of Contraceptive Methods	Eligible Couples	Non-Eligible Couples	Total
Tubectomy	19(9.3)*	6(9.3)	25(9.3)
Oral Pills	5(2.5)	0(0.0)	5(1.9)
Condoms	4(2.0)	0(0.0)	4(1.5)
IUDs	3(1.5)	0(0.0)	3(1.1)
Others (Herbs/	5(2.5)	0(0.0)	5(1.9)
Total	36/203	6/65	42/268

*Figures in parentheses represent percentages.

Reasons for Not Using Contraceptives

Majority (76.4%) of the respondents said that the main reason for non-using contraceptives was that the contraceptives services are not available (Table 7). 96.6 per cent of the non-eligible couples and 7.7 per cent of the eligible couples did not want to use any method.

TABLE 7
DISTRIBUTION OF RESPONDENTS ACCORDING TO REASONS FOR NOT
USING
CONTRACEPTIVES

Reasons for Not Using Contraceptives	Eligible Couples	Non-Eligible
Contraceptive services not available	122(73.0)*	2(3.4)
Want to have more children	14(8.3)	0(0.0)
Don't want to use it	13(7.7)	57(96.6)
Against religion	10(6.0)	0(0.0)
Afraid of side-effects	5(3.0)	0(6.0)
Pregnant	3(2.0)	0(0.0)
Total	167	**59

*Figures in parentheses represent percentages.

**36 eligible couples and 6 non-eligible couples are using contraceptives.

Unmet Need of the Eligible Non-acceptors

Among women in the eligible group 66 per cent plan to undergo tubectomy, 14.6 percent plan to use oral pills, and 6.3 per cent of the wives plan to use IUDs while among the husbands in the eligible group 13.1 per cent plan to use condoms. None was willing to undergo vasectomy. But they are not able to use the contraceptives due to non-availability and lack of access to the contraceptive methods (Table 8).

TABLE 8
DISTRIBUTION OF COUPLES ACCORDING TO THEIR UNMET NEED OF
CONTRACEPTION

Choice of Contraceptive Methods	Eligible Couples (Non-Acceptors)
Tubectomy	95(66.0)*
Condoms	19(13.1)
Oral Pills	21(14.6)
IUDs	9(6.3)
Others (Herbs etc.)	0(0.0)
Vasectomy	0(0.0)
Total	** ***144

*Figures in parentheses represent percentages. **36 couples were using
contraceptives.

***23 couples were not willing to adopt contraceptives,

DISCUSSION

The urban slum of the present study has majority of respondents in the reproductive age group of 15-44 years. Majority (52.9%) of the women in the eligible group were between 15-29 years. Majority of the slum consisted of people in the eligible group, who have migrated into the slum over the past 10-15 years and therefore they are more likely to retain their rural socio-cultural roots, beliefs and practices which are being studied.

Age at Marriage and Consummation of Marriage

The study shows that majority of the couples in the eligible and non-eligible group were married much below the legal age of marriage of 18 years for girls and 21 years for boys (this shows that the local traditions and customs prevailing in the society in the study area are very much in favor of early age of marriage and universality of marriage leading to low age at marriage and consummation of marriage and consequently have early pregnancy and high infant and child mortality. High infant and child mortality results in frequent pregnancies which deters the use of contraceptives

80 per cent of the wives had become pregnant during the first year of marriage and 80.6 per cent had conceived before the age of 18 years. This shows that the age gap is of one year between age at marriage and age at first conception in the study area. They have their first child as early as possible and have large family size because of longer married life due to early age at marriage.

Value of Sons

The preference for the son in the present study is very high because all the 203 eligible couples wanted sons. The reason for wanting sons among the couples was old age security and economic reasons. This shows that as long as old age security and economic benefit depends on children, especially sons, use of contraceptives will not be preferred, which will increase the parity, as women will continue to produce children till she has the desired number of sons in the family. These facts show that having a male child in the family is an important prerequisite for adoption of contraception.

Religion

Majority of the couples in the study area were Hindus and only 23.5 per cent of couples were Muslims. 6 per cent of 167 and 16 per cent of the 59 eligible and non-eligible Muslim couples believed that it is against their religious belief to practice contraception. Only 14 per cent of the Muslims were using contraception. Thus, religion is an important factor affecting the use of contraceptives.

Inter-spouse Communication

The present study shows that even though majority of the couples had discussion on family matters with their husbands, majority of the couples (82.2% among eligible and 90.8% among non-eligible couples) did not have any discussion regarding either use of contraceptives or on the number of children to have in the family and therefore, the use of contraceptives is low.

The in-laws (both mother/father) of the eligible and non-eligible couples respectively wanted the couples to have the first child as early as possible. This shows that wife by herself had no say in this decision regarding first child birth in majority of the couples, though 6 per cent of the eligible couples jointly wanted to have the first child. This shows that some younger couples are able to take decision regarding their family in which wives were also involved unlike in older couples.

Education

The study shows that couples in the younger reproductive age group are more literate than the older age group couples and among literate eligible couples, there are more couples using contraceptives as against couples in non-eligible group who were using contraceptives with education. Also seen in the study was the fact that there are more husbands who are literate among eligible and non-eligible couples and it is seen from this study that the use of contraceptives is

more in couples where the husbands were literate even though it is the wives who are using contraceptives. This shows that education of either husband or wife is important for the use of contraceptives;

Economic Status

70.8 per cent of the contraceptive users were skilled workers and only 26.2 per cent of the contraceptive users were unskilled workers. Thus, there are more contraceptive users among skilled workers who have better economic status. Also as the income increases, the number of contraceptive users increases, especially in the younger eligible group. Thus economic status is also one of the important factors influencing the use of contraceptives.

Infant and Child Mortality

Majority (85.7%) of the infant deaths have occurred when the age of the mother was between 15-24 years. Thus the younger the mother conceives, the more are the infant and child deaths resulting in larger families. This shows that couples tend to have more children than they really want in order to ensure that the desired number of children survives. The older couples had more infant and child deaths as compared to younger couples and so older couples had more children in relation to number of infant and child deaths which resulted in larger family size.

The infant and child death decreases as the spacing is increased. Infant and child death is one of the important factors influencing use of contraceptives. Spacing will improve the child survival and also results in smaller family size which is to be preferred.

Myths, Fears and Beliefs about Contraceptives

The findings show that religious fears and beliefs about contraceptives persist even now among the couples who have now since moved to slums in the city from the villages. This shows that people carry and cling to their beliefs and practices. Lack of education and knowledge is one of the deterring factors leading to misconceptions and fears about contraceptives. Thus myths, fears and beliefs about contraceptives are one of the main factors influencing the use of contraceptives in an urban slum.

Knowledge about Methods to Limit Child Birth

Majority (95.2%) of the couples knew from where contraceptive services can be availed as against 4.8 per cent who did not know about contraceptive

services and from where it can be availed. This shows that the couples had knowledge about the various methods of contraceptives and their availability.

None of the slum dwellers was aware of family health worker/doctor/ANM working in their area. This finding is very important as couples have cited lack of availability of contraceptive services and facilities as one of the main factors for not using contraceptives.

Friends were a major source of knowledge about contraceptives followed by neighbors and relatives. None of the couples cited ANM/nurse-or health worker as the source of knowledge. Lack of health facility in the area could be a major reason for the non-availability of health/family planning workers in their area.

Majority (68.2%) of the couples said it took from 1 to 1½ hours to reach family planning centre while 31.8 per cent of the respondents said that it took 1½ hr -1 hr. to reach family planning centre/hospital. The study shows that lack of accessibility and non-availability of family planning services at nearby location as the main reason for low use of contraceptives.

94.8 per cent of the deliveries were domiciliary and only 5.2 per cent of the deliveries were institutional. 87.3 per cent of the eligible wives delivered at home. There was no one to advice them regarding the use of contraceptives. 90 per cent of the deliveries were conducted at home by untrained Dai, relatives and others. This shows that majority of deliveries were conducted by untrained personnel and if proper training is given to untrained Dai with regard to safe delivery and contraceptives methods, it will help in promoting safe deliveries and use of contraceptives in the slum.

A total of 15.7 per cent of the couples in the present study has accepted one or the other contraceptive methods. Of the contraceptive methods used, the most popular method was tubectomy (9.3%) followed by oral pills (1.9%), other methods as herbs and natural rhythm methods (1.9%), condoms (1.5%) and IUD (1.1%). Temporary method was more popular in the younger age group couples while majority accepted permanent methods after 30 years of age.

The reasons for not using contraceptives were that 77 per cent of respondents said that contraceptive services are not available. Thus non availability of contraceptive services in the study area is one of the major factors deciding the non-use of contraceptives.

Unmet Need of Contraceptives

Of the 167 non-users of contraceptives, 86.2 per cent of the eligible couples had intention of using one or the other methods of contraceptives in future. While 13.7 per cent were not willing to use any method of contraception. The most popular method is tubectomy none of the male respondents was willing to undergo vasectomy and thus more effort needs to be made to educate the male respondents about vasectomy. Thus it can be seen that there is a large unmet demand for contraceptives in the slum studied which needs to be looked into by the health and family welfare authorities for promotion of contraceptive use.

