

OCCURRENCE OF CHRONIC DISEASES IN EAST DELHI: PREVALENCE AND SOME CORRELATES

R.K. Gupta* and A. Pandey**

ABSTRACT

This study assessed the extent of the problem of chronic diseases like Arthritis, Diabetes, Chronic Bronchitis and Hypertension prevailing among people in East Delhi. The sample size of the population was more than one lakh. The exact diagnosis was made based on the signs and symptoms. Information on the disease status was collected from the individuals who were found to be suffering or suffered during a period of one month preceding the day of the survey. The prevalence rates per 1000 as estimated were 12.6, 8.6, 8.7 and 10.8 respectively of Arthritis, Diabetes, Chronic Bronchitis and Hypertension. The higher prevalence was observed in urban areas and also among people aged 45 years and above. Arthritis and Hypertension were prevalent more among females while Diabetes and Chronic Bronchitis were more among males. Multiple logistic analysis revealed that the factors like type of locality, age, sex and caste were associated with the occurrence of these diseases.

Keywords: Chronic diseases, Prevalence rates, Multiple logistic analysis, East Delhi.

Chronic diseases are becoming major health problems. The occurrence of diseases like Diabetes, Arthritis, Hypertension and Chronic Bronchitis is gradually increasing due to change in living conditions and the lifestyle of the people; particularly in big cities like Delhi. To effectively launch an intervention programme by the Government, baseline information on the extent of the problem is needed. There are some studies¹⁻¹² which provide very scanty information; particularly for East Delhi. Therefore, a large study was needed for the same. Towards this endeavour, a large door-to-door survey was undertaken in East Delhi. The present paper provides baseline information collected on more than one lakh individuals from September 2000 to June 2001. The information would be useful to undertake appropriate intervention initiatives to improve the health of the community.

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Multiple logistic analysis was applied to find out whether the factors like type of locality, age, sex and caste were associated with the occurrence of such diseases or not.

MATERIALS AND METHOD

Information on morbidity status of individuals was collected by conducting a door-to-door survey of 20,000 households from 50 colonies/villages from September 2000 to June 2001. It was planned to cover a large sample of population since the information on many parameters for various clusters of population was needed. It was decided to cover about a lakh population i.e. about five per cent of the total population of Trans-Yamuna area which had about 20 lakh as per the 1991 Census. It was planned to cover 20,000 households considering a household size of five. The whole residential area of East Delhi was divided into six strata viz. villages, jhuggi jhopri colonies, resettlement colonies, old urban colonies, new urban colonies and DDA Flats/Government quarters in order to take care of variation between different strata of the population. Proportional allocation of 20,000 households was made to different strata as per the population size based on 1991 Census. Four hundred consecutive households of each of the clusters (colony/village) were covered with a random start of a block/pocket/street etc. as was applicable. The total individuals covered were 101380. Information on the disease status was collected from the individuals who were found to be suffering or suffered during a period of one month preceding the day of the survey by the teams consisting of medical persons and investigators with statistical background. The most probable diagnosis was made based on the signs and symptoms. The multiple logistic analysis was applied to find out whether any association exists between type of locality, caste, sex and age and the occurrence of these diseases.

FINDINGS

It is evident from Table 1 that prevalence of Arthritis, Diabetes and Hypertension was the highest among people of new urban colonies. The economic status of the people of these colonies was higher as compared to those of other colonies. Chronic Bronchitis was more prevalent among people of jhuggi jhopri and resettlement colonies, particularly among lower economic status. The occurrences of all the four diseases among people seem to increase with age. The significant prevalence has been observed among people of age 15 years and above (Table 2).

TABLE 1
AREA-WISE PREVALENCE (PER 1000) OF CHRONIC DISEASES

Area	Arthritis		Diabetes		Chronic Bronchitis		Hypertension	
	No.	%	No.	%	No.	%	No.	%
Village	102	9.7	42	4.0	74	7.0	65	6.2
Jhuggi Jhopri colonies	55	5.4	2	0.2	99	9.7	21	2.1
Resettlement colonies	172	9.7	52	2.9	162	9.2	98	5.5
Old Urban colonies	627	14.0	454	10.2	396	8.9	546	12.2
New Urban colonies	163	22.3	186	25.5	50	6.8	176	24.1
DDA Flats/ Govt. Qtrs.	154	14.0	134	12.2	98	8.9	184	16.7
All	1273	12.6	870	8.6	879	8.7	1090	10.8

TABLE 2
AGE-WISE PREVALENCE (PER 1000) OF CHRONIC DISEASES

Age groups in Years	Arthritis		Diabetes		Chronic Bronchitis		High Blood Pressure	
	No.	%	No.	%	No.	%	No.	%
<5	1	0	0	0	11	1.1	0	0
5-15	6	0.3	3	0.1	43	1.9	0	0
15-30	35	1.1	11	0.4	85	2.8	41	1.3
30-45	315	14.8	141	6.6	202	9.5	213	10.0
45-60	439	39.6	378	34.1	265	23.9	465	41.9
60 and above	478	81.4	337	57.4	273	46.5	371	63.2

Prevalence of Arthritis and Hypertension was high among females and Diabetes and Chronic Bronchitis was high among males (Table 3). Multiple logistics analysis was carried out by considering reference category such as villages for area of living, 15-30 years age group for age, male for sex and SC (scheduled castes) for caste.

TABLE 3
SEX-WISE PREVALENCE (PER 1000) OF CHRONIC DISEASES

Sex	Arthritis		Diabetes		Chronic Bronchitis		High Blood Pressure	
	No.	%	No.	%	No.	%	No.	%
Male	384	7.2	478	8.9	544	10.2	449	8.4
Female	889	18.6	392	8.2	335	7.0	641	13.4

The analysis revealed that the likelihood of occurrence of Arthritis among people of jhuggi jhopri colonies was comparatively less by 40 per cent and it was almost same for those living in resettlement colonies, old urban colonies, new urban colonies and DDA flats/Government quarters. Females were found to be three times more at risk than males to develop Arthritis. The chance of developing Arthritis among people of different castes did not show much variation. The likelihood of developing Arthritis was observed to increase manifold with age.

The chances of developing Diabetes among people of jhuggi jhopri colonies were less by 90 per cent and among people of resettlement colonies, it was by 30 per cent. The people of new urban colonies were observed to be 2.5 times more at risk than those of old urban colonies while it was 1.5 times more for DDA flats. The likelihood of developing Diabetes was found to be almost equal between males and females. The people of other castes, excluding SC, ST and OBC, with comparatively higher economic status were found to be at risk two times more for developing Diabetes. Again chances of developing Diabetes were found to increase manifold with age.