CONCLUSION

The various factors such as age at marriage, age and parity of women, education, economic status, infant and child death, religion, inter-spouse communication, myths, fears and beliefs about contraceptives, availability and quality of family welfare services do have a major impact on the use and non-use of contraceptives which influence the health status and quality of life have been analyzed in this study. Even though majority of the slum dwellers are aware of contraceptive methods, the inaccessibility and non-availability of the services to the urban slum dwellers had contributed to a large extent to the non-use of contraceptives. Thus, it can be concluded that interventions by way of education, gainful employment of women thereby improving the status of women, provision of health facilities and contraceptives etc. should be ensured for improving the quality of life of the slum-dwellers.

Lkkjk'k

प्रस्तुत अध्ययन में एक शहरी स्लम क्षेत्र में गर्भनिरोधकों के प्रयोग को प्रभावित करने वाले कुछेक जनांकिकीय, सांस्कृतिक, सामाजिक, मनोवैज्ञानिक तथा सेवा संबंधी घटकों का पता लगाकर स्लम क्षेत्रों के जन समुदाय के स्वास्थ्य स्तर में सुधार लाने के बारे में अध्ययन करने का प्रयास किया गया है। अध्ययन से प्राप्त निष्कर्षों से पता चलता है कि यद्यपि स्लम क्षेत्रों में रहने वाले अधिकांश लोगों को गर्भनिरोधक उपायों के बारे में जानकारी है, किन्तु इन सेवाओं के उनकी पहुंच में न होने के कारण तथा सेवाओं की अनुपलब्धता के कारण गर्भनिरोधकों का उपयोग काफी हद तक नहीं हो पाता है।

FEMALE LITERACY AS A DETERMINANT OF SOCIO- DEMOGRAPHIC STATUS AND INFANT SURVIVAL

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ABSTRACT

This article deals with socio-demographic factors like teenage marriage, teenage pregnancy, family size, literacy status of husband and socio-economic status of the family of the illiterate mothers among caste Hindus, scheduled castes/tribes and Muslims. A highly significant association between female literacy and infant survival among caste Hindus and scheduled castes/tribes has been established in this study. Though, a reduction in mortality among the infants of literate Muslim mothers was observed, the difference was not as high as mothers of other two groups under study.

Progress of a nation cannot be viewed exclusively in terms of economic growth. Literacy of the population is considered as a major determinant of development. To determine the physical quality of life index (PQLI), the three components, namely, infant mortality, life expectancy at age one and literacy are used. Studies have established illiteracy, more precisely female illiteracy, as a major determinant of infant mortality¹. Though the crucial role of female literacy in the overall development of health has been proved, data from various parts of the developing countries show that the velocity of female literacy is not keeping pace with that of male literacy. In India, the overall female literacy is only 39.2 per cent and it is as low as 20 per cent in a state like Rajasthan². According to 1991 census only a few States have achieved a female literacy rate of 50 per cent and

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above. The factors like age at marriage of a girl, use of contraceptive methods, acceptance of the concept of small family norm, schooling of children, seeking good quality health care for the family and such other activities directed towards improvement in the quality of life have a positive association with female literacy. On the other hand infant mortality, birth rate and total fertility rate are found to be higher among communities with low level of female literacy. Variation in female literacy is seen among different religious and caste groups in India^{1, 2}. In this study an attempt is made to find out the differential socio-demographic status and infant survival among various religious and caste groups based on female literacy.

MATERIALS AND METHOD

This is a community based prospective study. The study was carried out in rural areas of Dakshina Kannada district of Karnataka State, South India, by the Department of Community Medicine, Kasturba Medical College, Manipal, with the financial support from International Development Research Centre, Canada. Dakshina Kannada, situated on the west coast of South India, has a population density of 319/sq. kms. and an overall literacy rate of 65.5 per cent. This district is unique with its good educational, transport, communication and healthcare facilities and an IMR as low as 30/1000 live births⁴. Based on the existing crude birth rate of 25 per 1000 population, infant mortality rate of 30 per 1000 live births with 10 per cent allowable error, at 95 per cent confidence level and 15 per cent non-response error, the total population to be covered was estimated to be 5,94,964. Stratified random sampling technique was adopted for giving representation to different geographical regions of the districts under study. Thus a total population of 5, 77,576 from six taluks constituted the study population. The primary objective of the study was to determine the level of infant mortality rate (IMR) and factors which influence infant deaths³.

Data Collection

All live births that occurred during the period from 1st October, 1991 to 30th September, 1992 in the study area were registered and followed up for one year. For every live birth, information pertaining to pre-natal care, care at birth, post-natal care, maternal factors, household and community level factors was collected. These details were collected by field investigators who had been recruited, trained and employed for this specific purpose. Verbal autopsy technique was used to determine the cause of infant deaths. This activity was carried out by the members of the faculty of the Department of Community Medicine, Kasturba Medical College, and Manipal.

Study Variables

A person who could not read or write was considered as an illiterate and otherwise as literate. Socio-economic status (SES) of the households was assessed by applying the socio-economic scale developed by Pareek and Trivedi⁵ with modification suited to the local situation. The focus is mainly on the literacy and occupation of the wife and husband and economic condition of the household. Different scores were given to the factors included in the scale and based on the total score; the households were divided into three categories viz. upper, middle and lower.

Data Analysis

Data were analyzed using the SOLO statistical system of the BMDP Statistical Software Inc., California and EPI INFO Ver. 5.01, Centre for Disease Control, Atlanta. Percentages in different categories, Chi-square test for association, odds ratios and its 95 per cent confidence interval (C.I.) were calculated.

RESULTS AND DISCUSSIONS

Female literacy rate in all the three religions/caste groups viz. Hindus, scheduled castes/scheduled tribes and Muslims are shown in Table 1. Among the study population, overall female literacy rate was 73.6 per cent which is much higher than the national figure of 39.2 per² cent and is almost comparable with that of Kerala which is the highest in India. Female literacy was found to be significantly higher among caste Hindus (82.6%) as compared to Muslims (54.6%) and scheduled castes/scheduled tribes (51.5%). The higher literacy rate found among the caste Hindus is due to the fact that Hindus traditionally had the privilege of better living conditions and access to schools and arts and cultural forum. However, a significant observation is that in the study area the literacy rates among Muslim women and women of scheduled castes/scheduled tribes are higher than that of the overall literacy rate of many States of India².

The adverse impact of illiteracy of females on infant survival has been cited by various authors^{1, 67}. The findings in Table 2 also justify the observations made by the others. A higher IMR of 49.3/1000 live births occurred among illiterate mothers as compared to an IMR of 24.3/1000 live births among literate mothers. Caste Hindus had the lowest IMR (28.0/1000 live births). Scheduled castes/Scheduled tribes among Hindus had the highest IMR of 46.5/1000 live births and the odds ratio of 1.7 (C.I. = 1.29 - 2.23). But among Hindus, the literacy among females of scheduled castes and scheduled tribes was lower (51.5%) as compared to Muslims. This is a significant observation because the size of the

TABLE 1
COMPARISON OF FEMALE LITERACY AMONG DIFFERENT RELIGIONS/CASTES

Religion/Caste	literate	Illiterate	Total	Odds Ratio and 95% CI	Chi-square and Significanc
Caste Hindus	6879 (82.6)	1448 (17.4)	8327	1.00	
SC/ST	819 (51.5)	771 (48.5)	1590	4.47 3.99-5.02	743.5 H.S.
Muslims	1134 (54.6)	943 (45.4)	2077	3.95 3.56- 4.39	736.0 H.S.
Total	8832 (73.6)	3162 (26.4)	11994		

Figures in the parenthesis give percentages

CI= Confidence interval

Odds ratios and chi-square are comparisons of illiteracy
in SC/ST and Muslims with reference to caste Hindus

H.S. Highly significant

Population of scheduled castes/scheduled tribes and Hindus in India is very much higher than that of Muslims. Muslims recorded an IMR of 30.8 which was not significantly higher than caste Hindus (O.R. = 1.10, C.I. = 0.83 - 1.48). Both among caste Hindus and scheduled castes/scheduled tribes significantly lower IMR (22.8 and 34.2 respectively) was observed among literates when compared to their illiterate counterparts (52.5 and 59.7 respectively). Illiteracy among the Muslim women has contributed to a higher infant mortality. But a pertinent observation is that the gap in infant mortality between literate and illiterate Muslim women is not as significant as that among caste Hindus and scheduled castes/scheduled tribes. The findings in Table 4, 5 and 6 give an explanation for these statements. 78.3 per cent illiterate Muslim women had literate husbands where as the comparative figure for caste Hindus was 68.3 per cent and for scheduled castes/scheduled tribes it was only 45.3 per cent. Infant survival and death is a complex process where cultural diversity plays a crucial role. Among the Muslim community, in the decision making process the male counterpart has a major role as compared to other religious and caste groups in India. Therefore, education of Muslim men ensured a higher infant survival though their wives were not educated: Only 1.0 per cent of illiterate Muslim women were involved in unskilled work for their daily livelihood. This figure was 18.6 per cent among caste

Hindus and 32.6 per cent among scheduled caste/scheduled tribes. This may be an indicator of the poorer economic condition of illiterate caste Hindus and scheduled castes/scheduled tribes as compared to the Muslims. Probably better family income and education of the husbands might have helped the illiterate Muslim mothers to provide. Better care to their children.

TABLE 2
RELATIONSHIP BETWEEN INFANT MORTALITY RATE AND FEMALE LITERACY
AMONG DIFFERENT RELIGION/CASTE

Religion/Caste	IMR (per 1000 live births)			
	Literate	Illiterate	Total	
Caste Hindus	22.8 (21.0-24.6)	52.5 (46.6-58.4)	28.0 (26.2-29.8)	1.00
SC/ST	34.2 (27.8-40.6)	59.7 (51.2-68.2)	46.5 (41.2-51.8)	1.70 (1.29-2.23)
Muslims	26.5 (21.7-31.3)	36.1 (30.0-42.2)	30.8 (27.0-34.6)	1.10 (0.83-1.48)
Total	24.3 (22.8-25.9)	49.3 (45.5-53.2)	30.9 (29.3-32.5)	

Figures in the parenthesis give 95 per cent confidence interval
IMR = Infant Mortality Rate

A brief socio-demographic outline of women in three religions/caste groups of the study population is given in Table 3. In general women in the study area was housewives and their husbands were engaged in unskilled work irrespective of religion/caste. Most of them are in middle or lower socio-economic class. Teenage marriage is uncommon and the utilization of health care facilities is high. There are marginal differences in these variables among different religions. A mere 0.9 per cent of Muslim women and 7.5 per cent of caste Hindu women were involved in unskilled work the corresponding figure for SC/ST is 23.8 per cent. Overall 90 per cent of the caste Hindu women had educated husbands and only 10.1 per cent are of low SES among Muslim women the literacy of husbands was as high as 86.3 per cent and 26.1 per cent of them were of low SES. Only 64.7 per cent of SC/ST women had literate husbands' and 44.1 per cent were of low SES. This clearly proves that not only male literacy but also SES is lower among SC/ST. So it is imperative to focus upon this group as a special category while attempts are made to improve the literacy level.

TABLE 3
DISTRIBUTION OF SOCIO-DEMOGRAPHIC VARIABLES RELATED TO
WOMEN IN DIFFERENT RELIGION/CASTE

Socio-demographic variables	Caste Hindus	SC/ST	Muslims	Chi-square
Female Occupation				
White collar	158 (1.9)	16 (1.0)	5 (0.2)	1123
Skilled/Semi-skilled	2454 (29.5)	697 (43.6)	1098 (52.9)	H.S.
Unskilled	622 (7.5)	367 (23.8)	19 (0.9)	
Housewife	5093 (61.2)	510 (32.1)	955 (46.0)	
Age at marriage				
> 18 years	7893 (94.8)	1315 (82.9)	1403 (67.5)	1271
< 18 years	432 (5.2)	271 (17.1)	674 (32.5)	H.S.
Literacy of Husband				
Literate	7491 (0.0)	1029 (64.7)	1793 (86.3)	706
illiterate	836 (10.0)	561 (35.3)	284 (13.7)	H.S.
Occupation of Husband				
White collar	860 (10.3)	43 (2.7)	156 (7.5)	249
Skilled/Semi-skilled	1854 (22.3)	175 (11.0)	493 (23.8)	H.S.
Unskilled	5613 (67.4)	1368 (86.3)	1427 (68.7)	
Socio-economic status				
Upper	3065 (36.8)	119 (7.5)	309 (14.9)	1594
Middle	4427 (53.2)	770 (48.4)	1226 (59.0)	H.S.
Lower	835 (10.0)	701 (44.1)	542 (26.1)	
Age at first pregnancy				
> 20 years	7024 (84.4)	1025 (64.5)	894 (43.0)	1594
< 20 years	1303 (15.6)	565 (35.5)	1183 (57.0)	H.S.
Family size				
> 2 children	6103 (73.3)	1029 (64.7)	1070 (51.5)	375.9
< 2 children	2224 (26.7)	561 (35.3)	1007 (48.5)	H.S.

Figures in parenthesis give percentages
Chi-square test was applied for test of association
H.S. Highly significant

TABLE 4

THE DIFFERENCE IN SOCIO-DEMOGRAPHIC STRUCTURE OF LITERATE AND
ILLITERATE IN CASTE HINDUS

Socio- demographic Variables	Level	Female Literacy		Z Statistic	Significance
		Literate (%)	Illiterate (%)		
Female Occupation	White Collar	2.3	0.0	5.5	H.S.
	Skilled/Semi-skilled	25.9	46.5	-15.6	H.S.
	Unskilled	5.1	18.6	-17.7	H.S.
	Housewife	66.7	34.9	22.5	H.S.
Age at marriage	> 18 years	96.0	89.1	10.8	H.S.
	< 18 years	4.0	10.9	-10.8	H.S.
Literacy of Husband	Literate	94.5	68.3	30.2	H.S.
	Illiterate	5.5	31.7	-30.2	H.S.
Occupation of	White collar	12.3	1.0	12.9	H.S.
	Skilled/Semi-skilled	23.2	17.7	4.6	H.S.
	Unskilled	64.5	81.3	-12.5	H.S.
Socio-economic	Upper	44.6	0.0	32.0	H.S.
	Middle	53.9	49.6	3.0	S.
	Lower	1.5	50.4	-56.3	H.S.
Age at first	> 20 years	85.8	77.6	7.8	H.S.
	< 20 years	14.2	22.4	-7.8	H.S.
Family size	< 2 children	77.4	54.0	18.2	H.S.
	> 2 children	22.6	46.0	-18.2	H.S.

N.S. = Not significant S = Significance. H.S. = highly significant

Mean age at marriage and age at first pregnancy were lowest and average family size was highest among Muslims when compared to caste Hindus and SC/ST. The highest age at marriage {21.7 ± 3.1} and minimum family size (2.0 ± 1.2) was observed among caste Hindus. Identical trend was observed when analysis was made separately for literates and illiterates. These results are shown in figure 1 to 3. When a comparison was made between the literate of each group with their illiterate counterparts, among caste Hindus and SC/ST, literacy played a significant role in increasing the age at marriage, age at first pregnancy and reducing the family size. However, among Muslims even though literacy influenced significantly in reducing the family size it could not contribute much to increasing the age at marriage. This shows that cultural practices and beliefs are stronger determinants of certain behavioral patterns than literacy among Muslim community.