The chances of occurrence of Chronic Bronchitis were 60 per cent more among people of jhuggi jhopri colonies while it was less by 50 per cent among those of new urban colonies. There were less chances (by 30%) of occurrence of Chronic Bronchitis among females as compared to males. The people of 'other castes' were at less risk by (20%). The likelihood of developing Chronic Bronchitis was found to increase with age and it was 19 times more among people of age group of 60 years and above.

The chance of developing Hypertension was observed to be the least among people of jhuggi jhopri colonies i.e. among people of lower economic status and the maximum was among those of new urban colonies i.e. among people of higher economic status. Females were about 1.8 times more at risk of developing Hypertension as compared to males. The chances of developing Hypertension were found to be more among people of other castes. The chances were again found to increase manifold with the age of respondents for developing Hypertension (Table 4).

TABLE 4
ODDS RATIOS AND 95 PER CENT CONFIDENCE INTERVALS

Variables	Arthritis	Diabetes	Chronic Bronchitis	Hypertension
Area				
Villages	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Jhuggi Jhopri Colonies	0.6 ^{&} (0.4-0.9)	0.1\$ (0.0-0.3)	1.6 ^{&} (1.2-2.2)	0.5 ^{&} (0.3-0.8)
Resettlement Colonies	0.9 (0.7-1.3)	0.7 (0.5-1.1)	1.2 (0.9-1.7)	0.9 (0.6-1.2)
Old Urban Colonies	1.1 (0.9-1.2)	1.5 ^{&} (1.1-2.1)	1.0 (0.8-1.3)	1.2 (0.9-1.6)
New Urban Colonies	1.2 (0.9-1.6)	2.5\$ (1.7-3.5)	0.5 ^{&} (0.4-0.8)	1.6 ^{&} (1.2-2.1)
DDA Flats/ Govt. Qtrs	0.9 (0.7-1.2)	1.4* (1.0-2.1)	0.9 (0.7-1.3)	1.4 (1.0-1.8)
Age				
15-30 Yrs	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
30-45 Yrs	13.2\$ (9.3- 18.8)	17.2\$ (9.3-31.9)	3.5\$ (2.7- 4.5)	7.2\$ (5.1-10.0)
45-60 Yrs	37.5\$ (26.6- 53.1)	86.3\$ (47.3- 157.2)	9.3\$ (7.3-11.9)	30.4\$ (22.1-42.0)
60+ Yrs	81.6\$ (57.8- 115.3)	136.6\$ (74.8- 249.3)	19.5\$ (15.3-25.0)	44.8\$ (32.4-62.1)
Sex				
Male	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
Female	2.9\$ (2.5-3.2)	0.9 (0.8-1.1)	0.7\$ (0.6-0.8)	1.7\$ (1.5-1.9)
Caste				
SC	1.0 (--)	1.0 (--)	1.0 (--)	1.0 (--)
ST	2.0\$ (1.5-2.7)	1.3 (0.7-2.4)	1.0 (0.8-1.6)	1.0 (0.6-1.7)
OBC	1.2 (0.9-1.5)	1.1 (0.7-1.7)	1.2 (0.9-1.5)	1.2 (0.8-1.7)
Others	1.0 (0.8-1.2)	2.2\$ (1.6-2.9)	0.8* (0.6-1.0)	2.0\$ (1.6-2.5)

Unmarked- Not Significant *- P< 0.05 &- P< 0.01 \$- P< 0.001
(Figures in parentheses indicate confidence intervals)

CONCLUSION

The study concludes that chronic diseases like Diabetes, Arthritis and Hypertension were more prevalent among people of higher economic status and Chronic Bronchitis was more among people of comparatively lower economic status. The analysis further reveals that chances of occurrence of all of these four diseases increased with age; females were found to be more at risk of developing Arthritis and Hypertension and males were more at risk of developing Diabetes and Chronic Bronchitis.

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KNOWLEDGE, ATTITUDE AND PERCEPTION OF ADOLESCENT GIRLS ABOUT FAMILY WELFARE METHODS

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ABSTRACT

This study analyses the knowledge of school girls in the age group of 15-17 years regarding small family, availability of various family-planning methods and their perception about the adoption of family welfare methods. Significant difference in knowledge between rural and urban adolescent girls was observed regarding three contraceptive methods viz. nirodh, Cu-T and injectables. Television was the main source of knowledge about the contraceptives in both rural and urban areas for the school girls. 60 per cent of the rural girls had the knowledge about the availability of contraceptives in the hospitals and dispensaries as compared to 31 per cent of urban girls. Significant number of girls knew about medical termination of pregnancy (MTP) and two child norm. 81 per cent of the rural girls preferred marriage between the age of 18 and 20 years as compared to 41 per cent of urban girls. 59 per cent of the urban girls preferred marriage after 21 years. Significant number of girls in both categories knew about the outcome of unprotected sexual relations. Three years of spacing was preferred by equal number of girls both in rural and urban areas. 60 per cent of rural and 40 per cent of urban girls preferred to have both male and female children. It was also observed that majority of the girls did not approve of pre-marital sexual relations irrespective of their place of residence and equal number of girls from both rural as well as from urban areas considered family planning a necessity of today.

Keywords: Family Welfare Methods, Knowledge, Perception, School Girls, Information.

India's population is more than 1/6th of the global population. Rapidly growing population affects national development by creating pressure on economic, social and natural resources. Therefore, it would be difficult to bring about an improvement in education, nutrition, health, etc. in the country.

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Adolescents form about one-fifth of the total global population. According to WHO, adolescent group consists of people between the age of 10 and 19 years and they constitute 22.5 per cent of the total Indian population which is the second largest group of population in the country after the 1-9 years of age¹⁻³.

The second decade of life is a stressful phase of lifecycle in which most significant changes occur in the body of an individual. In this period a boy or girl needs special attention, support, healthy environment, friendly behaviour and guidance. Although adolescents now attain biological maturity much earlier than the previous generations, the gradual decline in the average age for the onset of puberty and menarche is witnessed, but this is not always accompanied by a corresponding attainment of psycho-social maturity or economic independence³.