Fig. 1 : MEAN AGE AT MARRIAGE

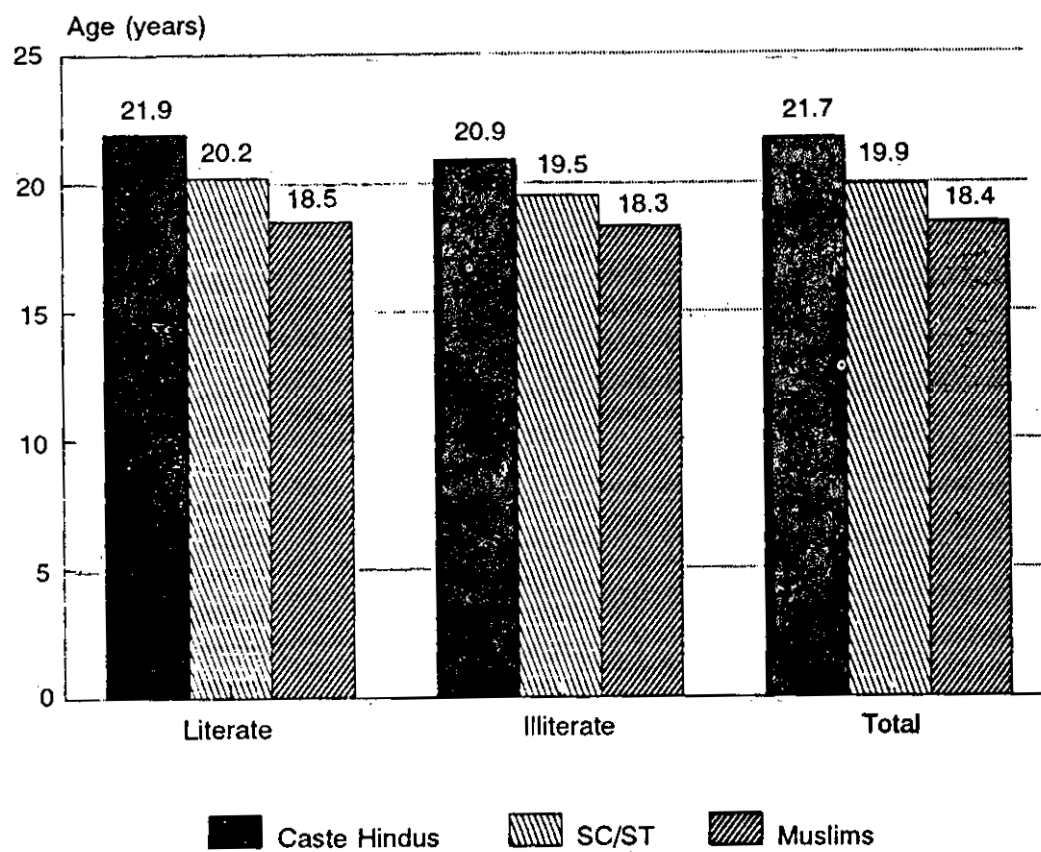


Fig. 2 : MEAN AGE AT FIRST PREGNANCY

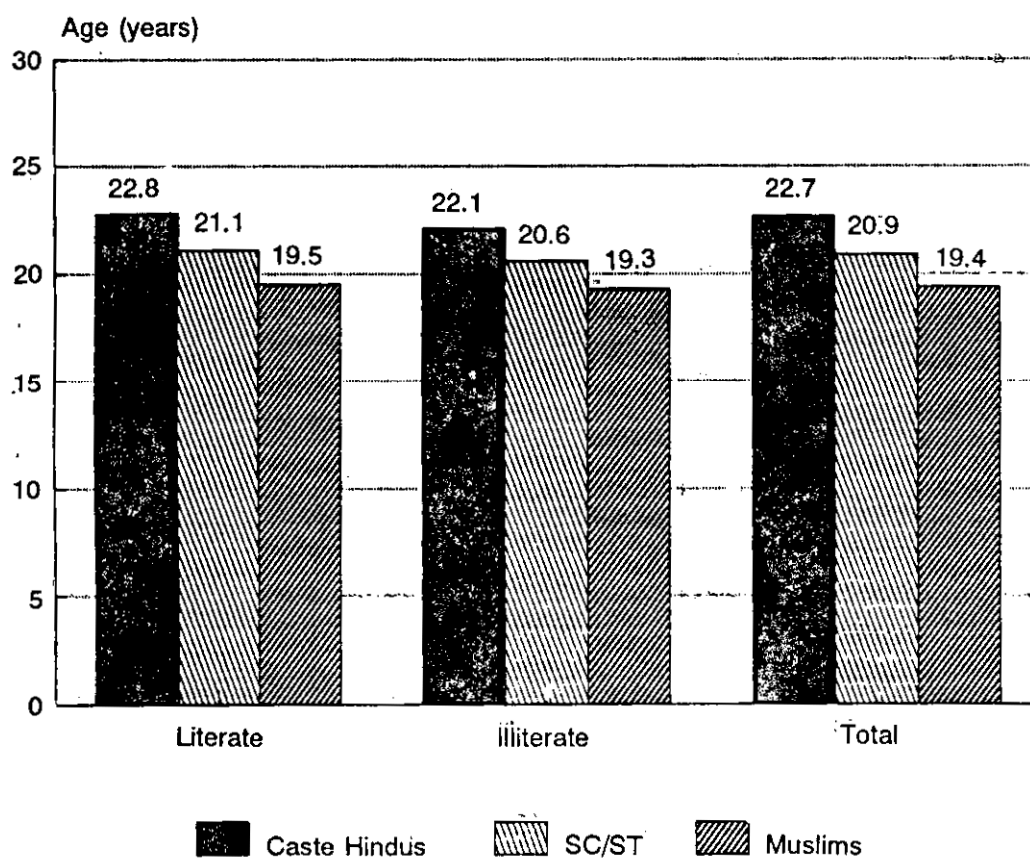
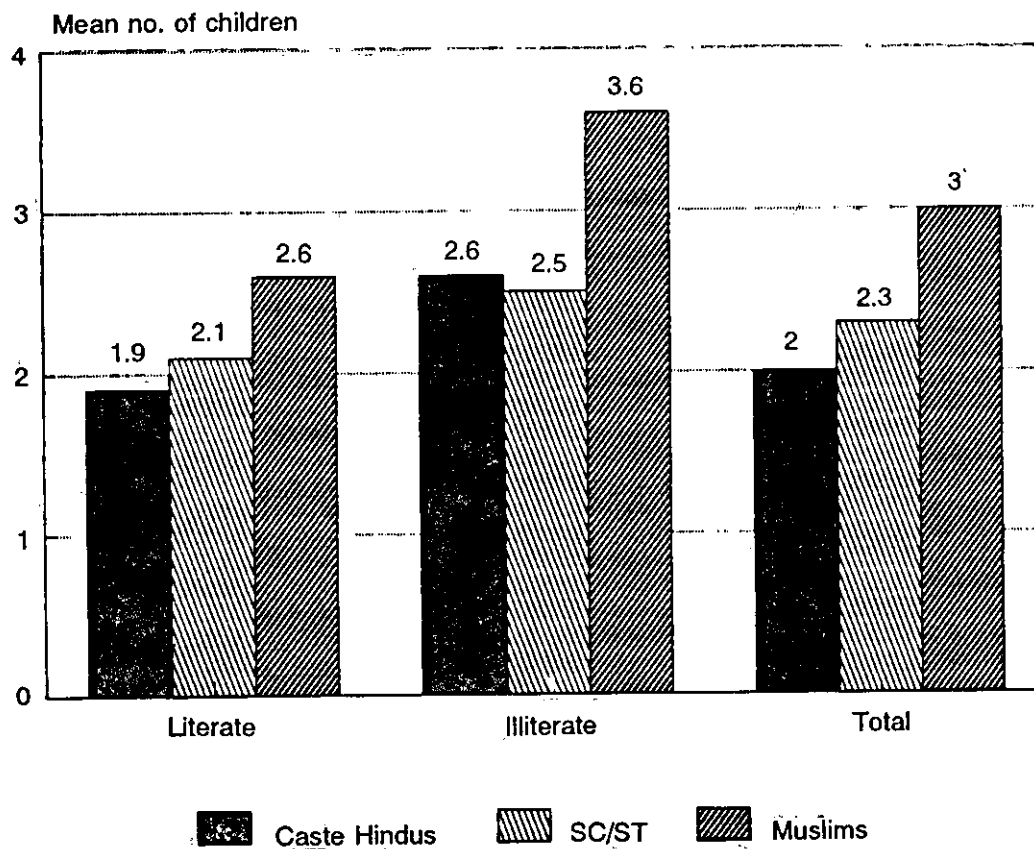


Fig. 3 : AVERAGE FAMILY SIZE



Socio-demographic differences between literate and illiterate mothers in each of the three groups under study are shown in Table 4 to 6. The findings consistently show that female literacy play a key role in improving the other socio-demographic and health factors related to women in all the three groups. One striking observation in all communities was that a greater proportion of literate women stay back at home as housewives where as a high proportion of illiterate females goes for work especially unskilled in nature. Definitely this is not by choice but because of the poor economy of the family. Literate women are most likely to get a literate husband who has a better economic, occupational and social status. So she can afford to stay back at home looking after her children as compared to her illiterate counterpart.

TABLE 5
THE DIFFERENCE IN SOCIO-DEMOGRAPHIC STRUCTURE OF LITERATE AND
ILLITERATE WOMEN IN SC/ST

Socio- demographic variables	Level	female Literacy		Z Statistic	Significance
		Literate (%)	Illiterate (%)		
Female Occupation	White collar	2.0	0.0	3.2	S
	Skilled/Semi-skilled	41.9	45.9	-1.6	N.S.
	Unskilled	142	32.6 21.5	8.9	H.S.
	Housewife	42.0		8.7	H.S.
Age at marriage,	> 18 years	87.7	77.9	5.2	H.S.
	< 18 years	12.3	22.1	-5.2	H.S.
Literacy of Husband	Literate	83.0	45.3	15.8	H.S.
	Illiterate	17.0	54.7	15.8	H.S.
Occupation of Husband	White collar	5.1	0.1	5.9	H.S.
	Skilled/Semi-skilled	14.4	7.4	4.5	H.S.
	Unskilled	80.5	92.5	-7.0	H.S.
Socio-economic Status	Upper	14.5	0.0	-11.0	H.S.
	Middle	75.5	19.7 80.3	22.2	H.S.
	Lower	10.0		•28.2	H.S.
Age at first pregnancy	> 20 years	69.2	59.4	4.1	H.S.
	< 20 years	30.8	40.6	-4.1	H.S.
Family size	> 2 children	70.0	59.1	4.5	H.S.
	< 2 children	30.0	40.9	-4.5	H.S.

N.S. = Not significant, S = Significant, H.S. Highly significant

TABLE 6

THEE DIFFERENCE IN SOCIO-DEMOGRAPHIC STRUCTURE OF LITERATE AND
ILLITERATE WOMEN IN MUSLIMS

Socio-demographic variable	Level	Female Uteracy		Z Statistic	Slgnificance
		Literate	Literate		
Female Occupation	White collar	0.4	0.0	0.8	N.S.
	Skilled/Semi- skilled	36.4	72.8	-16.5	H.S.
	Unskilled	0.8	1.0	-0.2	N.S.
	Housewife	62.3	28.4	16.3	H.S.
Age at marriage	> 18 years	68.9	66.0	1.4	N.S.
	< 18 year	31.1	34.0	-1.4	N.S.
Literacy of	Literate	93.0	78.3	9.8	H.S.
	literate	7.0	21.7	-9.8	H.S.
Occupation of	White collar	11.5	2.8	7.5	H.S.
	Skilled/semi-skilled	25.4	21.8	1.9	N.S.
	Unskilled	63.1	75.4	-6.0	H.S.
Socio-economic	Upper	27.2	0.1	17.2	H.S.
	Middle	71.1	44.5	12.2	H.S.
	Lower	1.8	55.4	-27.7	H.S.
Age at first	> 20 years	43.5	423	0.4	N.S.
	<20 years	58.5	57.5	-0.4	N.S.
Family size	>2 children	60.8	40.4	9.2	H.S.
	< 2 children	39.2	59.6	-9.2	H.S.

N.S. = Not significant, S = Significant. H.S. Highly significant

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प्रस्तुत लेख में अल्प आयु में विवाह, छोटी आयु में गर्भधारण, परिवार का आकार, पति का शैक्षिक स्तर और हिन्दुओं, अनुसूचित जातियाँ/अनुसूचित जन-जातियों तथा मुसलमान समुदाय में अशिक्षित माताओं के परिवार का सामाजिक-आर्थिक स्तर आदि जैसे सामाजिक जनांकिकीय घटकों के बारे में चर्चा की गई है। इस अध्ययन में उच्च वर्ग के हिन्दुओं और अनुसूचित जातियों/अनुसूचित जन-जाति समुदायों में महिला साक्षरता और शिशु उत्तर जीविता के बीच महत्वपूर्ण सहसंबंध पाया गया है। यद्यपि, मुस्लिम समुदाय की शिक्षित माताओं वाले परिवारों में शिशु मृत्यु दर में गिरावट देखने में आई है, किन्तु, अध्ययन में शामिल अन्य दो समूहों की तुलना में मृत्यु दर में आई यह गिरावट अधिक महत्वपूर्ण नहीं है।

REFERENCES

1. JAIN, A.K. AND VISARIA, P.:(1988) Infant Mortality in India: Differentials and Determinants, Sage Publications, New Delhi.; Ed.
2. CENSUS OF INDIA (1991) Registrar General of Census Commissioner, New Delhi. -
3. INFANT MORTALITY IN DAKSHINA KANNADA AND CHITRADURGA DISTRICTS OF KARNATAKA STATE, INDIA (1994) A Comparative Study. Research report submitted, to the International Development Research Centre, Canada by Department of Community Medicine, Kasturba Medical College Manipal.
4. DISTRICT CENSUS HANDBOOK (1981) Census of, India, Dakshina Kannada District Series 9, Karnataka Parts XIII A & B, Director Census Operations, Karnataka.
5. PAREEK, U. AND TRIVEDI, G. (1980) Manual of Socio-economic Status Scale (Rural), Manasayan, Delhi.
6. CNATTIGIUS, S. AND HAGLUND, B. (1992) Socio-economic Factors and Feto-infant Mortality, *Scand. J. Soc. Med.* 20(1):11-13.
7. ESREY, S.A., HABICHT, JP. (1988) Maternal Literacy Modifies the Effect of Toilets and Piped Water on infant Survival, in Malaysia. *Am. J. Epidemiol.* 127(7):1079-87.

**A STUDY OF PRECIPITATED HEALTH NEEDS AND
PROBLEMS OF EARTHQUAKE VICTIMS IN
UTTARKASHI AND ITS INTERIOR VILLAGES AND
DEVELOPMENT OF AN ALTERNATE MODEL OF
HEALTH CARE SERVICE DELIVERY****

S.P. Kulshrestha*

ABSTRACT

The precipitated health needs and problems of earthquake victims in Uttarkashi and its interior villages are analyzed in this paper with a view to developing a model of the health care service delivery to meet such an eventuality in future for this region. The author also examines the relationships- and- also the differences, between the precipitated health needs and problems of earthquake victims and certain socio-demographic variables. The changes in socio-cultural! And health climate prevailing in Uttarkashi and its interior villages which were shaken by the earthquake are also discussed in detail.

The study was conducted in two phases. The precipitated health needs and problems were delineated in the first phase and an attempt was made to develop a need-based local specific model of health care service delivery system in the second phase. In other words, in the first phase of this study, an attempt was made to identify the precipitated health needs and problems. Here, the precipitated needs were not merely resultant, but emergent ones which involve new qualities, characteristics, dimensions and forms of relatedness which do make a difference to the occurrence of the events, that have emerged from the earthquake.

In the second phase of this study, an attempt was made to develop an alternate model of health care services. This model was semi-empirical in nature. Factually, a model is a relationship among specified variables and parameters of the system. A model is constructed to analyse and understand the system so that

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better decision can be made. A model, then, is a particular representation of a system, which in turn represent specified aspects of the reality, i.e. earthquake Belin (1980), Wallace (1974), Blank (1970), Desh Pandey (1987), Clark and Hauge (1971), Ut Su (1971), Lantis (1964), Kondratyev (1988), Schupplsser and Studer (1984), Bolt (1980) and many others conducted their researches in the area of earthquake and earthquake management. These were all related to disaster management studies. However, not a single study was found to be related to the model development for the health care service delivery for earthquake in hill areas based on Indian conditions.

In view of this, the study of problems and precipitated health needs of earthquake victims and development of a need-based model for health care service delivery was taken up.

The methodology adopted for this study was exploratory in nature; The study was conducted on 332 families selected from (a) most damaged, (b) moderately damaged, (c) less damaged, and (d) not damaged villages (control group). Two staged sampling technique was followed to select the sample using scientific random selection technique.

Data were collected by using observation and interview techniques, and were tabulated, analyzed and interpreted by using appropriate descriptive and inferential statistical techniques. For getting information on models developed, secondary sources were also consulted.

FINDINGS

Identification of Precipitated Health Needs and Problems of Earthquake Victims

In order to identify the precipitated health needs and problems of earthquake victims in Uttarkashi and its interior villages, an attempt was first made to study the socio-cultural-economic-health climate prevailing in the area, under the study which was shaken by the earthquake. For this purpose, the research team visited certain specified areas and with the help of IPNP, VOS, FGD, semi-projective techniques and in consultation with literature, it gathered about 40 different types of problems. They were classified into 20 categories. However, on the advice of experts, these 20 categories were further reduced and re-classified into eight major distinct categories such as: (i) problems related to temporary shelters; (ii) socio-economic and cultural problems; (iii) problems related to water, food and sanitation; (iv) psychological problems; (v) medical and health management problems; (vi) problems related to the damage to existing health infrastructure resulting in ineffective functioning; (vii) problems related to health

Education and mass media and (viii) problems related to workload on health infrastructure.

Problems and Precipitated Health Needs In Relation to the Extent of Damage Done to the Villages

In this study the villages were classified into four categories: (a) most damaged; (b) moderately damaged; (c) less damaged; and (d) not damaged (control group) on the basis of the extent of damage done to the villages and then their health problems and precipitated health needs were explored. It was found that:

1. The respondents of most damaged village categories were found to be most concerned with all the eight problems and identified their health needs very strongly in comparison to other village categories.
2. The respondents of moderately damaged villages expressed their precipitated health needs and problems comparatively at low even than the most damaged category of villages.,
3. The control group respondents showed generally the lowest concern for the health needs and problems under study, as they were not exposed to the severity of damage done by the earthquakes their villages.
4. An examination of CR values, and their levels of significance, states that these problems and health needs have significant relationship with the extent of damage in different village categories, (the wider the extent of damages, the more concern with the problems and health needs, or the lessor the extent of damage, less concern with the problems and health needs).

Relationship between the Problem and Precipitated Health Needs and Certain Demographic Variables

In this study the problems and precipitated health needs were studied in relation to three demographic variables, *i.e.* age, socio-economic status and distance of villages from the road. On the basis of interpretation and discussion, the following: Conclusions were drawn:

1. No CR values of respondents belonging to different age or socio-economic Status level was found significant for the identified problems and precipitated health needs.

2. The percentage pattern or the hierarchy for all the variables appears to be more or less similar for all affected respondents irrespective of the age and SES group or category they belong to.
3. The problems and precipitated health needs of the respondents belonging to the villages located near the road (less than 1.5 kms distance from the road) were significantly less pronounced than the respondents of longer distance villages from the road (more than 1.5 kms) where the same were significantly more pronounced.