Today teenagers are getting wrong information from their peers as well as from other available sources like print materials; including magazines. Parents hesitate and don't talk to their kids about sex because they think that imparting sex-knowledge to them might create a desire to have sex. This leads teenagers to make their own decision on sex and sex-relations. Growing sexual promiscuity amongst today's carefree teenagers, illegitimate sex in unmarried situations like rape, forced sex, sexual abuse by close relatives and sexual exploitations of innocent adolescents and mentally handicapped is prevalent which results in an unwanted and unacceptable pregnancy. This results in induced abortions, most often illegal ones.

Besides, the risks of STDs lie in unprotected and unsafe sex. Young women contract STDs more easily than adults because they have fewer protective antibodies and the immaturity of their cervix facilitates the transmission of an infection. Therefore, some experts are of the view that investment in the education of girls may well be the highest return in the developing world⁴. In this context, our government has made girls' education free up to higher secondary school level. Though the level of literacy has improved, it is still much below the desired levels and yet a wide gap prevails in literacy levels between males and females.

Hence, it is important to increase the knowledge of adolescent girls about various methods of contraception, STDs and HIV/AIDS. This necessitates to understand the knowledge, attitude and perception of adolescent girls about family welfare and other related issues. So, this study was conducted among school girl students in Anand district of Gujarat.

OBJECTIVES

- (i) To understand the knowledge of school girl students about small family norms, family welfare methods and their attitude towards various methods of contraception;
- (ii) To study the perception of school girl students about adoption of family welfare methods; and
- (iii) To compare the knowledge between urban and rural girl students regarding various contraceptive methods.

METHODOLOGY

The methodology adopted in the study was non-interventional, analytic and cross-sectional type. The sample comprised adolescent girls studying in 10th, 11th and 12th standards who were in the age group of 15 to 17 years. 100 school girl students each from urban and rural schools were selected as sample respondents. The study period was about four months.

Sample Size

During the pilot study, out of 25 girls, 17 had knowledge about at least one contraceptive method. Taking this parameter, the sample size was determined by using the following formula:

$$n = \frac{4pq}{1^2}$$

Total sample size worked out was approximately 198 and it was rounded off to 200, 100 each from rural and urban schools.

A pre-tested questionnaire containing 39 items was administered to the students by the investigator. The girls were made to sit in one room and half an hour time was given to them to fill-up the questionnaire and then each girl was interrogated personally. Response to unanswered or un-understood questions was elicited through one-to-one basis. Epi-info package was used for analysis of data.

FINDINGS

A majority of the girls were Hindus and belonged to social class I and II. All the girls included in the sample were unmarried. The findings in Table 1 reveal a significant difference in knowledge regarding source of knowledge on contraceptives between rural and urban adolescent girls. 34 per cent of the urban girls reported teachers as a source of knowledge on contraception while it was only 13 per cent for rural girls. Similarly, poster was mentioned as an important source of knowledge on contraception by 30 per cent of urban respondents but it was only 13 per cent by rural adolescents. Interestingly, 26 per cent of the rural girls reported sister-in-law as a source of knowledge on contraception but it was only 11 per cent by the urban girls. The urban respondents had more sources of information on contraception as compared to rural girls.

TABLE 1
DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO
THEIR SOURCES OF KNOWLEDGE ABOUT CONTRACEPTIVES*

Place of Living	Literature	Radio	Television	Poster ²	Friends	Teacher ¹	Elders	Sister in Law
Rural	18	02	44	13	21	05	13	26
Urban	47	06	60	30	30	34	32	11

*Multiple responses (Figures are in percentage)
 $1X^2 = 26.7$, DF=1, $p < 0.001$; $2x^2 = 8.5$, DF=1, $p < 0.01$

More number of girls in rural areas mentioned (60%) that contraceptives are available in hospitals as compared to the urban girls (31%). But a higher number of urban girls (70%) mentioned that contraceptives are available in chemist shops in comparison to the rural girls (20%). Though seven per cent of the urban girls opined about the availability of contraceptives with the health workers, but no one could know about it in the rural areas (Table 2).

TABLE 2
DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO THEIR
KNOWLEDGE ON SOURCES OF AVAILABILITY OF CONTRACEPTIVES*

Place of Living	Place of Availability				
	Hospital	Chemist Shops	Health Centre	Grocery Shop	Health Worker
Rural	60	20	18	01	-
Urban	31	70	33	-	07

*Multiple responses (Figures are in percentage)

Table 3 shows that 81 per cent of the rural adolescent girls and 41 per cent of the urban girls preferred the age for marriage between 18 and 20 years. However, more number of urban girls opted for 21 years or more for marriage. The difference of opinion among rural and urban girls regarding preferred age of their marriage is highly significant.

TABLE 3
DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO THEIR
PREFERRED AGE OF MARRIAGE

Age in years	No of Girls	
	Rural	Urban
Less than 15	01	-
15-17 years	05	-
18-20 years	81	41
21 years or more	13	59
Total	100	100

¹X²=33.6, DF=1, p<0.001 (Figures are in percentage)

The difference in knowledge between urban and rural adolescent girls about unprotected sexual relations was highly significant. Only two girls in urban schools didn't have correct knowledge about unprotected sex while the corresponding figure for rural girls was 18 (Table 4).

TABLE 4
DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO THEIR
KNOWLEDGE ABOUT UNPROTECTED SEXUAL RELATIONS

Status of Knowledge	No. of Adolescent Girls	
	Rural	Urban
Yes	82	98
No	18	02

X²=14.2, DF=1, p<0.001 (Figures are in percentage)

49 per cent of the girls in urban areas and 31 per cent of girls in rural areas had no gender preference in the study area. However, four per cent of the rural girls and seven per cent of the urban girls preferred to have a son. 60 per cent of the rural girls and 44 per cent of the urban girls preferred to have children of both sexes. The difference of knowledge regarding 'no gender preference' between rural and urban girls is significant (Table 5).

TABLE 5
DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING
TO THEIR GENDER PREFERENCE FOR CHILDREN

Gender Preference	Rural	Urban
Son	04	07
Daughter	05	00
Both	60	44
Anyone (no Preference)	31	49
Total	100	100

$\chi^2 = 6.75$, DF=1, $p < 0.02$ (Figures are in percentage)

Majority of girls in both the settings didn't approve pre-marital sex. It's a welcome attitude seen among urban (99%) as well as among rural girls (94). No significant difference was found between the rural and urban girls with regard to their attitude towards pre-marital sexual relation (Table 6).