Study of Changes in the Soclo-cultural-Health Environment in the Earthquake Affected Areas

On the basis of VOS and unstructured interviews the information regarding the socio-cultural-health environment of earthquake affected areas was gathered, and the following important changes were recorded:

1. It was found that in Uttarkashi almost 80 per cent of houses were collapsed or damaged. People lived in open fields, some with sheds and some even without sheds, 63 per cent of them developed certain diseases due to cold. After getting some relief-aids, the same proportion of the people have reconstructed their houses, better than the previous ones. However, there were about 20 per cent of people still living in tents, sheds, tin houses, and community halls, and were waiting that some organisation will come and will reconstruct their houses. Many of them used the aids/compensation amount in building the. Livestock shelters or in some other ways.
2. It was found that these people (living at distant places from the road) were in need of warm clothing. The roadside villages had collected much more clothing than they required. This situation created a jealousy among different villages.
3. Due to the rocks and landslides, terraced fields and 'Pucca Guhls' (concrete water channels) were found damaged.
4. Due to sudden deaths of livestock's (e.g. cow, goat, sheep, etc.) many villagers who were earning through them, lost their jobs and were planning to change their vocations.
5. After the earthquake, the diseases which were reported frequent, we're cold and cough, weakness, water borne diseases, swellings, pneumonia, and pain in chest irritation, restlessness, nervousness, insecurity feeling, tension and frustration.

6. As the traditional sources of income (wool and milk) were lost due to the death of animals, there was a marked decline on economic front; debts seem to be increasing and savings decreasing.
7. Due to closure of schools for an extraordinary duration, the children developed many unhealthy habits (smoking, etc.). Actually they lost their all motivations and aspirations to study in schools.
8. Though no major changes in vocation were seen, but it was noted that the vocational opportunities were decreased due to earthquake damages.
9. There was no or less awareness of the nutritional aspects of food, potable safe water and crop/house/livestock insurance, etc.
10. General atmosphere was still not normal. Some people were seen still tensed and frustrated.
11. Educational pattern was not encouraging. A very low percentage of people were found literate.
12. Socio-cultural environment of villages had undergone a marked change. The people did not show any concern for common sharing. They (68%) developed indifferent attitude towards social-cultural events. They seemed to be more self-centered. In villages, religious rituals have started. The villagers have developed the beggar's attitude. They did not want to work and wished to have all the facilities through NGOs and government
13. Marital and sex life seemed to have adversely affected the people, but now coming towards normalcy.
14. It was observed that the people lost their faith in PHCs and its working, as they could not play any effective role during the earthquake. They rather appreciated the work done by Bhubaneshwari Mahila Ashram, RSS, ITBT, BS&G and many other socio-cultural organizations and non-government organizations (NGOs).

Health Models

The existing available health models were reviewed with a view to find out their suitability and appropriateness for the purpose. Since the existing models were found not workable for the earthquake victims, a need-based model was developed for possible restructuring of the health care services for the Garhwal region. In the light of the results of this study. This model has five main

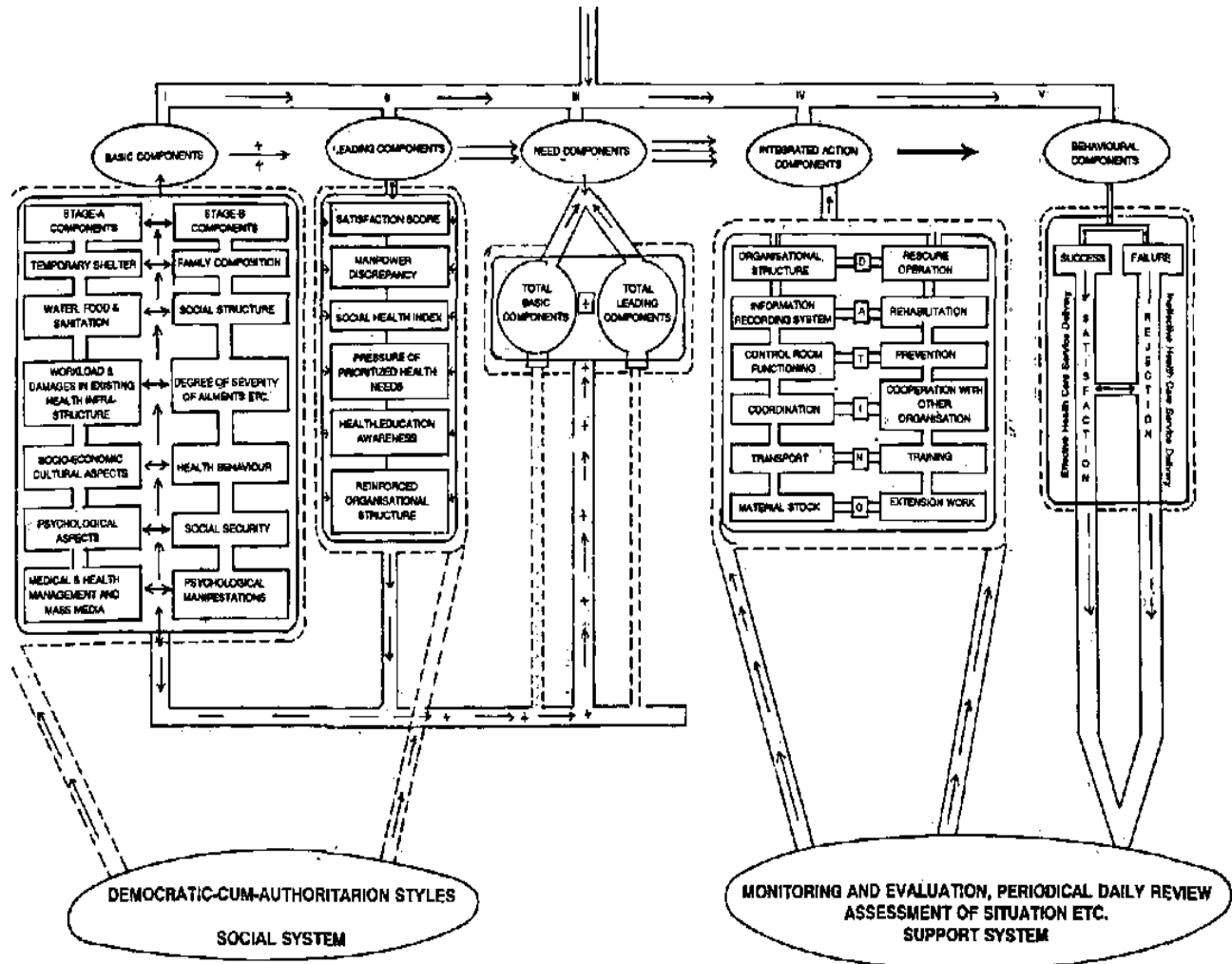
Components - basic, leading, need, integrated action and behavioral outcomes. Each component is divided into certain sub-components. A chart representing this model is given below, which is self-explanatory.

RECOMMENDATIONS

1. Nationwide programme of Emergency Medical Relief and Services (EMRS) under health care service delivery system may be planned, developed and continuously monitored and evaluated.
2. Health is essentially an individual's responsibility in the sense that if the individual cannot be trained to take proper care of his health, no community or formal programme of State services can keep him healthy. Therefore, it is recommended that each individual must be given the relevant information about his body and its functioning, must be taught essential emergency health skills to enable him to cope with the earthquake disaster.
3. The community responsibilities in meeting the health needs and problems for emergencies must be planned and fixed. Each community (village) should have its voluntary health staff, which should have sufficient training in such skills as how to face and cope with earthquake; arrangement for the first-aid training; training in transportation of patients; vaccination and in giving injections, etc.
4. A local team (village-wise) may be given understanding and training in using various available local plants in various ailments with the help of experienced ayurvedic doctors/experienced persons.
5. This village-wise local voluntary team may be considered as an essential part of the regular staff and all the required orientation/refresher courses may be arranged from time to time for them. Both formal and informal type of training be arranged. Regular staff should also be given their due training.
6. Full attention be given to village health team and it should focus on all the health welfare schemes.
7. A sustained effort may be made in keeping the health care service delivery consistent with the life-styles, needs and aspirations of the people.
8. Non-formal or informal health education programmes be arranged at the village level. The concepts of 'nutrition', 'balanced diet', 'safe water', 'health and crop insurance', etc. be emphasized and made popularized. A systematic planning may be done for the purpose.

MODEL AT A GLANCE

A Need based Model for Possible restructuring of the Health Care Service Delivery for Earthquake Disaster in Garhwal Region



9. Reorganization of the services of health workers and creation of the new department of Emergency Medical Relief/Disaster Management Units be emphasized as suggested in the model developed under this study.
10. There should be a provision for the supervision at each level and periodic/continuous monitoring and evaluation system be used to make the village, block, tehsil, district and State level working more objective and effective.
11. Since the PHCs were not working properly, it is recommended that this should be replaced with the village, tehsil, block and district level health centers. A separate scheme may be chalked out to this effect.
12. To restructure the entire programme of health education, with a view to cope with emergencies (disasters like earthquakes, etc.). It is recommended to establish a separate 'Disaster Education Commission', which may undertake the national, State, district and other local programmes to cope with the needs and demands of the earthquake and other disasters. It will help in having a sharp focus on India's ability to cope effectively and manage the mammoth task of rescue and relief support when disasters of such magnitude strike.
13. As no serious effort has been made to promote safe building technology, it is recommended that this country needs building bye-laws along with its rigorous enforcement.
14. Before chalking out any plan, it is a must that the government should draw on the lessons of previous earthquakes and make concrete proposals for dealing with future earthquakes.
15. It was found in this study that there was a general feeling that, 'in the absence of comprehensive disaster management policy and basic infrastructure, spending money is a tragically inadequate solution'.

Therefore, it is recommended to prepare a comprehensive national disaster management policy and infrastructure along with its action plan for the country.

16. Series of studies like the present one could be sponsored by WHOM under HSR in the earthquake disaster areas, so that more scientific information may be gathered for use and reference purposes.

17. WHO and other agencies should focus their attention on developing 'Disaster Training Packages' with a view to develop positive attitude and values, perceptions, faith, motivation, and sense of formal and informal relationship.

18. Government of India in collaboration with any other international organization should sponsor a larger survey of whole Garwal and Kumaun regions through some national/voluntary agencies with a view to find out the present health habits, health values and health education potentialities of the people.

19. This report may be taken as a crude base for establishing the 'Crisis Management Centers' for earthquake prone area.

20. Opinion surveys of policy-makers, bureaucrats, professionals and community members are conducted to assess the marked changes in the socio-cultural-health climate of the earthquake prone areas and the problems be handled through proper planning.

21. a. It is also recommended that effective communication system may be developed (like Computer Network) so that the information may be exchanged immediately at the time of emergency.

b. There should be smooth coordination between different agencies for planning and implementing the health plans.

c. Proper transport facilities may be made available at every important point. The people may be given training in techniques of bringing patients using improvised stretchers from the distant places.

d. The government/NGOs/crisis management centers/voluntary organizations should assess the local needs of the area of relief and be given responsibility to provide relief accordingly.

e. The voluntary organizations engaged in relief work must submit the report to the government about their work along with Evidences for recording purpose.

f. The intensive review is done at every day by competent authorities during earthquake relief operations.

- g. The proper arrangements may be made for the comfortable of health personnel and other members of district administration as well as of voluntary organizations.
 - h. Government should make plan for nutritive food packets for immediate relief and long-term ration system for the future. The whole strategy is planned very carefully.
 - i. The government and voluntary organizations should arrange the Services of psychologists and counselors and train them to cope with the psychological problems of earthquake victims.
22. Special surveys focusing on earthquake affected women's problems are also needed. The WHO and the Ministry of Health may take a lead in this direction.
23. Plan for evolving low cost and locally available earthquake proof housing technologies be focused for long-term rehabilitation purpose.
24. Organized research and rescue operations with careful record keeping be Encouraged in post earthquake period.
25. District authorities and health administration, hospitals, dispensaries, medical camps and mobile medical teams should-have effective communication system. 'Health Emergency Assistance Radio Network System' be established with the help of Communication Department, HAM or BS&G organizations.
26. Scientific information related to earthquake - its causes, hazards and how to meet its challenges be included in the text books of the children. It will provide general awareness, knowledge and preparedness on their part
27. Apart from forming a national network of broad-band digital station for seismic studies, there is a need for 'Global Positioning Systems*' - an array of sensitive measuring devices that use satellites to accurately detect plate movements and warn of active fault zones. The effort should be made to conduct in-depth researches in areas reporting micro seismic activity to warn of a big one round the corner.
28. There is a need to develop need-based, local specific, preventive, primitive and rehabilitative health service systems especially in earthquake affected areas.

29. This time 'livestock' care was not done properly, therefore, it is recommended that the livestock's care plans may be chalked out carefully and the services of veterinary doctors and livestock officers should be made available.

30. The model developed in this study may be tried out in simulated conditions just to check its workability and validity.

सारांश

प्रस्तुत लेख में, उत्तरकाशी और इसके अन्तर्वर्ती गावों के भूकम्प-पीड़ितों की स्वास्थ्य संबंधी आवश्यकताओं और समस्याओं का विप्लेषण किया गया है, ताकि इस क्षेत्र में भविष्य में होने वाली इस प्रकार की दुर्घटना से निपटने के लिए स्वास्थ्य परिचर्या सेवा वितरण प्रणाली का एक उपयुक्त मॉडल विकसित किया जा सके। लेखक द्वारा भूकम्प-पीड़ितों की स्वास्थ्य संबंधी आवश्यकताओं एवं समस्याओं और कुछेक सामाजिक-जनांकिकीय विभेदकों के सहसंबंधों तथा अन्तरों की जाँच-पड़ताल भी की गई है। भूकम्प के कारण उत्तरकाशी और इसके अन्तर्वर्ती गांवों में हुई उथल-पुथल के कारण सामाजिक-सांस्कृतिक एवं स्वास्थ्य संबंधी स्थिति में हुए परिवर्तनों के बारे में भी लेखक द्वारा विस्तारपूर्वक चर्चा की गई है।

A STUDY ON KNOWLEDGE OF STAFF NURSES ABOUT BASIC NURSING CARE IN A LARGE HOSPITAL IN DELHI

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ABSTRACT

The knowledge in basic nursing care of 76 staff nurses posted in General and Specialty Wards of a large metropolitan city hospital has been assessed in this study. The main areas such as suctioning, oxygen administration, postural drainage, bed positioning and communication in which the staff nurses had low level of knowledge and there was no significant difference was observed in the knowledge levels between the nurses of general and speciality ward.

Basic nursing activities are carried out for giving care and comfort to the patient. According to Handerson² the unique function of a nurse is to assist individual sick or well in the performance of those activities contributing to health, which he would perform unaided if he had the necessary strength, will, or knowledge. Central to this concept of nursing is basic nursing care, which includes helping patient with basic functions of respiration, eating, drinking, elimination, rest and sleep, clothing, cleaning, grooming, avoiding dangers in environment, helping him in communication and providing spiritual support. Basic nursing care is thus, basic function of all nurses irrespective of their level of specialisation. However, technical advancements demand highly specialised knowledge and technical skill and this mechanisation is at the cost of basic nursing care. If the hospital nursing service has to provide the highest possible quality of nursing care in terms of total patient needs, then the knowledge of nurses in basic nursing care has to be assessed and strengthened through various training strategies so that this knowledge can be scientifically applied while performing basic nursing skills. Thus, an attempt has been made in this study to assess the level of knowledge of staff nurses in basic nursing care who are working in a large hospital in Delhi.

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MATERIALS AND METHOD

The study was conducted in a large hospital (bed strength of approximately 1500) in Delhi. The indoor unit of the hospital was stratified into general and specialty wards and following random sample, four general wards and four specialty wards were taken up for the study. All the staff nurses working in these eight units, comprising 35 nurses from general [wards and 41 nurses from specialty wards were included as sample respondents. All the nurses were interviewed, using a semi-structured interview schedule.

The job activities of staff nurses pertaining to basic nursing care were compiled by reviewing the existing literature^{2, 3, 6, 7,9}, hospital manual¹ and in consultation with experts. The experts were requested to categorize the identified job activities into "essential", "desirable", and "not so essential". The activities which all the eight experts identified as essential formed the base for framing interview schedule. This included five broad areas of helping patient with respiration, helping patient in eating, maintaining desirable posture, avoiding dangers in environment and communicating with the patient. The interview schedule thus prepared to assess nurses knowledge in these five broad areas was validated through a panel of nursing experts and was pre tested in a sub sample of nurses similar to study population. The responses were scored using the criteria of a zero score for incorrect/don't know response, 1 for partially correct response and 2 for fully correct response.

Data were analyzed by obtaining mean knowledge score for each activity and also for the five identified broad areas in basic nursing care. A student t-test was applied to assess any statistical significance between the level of knowledge of nurses posted in general and specialty wards.

RESULTS

All the staff nurses were females, 71 per cent of them married and 99 per cent had GNM (General Nurse Midwifery) as their professional qualification. Their mean age was 29.8 years (SD 5.5) and mean years of experience was 4.8 years (SD 3.6). The differentials in age, marital status and years of experience of nurses posted in the general and specialty wards are given in Table 1.

TABLE 1

GENERAL PROFILE OF NURSES POSTED IN GENERAL AND SPECIALTY WARDS

General Profile		Staff nurses posted in		Total
		General Wards N = 35	Specialty Wards N = 41	N = 76
Age	Mean	28.6	31.0	29.8
	SD	4.6	6.0	5.5
Marital Status (%)		63.0	76.0	71.0
Years of Experience	Mean	4.4	5.2	4.8
	SD	3.6	3.5	3.6

KNOWLEDGE IN BASIC NURSING CARE

The mean score obtained by both categories of nurses along with possible maximum score is given in Table 2.