TABLE 6
DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO
THEIR ATTITUDE TOWARDS PRE-MARITAL SEXUAL RELATION

Place of Living	Agree to Have	Disagree to Have
Rural	06	94
Urban	01	99

$\chi^2 = 0.037$, DF=1, $p < 0.5$
(Figures are in percentage)

DISCUSSION

There are evidences from various studies that adolescents are increasingly becoming sexually active and teenagers make their own decisions for sexual relations. This may be due to the carefree attitude of today's society. Parents do not have time for their children and with the growing high technology, easy access to pornographic literature and videos make the things worst for the adolescents. They include unsafe and unprotected sex. As a result unwanted pregnancies do occur. In order to check such a practice, it is necessary that the adolescents may be made well aware of the contraceptive methods.

It was observed that on an average, 74 per cent of the girls were aware of oral contraceptive pills. But the figure is slightly lesser than the observation made by another study⁵ but it is almost similar to the findings of the study conducted in New Delhi⁶. A significant difference in the knowledge was found between rural and urban adolescent girls about nirodh, Cu-T and injectable. In the current study, a good number of girls in rural areas had knowledge about female sterilization (tubectomy) as well as male sterilization (vasectomy). This is similar to the findings of National Survey of Fertility and Family Planning Practices in India 1988⁷.

The mass media have played a vital role in spreading the message on contraceptive. 44 per cent of the rural girls came to know about contraceptives through television followed by relatives (sister-in-law) and peer group i.e. friends. Similarly maximum number of girls (60%) in urban areas came to know about contraceptives through television followed by literature (47%). This corroborates the findings of the National Survey of Fertility and Family Planning Practices in India (1988)⁷.

No one in rural area knew that the contraceptives are available with the health worker. It may be due to lack of communication between the health worker and the community. The findings of the current study are in agreement with the findings of another study conducted in Ludhiana⁵.

A significant difference in knowledge was found between the urban and rural girls about two-child norm. 95 per cent of the urban girls and 85 per cent of the rural girls had knowledge about two-child norm. Only five per cent of the rural girls preferred to get married during 15-17 years of age. It was seen that 81 per cent of the rural girls wanted to get married at the age of 18-20 years, whereas, in urban areas it was 41 per cent. This difference of opinion among rural and urban girls regarding preferred age of marriage is highly significant. The present study findings have conformity with another study findings conducted in Ludhiana⁵ which states that five per cent of the rural girls preferred to marry during the age of 15-18 years.

As far as the knowledge of the adolescent girls reading outcome of unprotected sexual relationship is concerned, most of the girls (82% in rural and 98% in urban areas) knew about the outcome i.e. pregnancy. The difference of knowledge among rural and urban girls was found statistically significant. In contrast, only 16 per cent of the rural girls knew about the outcome of unprotected

sexual relationship in a previous study conducted in Maharashtra^{8,9}. This difference is perhaps because of the spread of education and campaigns on mass media on safe sex.

In the current study, majority of the girls preferred to have a child after two years of marriage. Maintaining adequate birth spacing (more than two years) could reduce child mortality to one-third in some countries. If spacing is less, then the infants are more likely to become premature and low birth weight. Many girls (39% in rural and 38% in urban areas) preferred a gap of three years between two children. This finding does not tally with the findings of another study conducted in Delhi⁶. In urban areas, 49 per cent of girls did not indicate any gender preference for children as compared to 31 per cent in rural areas. The difference of knowledge regarding no gender preference among rural and urban girls is significant.

Majority of the girls (96%) did not approve pre-marital sex. Knowledge and fear of HIV/AIDS due to unprotected sexual relationship has given such results. Similar findings were reported in another study¹⁰.

CONCLUSION

Most of the girls preferred to get married after the age of 21 years. Pregnancy as the outcome of unprotected sex was known to majority of girls in both urban and rural areas which resulted in disapproval of pre-marital sex. Mass media, specially television was the most effective source of information for the girls about contraceptives. Though oral pills, Cu-T and permanent sterilization methods were known to the girls but a few of them were in favour of abstinence to avoid pregnancy. Majority of the girls disagreed with the idea of pre-marital sex. A good number of subjects considered family planning as a fundamental right of women and also a duty and responsibility of the nation. Majority of the girls preferred one son and one daughter to have an ideal family and wanted a permanent method of contraception after the completion of the family size.

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**AWARENESS OF HIV/AIDS AND STD AMONGST RURAL
ADOLESCENTS IN HATHRAS DISTRICT OF UTTAR PRADESH**

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ABSTRACT

This community-based cross-sectional study was conducted in a rural area under the Community Health Centre (CHC) of Sadabad, Hathras district of Uttar Pradesh. The study revealed that (i) 42 per cent of the adolescents had not heard of HIV/AIDS and 62 per cent had not heard of STDs, (ii) Knowledge about the mode of transmission and prevention of these infections was poor among them, (iii) television (49.1%) was a major source of information followed by posters (23.0%) and radio (14.3%) for the adolescents about HIV/AIDS and STD, and (iv) Male adolescents had a significantly high risk behaviour as compared to the female adolescents.

Keywords: STDs, Adolescents, Risk behaviour, Information, Television.

Adolescent is one of the most vulnerable groups as far as risk of HIV/AIDS and STDs are concerned¹. Adolescents perceive HIV/AIDS as a disease of adults². This is a misconception prevailing among them. Moreover, adolescents have a greater risk taking characteristics^{3,4} which include sexual intercourse, visiting commercial sex-workers, adolescent pregnancies and STDs^{5,6}. Similar trends have been documented in developing countries⁷. Adolescents are unique in the sense that they are the beacons of the society in the near future i.e. 5-10 years. They will soon become active players in the society. Early adolescent period is the most appropriate time for intervention since this phase involves a high risk-behaviour which could have a long-term effect on future course⁸.

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Assessment of awareness level of the adolescents is important because it determines the impact of efforts made by the government and also says about the need for interventions. Initially, HIV was linked with high risk-taking adult group residing in urban areas, so the research was mostly focussed on them. However, the problem has already spread to rural areas and further spreading as fast as in metros⁹. Limited data are available on the awareness level of rural adolescents, who comprise a large portion of the national population, about HIV/AIDS and STDs. Therefore, this study was conducted to find out the awareness of adolescents about HIV/AIDS and STDs.

MATERIALS AND METHOD

A community-based cross-sectional study was conducted in eleven villages of Sadabad Community Health Centre, Hathras district of Uttar Pradesh. 172 male and 103 female adolescents in the age group of 10-19 years permanently residing in these villages were included as sample respondents as per the WHO definition of adolescent.

A pre-tested semi-structured schedule, containing 46 attributes was used to get the information on the demographic profile, socio-economic status, awareness regarding HIV/AIDS and STDs and risk-behaviour of adolescents. The schedule was administered in privacy to avoid any external influence. .

FINDINGS

The socio-demographic characteristics of the study group are shown in Table 1. The sample consisted of 62.5 per cent males and 37.5 per cent females. 43.3 per cent of the respondents had education up to high school level and only four per cent were graduates. Only a few adolescents (3.6%) were illiterates. Majority of them (46.2%) belonged to middle class families, 3.6 per cent upper class and 5.1 per cent lower class. Only 2.2 per cent of the respondents were married. Only a few females gave consent for their interview. Due to their high non-response rates to many of the items in the schedule, illiterates were excluded from the sample during analysis.

TABLE 1
CHARACTERISTICS OF RURAL ADOLESCENTS

Characteristics	N=275	%
Gender		
Boys	172	62.5
Girls	103	37.5
Age in years		
10-11	23	8.4
12-13	71	25.8
14-15	65	23.6
16-17	65	23.6
18-19	51	18.6
Education		
Illiterate	10	3.6
Primary	43	15.6
Middle	92	33.5
High School	119	43.3
Graduate	11	4.0
Marital Status		
Unmarried	269	97.8
Married	6	2.2
Socio-economic Status (Uday Pareek)		
Upper Class (≥ 43)	10	3.6
Upper Mid Class (33-42)	63	22.9
Middle Class (24-32)	127	46.2
Lower Mid Class (13-23)	61	22.2
Lower Class (< 13)	14	5.1

Table 2 shows that 62.2 per cent of male and 48.5 per cent of female adolescents have heard of HIV/AIDS. While (30.8 per cent males and 21.3 per cent females) have not heard of STDs. The difference between males and females was not statistically significant. However, awareness level about STDs was very low as compared to HIV/AIDS among both males and females. Risk-behaviours were significantly high among male adolescents as compared to females. The risk-behaviours among the adolescents started when they were 16 or 17 years old.

TABLE 2
AWARENESS ABOUT HIV/AIDS AND STDs AMONG RURAL
ADOLESCENTS

Variables	Male 172 (%)	Female 103 (%)	Total 275 (%)	χ^2/Fishe r test	P value
Awareness					
Heard of AIDS	107(62.2)	50 (48.5)	157 (57.1)	2.9	0.08
Heard of STDs	53 (30.8)	22 (21.3)	75 (27.3)	0.09	0.75
Risk behaviour					
Had sex	7 (4.1)	0	7 (2.5)	-	0.04
Going to barber regularly	9 (8.4) 5 (2.9)	0 0	9 (3.3) 5 (1.8)	- -	0.02 0.16
Smoking	17 (9.9)	1 (1.0)	18 (6.5)	-	0.002
Chewing to tobacco Alcohol	3 (1.7)	0	3 (1.1)	-	0.26
Mean Injections/yr	5.2 $\pm$ 7.5	3.63 $\pm$ 5.33	4.34	T=1.79	0.07

Table 3 shows that level of education of the respondents was significantly associated with the awareness levels. The higher the level of education of the adolescents, higher was their level of the awareness about HIV/AIDS. Maximum number of adolescents received the information from television (49.1%) followed by posters (23.0%) and radio (14.3%). Various sources of information such as friend, radio, television, poster and self-study were significantly associated with their level of education. On an average, they spend 2.55 hours per day on watching television. Knowledge about transmission of HIV/AIDS was poor among adolescents and a few had wrong information as well. Misconceptions such as touching or seeing AIDS patient can transmit HIV/AIDS were associated with low level of education. Knowledge about preventive methods was also significantly high among educated adolescents.

Data in Table 4 show that knowledge about STDs was very poor among the adolescents. Only 30.8 per cent of the adolescents have heard of STDs. Whatever knowledge they had which was received mainly from television, posters, radio and friends. Few adolescents had wrong information about STDs such as washing feet before going to bed, avoiding hot milk, etc. can prevent it. Level of education of adolescents had no influence on the awareness level of the respondents about the transmission and prevention of STDs. Only 7.2 per cent of the adolescents could tell that sexual contacts can cause STDs. This indicates that information about STDs is not provided in schools as a part of school curricula as sources of information on STDs for rural adolescents. TV, radio, posters, etc. were also not effective.

TABLE 3
AWARENESS ABOUT AIDS AMONG RURAL ADOLESCENTS ACCORDING
TO THEIR EDUCATION LEVELS (MULTIPLE RESPONSES)

Variables	EDUCATION					
	Primary 53 (%)	Middle 92 (%)	High & Above 130 (%)	Total N=275	χ^2 /Fisher test	P Value
Heard of AIDS*	4 (7.5)	38 (41.3)	90 (69.2)	132 (48.0)	66.02	<0.001
Sources of Information						
School	1 (1.9)	6 (6.5)	17 (13.1)	24 (8.7)	5.63	0.05
Friends	1 (1.9)	5 (5.4)	21 (16.1)	27 (9.8)	10.00	0.006
Family	0	3 (3.3)	7 (5.4)	10 (3.6)	2.68	0.26
Self Study	0	1 (1.1)	8 (6.1)	9 (3.3)	6.02	0.04
Radio	3 (5.6)	6 (6.5)	29 (22.3)	38 (13.8)	13.19	0.001
TV	2 (3.8)	25 (27.2)	103 (79.2)	130 (47.3)	98.92	<0.001
Poster	2 (3.8)	16 (17.4)	43 (33.1)	61 (22.2)	17.26	0.0001
Others**	7 (13.2)	7 (7.6)	8 (6.1)	22 (8.0)	4.44	0.10
Mode of Transmission						
Unprotected Sex	1 (1.9)	2 (2.8)	29 (22.3)	32 (11.6)	25.16	<0.001
Infected Syringe	1 (1.9)	4 (4.3)	28 (21.5)	33 (12.0)	19.23	<0.001
Blood	1 (1.9)	5 (5.4)	36 (27.7)	42 (15.3)	27.05	<0.001
Transfusion	0	1 (1.1)	12 (9.2)	13 (4.7)	10.31	0.005
Multiple partner	0	0	3 (2.3)	3 (1.0)	3.15	0.20
STD	0	1 (1.1)	5 (3.8)	6 (2.2)	3.04	0.21
Sex with CSW	3 (5.6)	2 (2.8)	0	5 (1.8)	8.56	0.01
Touching	2 (3.8)	2 (2.8)	0	4 (1.4)	5.12	0.07
Blood donation	2 (3.8)	4 (4.3)	13 (10.0)	19 (6.9)	3.08	0.21
Others@						
Prevention						
Disposable	1 (1.9)	2 (2.1)	12 (9.2)	25 (9.0)	6.09	0.04
Syringe	0	1 (1.0)	9 (6.9)	10 (3.6)	7.07	0.02
Avoid Multiple	0	0	15 (11.5)	15 (5.4)	16.51	<0.001
Partners	0	1 (1.0)	7 (5.4)	8 (2.9)	5.00	0.08
Use condom	1 (1.9)	1 (1.0)	4 (3.1)	5 (1.9)	0.96	0.61
Safe blood	0	0	2 (1.5)	2 (0.7)	2.09	0.35
Abstinence	0	0	3 (2.3)	3 (1.0)	3.15	0.20
Information	0	2 (2.2)	4 (3.1)	6 (2.2)	1.39	0.49
Prevention of STDs						
Others#						