HELPING PATIENT WITH RESPIRATION

Under this broad area, knowledge was assessed for airway maintenance, suctioning, oxygen administration and postural drainage. The mean score obtained by nurses in general wards and specialty wards were 13.9 and 15.3 (maximum score = 46).

Airway Maintenance: In relation to some specific questions on airway insertion a majority of nurses identified correctly the steps for airway insertion. The mean score obtained for this activity by the two categories of nurses were 2 and 2.2 (maximum score = 4),

Suctioning: The mean scores obtained for this activity by the nurses of general and specialty wards were 4.8 and 4.9 respectively (maximum score = 18). Pertaining to some specific questions, though more than 75 per cent of nurses knew the need for suctioning, a majority could list out only 50 per cent of steps for this procedure. Other areas in which they had low level of knowledge were duration of suctioning at a stretch, complication of prolonged suctioning and size of suction catheter to be used for different age groups. However, a majority of nurses in either category know how to assess outcome of a good suctioning procedure.

TABLE 2
MEAN SCORE OBTAINED IN BASIC NURSING CARE BY STAFF NURSES POSTED IN
GENERAL AND SPECIALTY WARDS

Broad Area/Activity	Max. Score	Mean Score Obtained	
		General Ward N =	Specialty Ward N = 41
I. Helping Patient with Respiration	46	13.0	15.3
1. Airway insertion	04	2.0	2.2
2. Suctioning	18	4.8	4.9
3. Oxygen Administration	18	6.4	7.3
4. Postural Drainage	06	2.2	1.1
II. Helping patient in eating	04	2.2	2.0
III. Helping patient to maintain desirable	28	11.1	11.3
1. Bed Making	06	2.7	2.7
2. Bed positions	12	2.9	3.0
3. Skin care	10	5.5	5.6
IV. Avoiding dangers in Environment	16	7.3	7.3
1. Barrier Nursing	12	6.5	6.5
2. Accidental drug intake	04	0.8	0.8
V. Helping patient to Communicate	06	2.4	1.7
TOTAL SCORE	100	36.9	37.5
Standard Deviation		9.02	9.84

Student's' Test value = 0.2735

Oxygen administration: The maximum score permissible for this activity was 18 and the mean score obtained by nurses in general and specialty wards were 6.4 and 7.3 respectively. In relation to some specific questions on this activity, majority of nurses could not answer questions related to vital signs to be assessed prior to oxygen therapy, proper placement of nasal catheter, and best method for assessing effectiveness of oxygen therapy. On describing the skill

Aspect more than 70 per cent of nurses could only enlist less than 50 per cent of steps involved in the procedure.

Postural Drainage: The mean score obtained by general ward nurses was 2.2 and that by specialty ward nurses was 1.1. A majority of nurses (more than 60 per cent) did not know indications, steps and expected outcome of this procedure.

HELPING PATIENT IN EATING AND DRINKING

Out of maximum score of 4, the mean score obtained by general ward nurses and specialty ward nurses were 2.2 and 2.0 respectively. A majority of nurses in either category identified at least the important factor to be considered while providing diet to a patient.

HELPING PATIENT IN MAINTAINING DESIRABLE POSTURE

The mean score obtained by the category of nurses in this broad area was 11.1 and 11.3 while the maximum score possible was 28. Nurses were interviewed to get their level of knowledge regarding bed making, bed positioning, and skin care. It was found that in case of bed making the mean score obtained by both categories was 2.7 out of maximum score of 6. A majority of nurses identified common bed positions used in wards and also know the important steps for placing patient in lithotomic. However, a majority, more than 75 per cent of nurses did not have even 25 per cent of knowledge for placing patient in fowler's or Trendelenburg position. The mean score obtained for this activity by the nurses of general and specialty ward were 2.9 and 3.0 respectively out of maximum score of 12. The mean score obtained in case of skin care was 5.5 and 5.6 out of maximum score of 10 by the nurses of general and specialty wards. Majority of nurses in either category knew the need for assessing skin condition, frequency of such assessment, characteristics to be observed while assessing skin conditions, the common areas for deceits ulcers and steps in administering back care.

PROTECTING PATIENT AND SELF FROM DANGERS IN THE ENVIRONMENT

Nurses in either category identified the reasons for practicing barrier nursing, hospital areas and technical procedures where it has to be applied and the role of barrier nursing in limiting spread of hospital infection. The score obtained by either category was 6.5 for this activity out of maximum score of 12. In case of drug intake, the mean score obtained by either category was 0.8 out of a maximum score of 4. A majority of nurse gave incorrect or only partially correct response for nursing action in case of accidental drug intake.

HELPING PATIENT TO COMMUNICATE

The mean score obtained by the nurses of general and specialty wards were 2.4 and 1.7 respectively put of a maximum score of 6. In relation to some specific questions in this area, the role of communication in nurse - patient relationship and the way it helps patient was known to more than 50 per cent of nurses in either category of wards. But only less than 50 percent of nurses could tell ways by which to assess whether patient has understood the nurses message or not.

DISCUSSION

Even if a mean score of 50 per cent is taken as a cut off for assuming the knowledge to be fairly good, the results indicate that in four out of the five broad areas of basic nursing care for which knowledge was assessed; the nurses in either category of wards could not get 50 per cent score. Of these broad areas, the level of knowledge could be termed unsatisfactory, score less than 40 per cent, in the specific activities pertaining to suctioning, oxygen administration, postural drainage, bed positioning, and nursing action for accidental drug intake and in helping patient to communicate. The over-all total means score also indicates an unsatisfactory level of knowledge in basic nursing care for either category of nurses. However, there was no statistically significant difference was observed in the knowledge levels between the nurses of general and specialty wards,

Not many a studies are available to compare these findings. Most of the studies reviewed by researchers, that of Jessic M. C.⁴, Savari Muthamal⁵ and Wani He was self expressed learning needs identified through opinion questionnaires. Most of these studies identified broad content areas like intensive care, coronary care, neonatal care, cardiopulmonary resuscitation, etc., but in none of these studies basic nursing care was identified as a self expressed learning need, probably the nurses did not perceive it as a deficient area.

IMPLICATIONS

Basic nursing care is central to the concept of principles of nursing. If hospital nursing services has to provide the highest possible quality of nursing care in terms of total patient needs, then the basic nursing care has to be strengthened. Assessing the knowledge and skills in basic nursing care, thus identifying the deficient areas, can help nursing administrators, or trainers in developing appropriate curriculum and suitable training strategies. This will go a long way in enhancing patients satisfaction and in the overall quality of services rendered by a hospital.

इस अध्ययन के माध्यम से वृहत स्तर के एक अस्पताल के जनरल और स्पेशल वार्डों में नियुक्त 76 स्टाफ नर्सों, के नर्सिंग परिचर्या सेवा से सम्बद्ध प्रमुख कार्यक्षेत्रों, जैसे आशोषण, आक्सीजन देने, स्थितिज निकास, शयन-सज्जा तथा संचार आदि के बारे में उनका ज्ञान अपेक्षित स्तर का नहीं पाया गया था। जनरल और स्पेशल वार्डों की नर्सों के ज्ञान के स्तर में भी कोई महत्वपूर्ण अन्तर नहीं देखा गया था।

REFERENCES

1. GOVERNMENT OF INDIA: Hospital Manual, 1978, DGHS, Ministry of Health and Family Welfare, Nirman Bhavan, New Delhi.
2. HENDERSON V.: Principles and Practice of Nursing, 1982, Mac Milan Publishing Company, New York. -
3. INDIAN NURSING COUNCIL: Syllabus for GNM Nursing, 1993, Kotla Road, New Delhi.
4. JESSIC M. C: Survey of Learning Needs of Nursing Personnel Employed in Selected Health Care agencies in Kamataka State, Unpublished M.N. Thesis, 1979, RAK College of Nursing, Delhi University, Delhi.
5. SAVARIMUTHAMAL A: Study to Assess Learning Needs of Registered Nurses Employed in Government Hospitals of Pondicherry, 1990, Unpublished M.N. thesis, RAK College of Nursing, Delhi University, Delhi.
6. SMITH, S. AND DUELL D. Nursing Skills Evaluation, 1982, C.V. Moseby Company, Ontario, Canada.
7. SPENCER AND CATHERENE, M.T. Introduction to Nursing, Vth Edition, 1981, Blackwell Scientific Publications, London.

8. WANI, H. A Survey of Learning Needs of Trained Nurses for In-service Education Employed in Civil Hospitals of Sri Nagar, Unpublished M. N Thesis, 1989, RAK College of Nursing, Delhi University, Delhi.
9. WEIECK LYNM et al: Illustrated Manual of Nursing Techniques, 3rd Edition, 1986, J. Lippin Cott Company, Philadelphia, U.S.A.