Note: Responses are not mutually exclusive

*Statistically Significant <0.05

**Hospital, PHC Workers, Hospital Van, Newspapers, etc.

@Tattooing, sharing articles and blade, anxiety, fever, garbage, drugs, seeing infected patient, etc.

#Exercise, langoti, ban of prostitution, safe shave, etc.

TABLE 4
AWARENESS ABOUT STDs AMONG RURAL ADOLESCENTS ACCORDING
TO THEIR EDUCATION LEVEL (MULTIPLE RESPONSES)

Variables	EDUCATION					
	Primary 53 (%)	Middle 92 (%)	High & Above 130 (%)	Total N=275 (%)	χ^2 /Fisher Test	P Value
Heard of STDs	5 (1.2)	22 (23.9)	68 (52.3)	95 (34.5)	31.00	<0.001
Source of Information						
School	1 (1.9)	3 (3.3)	10 (7.7)	11 (4.0)	3.01	0.22
Friends	2 (3.8)	4 (4.3)	19 (14.6)	21 (7.6)	8.02	0.01
Family	1 (1.9)	2 (2.2)	02 (1.5)	03 (1.0)	0.17	0.91
Self study	3 (5.6)	5 (5.4)	10 (7.7)	10 (3.6)	0.44	0.80
Radio	1 (1.9)	2 (2.2)	08 (6.1)	14 (5.1)	5.15	0.70
TV	1 (1.9)	3 (3.3)	18 (13.8)	28 (10.2)	16.86	<0.001
Poster	1 (1.9)	6 (6.5)	15 (11.5)	23 (8.4)	4.89	0.08
Others*	3 (5.6)	6 (6.5)	04 (3.1)	18 (6.5)	0.02	0.99
Mode of Transmission						
Multiple partner	1 (1.9)	3 (3.3)	8 (6.1)	11 (4.0)	1.62	0.44
Sexual contact	3 (5.6)	6 (6.5)	10 (7.7)	19 (6.9)	0.11	0.94
Reuse syringe	0	1 (1.0)	02 (1.5)	03 (1.0)	0.69	0.70
Sexual fantasies	0	1 (1.0)	03 (2.3)	04 (1.4)	1.33	0.51
Sex CSW	0	3 (3.3)	09 (6.9)	11 (4.0)	4.11	0.21
Stale food	0	0	03 (2.3)	03 (1.0)	3.15	0.20
Prevention						
Avoid multiple partner	0 1 (1.9)	1 (1.0) 0	05 (3.8) 07 (5.4)	06 (2.1) 08 (2.9)	3.04 5.42	0.21 0.06
Use condom	0	0	03 (2.3)	03 (1.0)	3.15	0.20
Safe sex	3 (5.6)	1 (1.0)	04 (3.1)	07 (2.5)	3.48	0.17
Others**						

Note: Responses are not mutually exclusive

*Hospital, PHC Workers, Hospital Van, Newspapers, etc.

**Washing feet before going to bed, avoid hot milk, consulting doctors, exercise, langoti, abstinence.

DISCUSSION

A large number of females didn't participate in the study as they had no freedom to express their opinion which is common in almost all Indian societies. Knowledge about HIV/AIDS and STDs among the adolescents was very poor. Similar findings were reported in other parts of the country^{10,11}. It was found that education was positively correlated with the awareness level among the adolescents about the HIV/AIDS and STDs. Similarly, other researchers have also

proved that level of education significantly improved their scores on general knowledge on HIV/AIDS and diminishing their wrong perceptions^{6,12}. Majority of the college students had heard of HIV/AIDS and STDs¹³⁻¹⁵. Some experts emphasise on AIDS education through informal interaction, games and introduction of lessons on HIV/AIDS in the school/college curricula which in their views, would be of a great help¹⁶.

The awareness of HIV/AIDS and STDs among adolescents in general population is not satisfactory¹⁰. In the present study, knowledge about HIV/AIDS among the female adolescents was much lower in comparison to the males. Similarly, in another study carried out in 13 states, it was found that one out of six young married women was aware of HIV/AIDS¹⁷. However, in Kolkata, the girls had a higher and clear knowledge about HIV/AIDS than the boys¹¹. This could be due to the difference of selected study groups, for instance, Kolkata is better in overall literacy rate as compared to the study area in Uttar Pradesh.

Male adolescents were found to have more risk-behaviour in the present study. In another study⁴, it was found that alcohol, smoking, pre-marital sex, and drugs (bhang) were practiced by 1.3 per cent, 48.7 per cent, 11.2 per cent and 16 per cent of the rural groups respectively. Adolescents underestimate their HIV/AIDS risks in their sexual behaviours¹⁸. Rural adolescents are equally at risks as urban adolescents, however, their awareness level is significantly low^{13,14}. This discrepancy is definitely due to less media exposure in rural areas. Only TV channel available in rural areas is *Doordarshan* (Government of India owned National TV Channel). On the other hand, 73.9 per cent of urban adolescents have exposure to private TV channels⁴. In the present study, television was the only source for maximum number of adolescents in rural areas. The role of mass media is well recognized as an effective educational tool for children and young adults. With regard to providing more information on HIV/AIDS to the adolescents living in rural areas, it would be more effective and productive to use the national channel for the purpose. Culture-sensitive education through TV is a very effective method for enhancing the awareness-level on HIV/AIDS^{16,19}.

The trends of HIV/AIDS are on the rise, particularly among the younger and the rural population. National AIDS Control Programme was started just one year after the first case of AIDS was reported in 1986. The main emphasis since the beginning was on educating the people about its risks because mass awareness was the only option in the absence of an effective treatment method. Even after more than a decade since then, the awareness level about HIV/AIDS

and STDs is still very poor in rural areas where 71 per cent of the national population is residing. So, an urgent need to look into this problem is felt and more efficient and effective community intervention programmes should come into force immediately.

CONCLUSION

Knowledge about HIV/AIDS and STDs should be provided to the adolescents i.e. when they are 12-16 years old because during this phase, rapid physiological and psychological changes occur in them and they dare to adopt risk behaviours. Many studies have established the effectiveness of health awareness programmes during early adolescence⁸. As far as AIDS and STDs are concerned, adolescence is the crucial period²¹ and education is one of the methods to prevent the spread of this problem²⁰. Proper and frequent dissemination of information via television, radio, and newspapers would be beneficial to the adolescents as they spend quite good amount of time on watching TV or listening to radio. Adolescents consider health workers, particularly the doctors as role models. They listen to the doctors and try to follow their instructions²¹. Therefore, the health manpower in rural areas need to be sensitized about the potential risks of HIV/AIDS among the rural adolescents and interaction between health workers and adolescents may be encouraged.

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**REACH OF VARIOUS COMMUNICATION METHODS (IEC)
FOR RNTCP IN DELHI**

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ABSTRACT

The study revealed that the main sources cited by the respondents for TB campaigns were TV (41.3%), messages displayed on buses (37.6%) hoardings (35.2%), wall paintings (24.6%), newspapers (13.5%) and radio (13.4%). Differences in the reach of various media were observed with reference to the gender, literacy status and place of residence of the respondents. A majority of them preferred TV (85.6%) followed by radio (49.6%), newspapers (28.1%) and posters (14.6%) for transmission of messages regarding TB in future. The authors suggest multi-media methods for IEC campaigns on TB.

Keywords: Tuberculosis, IEC, RNTCP, Multi-media, Tuberculosis.

Tuberculosis (TB) is a major public health problem in India with an estimated prevalence infection rate of 38 per cent among the general population¹. Although the National Tuberculosis Control Programme (NTP) has been continuing since 1962 but it failed to make a major impact on reducing the prevalence of TB, and the treatment compliance remained low², revealed by an evaluation study conducted in 1992. Subsequently, a Revised National Tuberculosis Control Programme (RNTCP) was launched in 1993 as a World Bank funded pilot project in five districts of the country; including one in Delhi³. The RNTCP adopted the strategy of Directly Observed Treatment Short-course (DOTS) as recommended by the World Health Organisation. With the success of RNTCP in the pilot phase, in 1997, it was gradually expanded to cover the entire nation by 2005⁴.

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RNTCP relies on passive reporting for case detection like NTP with chest symptomatic cases are expected to seek health care from the designated health centres which provide diagnosis and treatment free of cost. The success of this programme would depend on awareness of the general population about the symptoms of TB and also the availability of free diagnosis and treatment facilities which can be raised through an appropriate Information, Education and Communication (IEC) activities. Despite being a component right from the time of NTP, IEC has been neglected which is evident from the result of various studies⁵⁻¹⁰. Even in the RNTCP, the IEC activities were left entirely to the district level authorities.

Delhi has been entirely covered under the RNTCP since 1999¹¹. It is spread over 1,483 km² of area, with a population of 13.78 million (2001 census) and has the highest population density (9,294 per sq. km) in the country. It has an annual population growth rate of 4.6 per cent of which three per cent is contributed by migration from neighbouring states. This migrant population consists of mobile heterogeneous, culturally desperate and illiterate people relying on daily unorganized work, living mainly in slums and constitutes more than one-third of total population of Delhi. Residential areas in Delhi can be broadly classified into slums and resettlement colonies, regular colonies, urbanized villages and rural areas, unauthorized colonies and the old walled city. Majority of the population resides in urban areas (93.0%) with nearly half of them residing in slums¹². The Government of Delhi launched an intensive multi-pronged IEC campaign in March 2001 targeting the general populace, patients and their families and DOTS providers. It involved the use of various media; including mass media and inter-personal communication for transmitting the core messages on TB to all sections of the population.

Display of messages on buses (side panels, back panels and tins boards inside the bus); bus shelters in slum areas; electric poles on lane-dividers in slum areas and resettlement colonies; hoardings near major road intersections; health institutions and schools; banners; and wall paintings in residential and commercial centres in slum areas were included under outdoor campaigns. Both print and electronic media such as newspapers, television and radio were considered under mass media category. Inter-Personal Communication (IPC) method was also adopted.

TV programmes included messages by experts from the central TB division; advertisement through renowned sports personalities and interviews

while the radio campaigns included two phone-in programmes per year and discussions. Hindi newspapers carried advertisements on the on-going and regular campaigns related to TB.

Government estimates are available for the percentage of Delhi households owning or having access to some of the media used in the campaign, for example, television 87.5 per cent, radio 69.0 per cent and newspapers around 70.0 per cent¹³.

The core messages transmitted in the IEC campaign included symptoms of TB (Message: continuous cough for more than three weeks), method for diagnosis of TB under RNTCP (Message: sputum examination), consequence of incomplete or irregular treatment (Message: TB is incurable if irregular or incomplete treatment is taken), place of treatment (Message: nearest health center/DOTS center) and cost of treatment (Message: treatment is available free of cost.)

OBJECTIVE

To assess the reach of various media and methods adopted in relation to the dissemination of knowledge about tuberculosis among the general population of Delhi.

METHODOLOGY

This study was conducted to fulfil the requirement of the World Bank, which considers this as one of the benchmarks of programme evaluation. Since it was a pilot study, a sample of the general population numbering 1,000 was considered adequate. To select a representative sample of adult members of the general population, multi-stage cluster sampling was applied. Delhi was divided into six broad zones for the RNTCP services viz. North, South, East, West, Central, and Old Delhi. Initially, from amongst the 133 functional diagnostic-cum-treatment centres in Delhi as on 1 January 2000, 20 diagnostic-cum-treatment centres under different chest clinics were selected according to the proportion of the number of centres in each zone. Further, a list of localities conversed by each diagnostic-cum-treatment centre was prepared. Localities from where no patients come to the DOTS centres were excluded in order to have a population with characteristics similar to TB patients. Of the rest, five localities of the centre were randomly selected. Then, in each of the 5 localities, one household was randomly

selected and an adult member available was interviewed. Such interviews were conducted in 10 continuous households in each of the selected localities i.e. 50 respondents were interviewed from each DOTS centre. In case of a locked house or no adult member being present, the next house was included in the sample. The final sample consisted of 1008 persons.

A pre-designed, semi-structured proforma was pre-tested in a slum population of the walled city that included a rural and a regular-urban colony. The proforma was suitably modified and used for the study. Information regarding their demographic characteristics, three most dangerous diseases as they perceive, recall of some messages for TB, sources of information for TB and three preferred media for transmission of messages regarding TB in the future was sought from the respondents. The study was conducted in a time period of eight months from 2 January to 31 August 2003. Six interviewers newly recruited by the government for the RNTCP but not yet involved in its implementation, conducted the interviews. They were given a two-day training by the team of investigators associated with the project.

Data entry and verification was done by using Microsoft Excel 2000, and analysis was done by using software FoxPro version 3, Epi-info 2002 and Epi-info version 6. Chi-square statistics and Fisher's Exact test were used for difference in proportions. P-value of <0.05 was considered to be significant.

FINDINGS

The demographic features of the respondents i.e. age, sex, religion, education and areas of residence are given in Table 1. Mean age of the respondent was 35.3 years and 59.4 per cent of them were males. Majority of the respondents (87%) were Hindus followed by Muslims (12.1%). It was found that 61.8 per cent of the population was school educated and 28.8 per cent was illiterate. 37.6 per cent of the people were residing in slums and resettlement colonies followed by 28.8 per cent in regular colonies (Table 1).

TABLE 1
DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Demographic character		Population (N=1008)
Age (years)	Mean (+S.D.)	35.3 (+ 12.0)
	Median (IQR)	35 (26-42)
Gender	Male	599 (59.4)
	Female	409 (40.6)
Religion	Hindu	877 (87.0)
	Muslim	122 (12.1)
	Christian	3 (0.3)
	Others	6 (0.6)
Education	Illiterate	290 (28.8)
	Up to schooling	623 (61.8)
	Graduation	95 (9.4)
Locality	Rural and urbanised village	213 (21.2)
	Slum and resettlement colony	379 (37.6)
	Unauthorised colony	37 (3.7)
	Walled city	88 (8.7)
	Regular colony	291 (28.8)

(IQR- Inter quartile range, Figures in parentheses indicate percentage)

TB figured as one of the diseases along with cancer, AIDS, polio and asthma when the respondents were asked to name three diseases which they consider dangerous. However, according to them, cancer (80.2%) was number one followed by TB (68.0%) and AIDS (57.1%). As many as 86.4 per cent of the respondents reported that they had seen or heard of some messages in any media about the diseases perceived to be dangerous. Nearly all of them, 99.1 per cent responded that they have heard of TB.

While 89.6 per cent of them could correctly recall the core message for the cost of treatment for TB, recall of core messages for symptoms suggestive of TB and consequence of incomplete or irregular treatment was observed to be poor (14.3%) and (29.6%) respectively. Core message for diagnostic modality under the RNTCP was correctly recalled by 44.5 per cent of the respondents and 55.1 per cent of them knew about the place of treatment. Males had a significantly higher recall for core message for diagnostic modality under RNTCP (47.2%) and females had a significantly higher recall for core message for consequence of

incomplete or irregular treatment (33.3%) and place of treatment availability (59.9%) (Table 2).

TABLE 2
RECALL OF CORE IEC MESSAGES BY THE STUDY RESPONDENTS

Core message	Male N=599 No. (%)	Female N=409 No. (%)	Total N=1008 No. (%)
Symptom suggestive of TB Cough more than 3 weeks	92 (15.4)	52 (12.7)	144 (14.3)
Diagnostic modality under RNTCP Sputum examination	283 (47.2)	166 (40.6)	449 (44.5)*
Consequence of incomplete or irregular treatment Disease becomes incurable	162 (27.0)	136 (33.3)	298 (29.6)*
Treatment cost Treatment is available free of cost	538 (89.8)	365 (89.2)	903 (89.6)
Place of treatment Nearest health centre/DOTS centre	310 (59.9)	254 (59.9)	555 (55.1)**

*p < 0.05, **p ≤ 0.01.

The study population reported exposure to a variety of sources of information; including mass media and inter-personal communication (IPC) methods used in IEC campaigns by the government. Table 3 shows that among the media sources, TV stood first (41.3%) followed by messages displayed on buses (37.6%), hoardings (35.2%), wall paintings (24.6%), newspapers (13.5%) and radio (13.4%). The reach of TV, messages on buses, wall paintings, radio and billboards was significantly high among males. Inter-personal communication reached the minimum (4.3%) and reported more by the females (5.1%). Relatives, friends and health workers were also found to be sources of information for TB, particularly it was higher among the females. Further it was observed that inter-personal communication of a respondent with a relative (35.2%) or friend (28.6) was more common as compared to a doctor (17.2%) or health care worker (9.8%).

TABLE 3
SOURCES OF INFORMATION ABOUT TB AMONG THE STUDY
POPULATION

Source of Information		Male N=599 No. (%)	Female N=409 No. (%)	Total N=1008 No. (%)
Media sources used in IEC campaign	TV	269 (44.9)	147 (35.9)	416 (41.3)**
	On Buses	251 (41.9)	128 (31.3)	379 (37.6)***
	Hoardings	219 (36.6)	136 (33.3)	355 (35.2)
	Wall Paintings	164 (27.4)	84 (20.5)	248 (24.6)**
	Newspapers	105 (17.5)	31 (7.6)	136 (13.5)
	Radio	115 (19.2)	20 (4.9)	135 (13.4)***
	Boards	61 (10.2)	26 (6.4)	87 (8.6)*
	Banners	29 (4.8)	14 (3.4)	43 (4.3)
	Book	32 (5.3)	7 (1.7)	39 (3.9)
	Magazine	24 (4.0)	3 (0.7)	27 (2.7)
	Bus Shelter	15 (2.5)	5 (1.2)	20 (2.0)
	Cinema	6 (1.0)	2 (0.5)	8 (0.8)
	Video Film	2 (0.3)	1 (0.2)	3 (0.3)
Inter-personal communication methods used in IEC campaign e.g. street plays, community meetings, etc.		22 (3.7)	21 (5.1)	43 (4.3)
Inter-personal communication with	Relative	155 (25.9)	200 (48.9)	355 (35.2)***
	Friend	150 (25.0)	138 (33.7)	288 (28.6)**
	Doctor	101 (16.9)	72 (17.6)	173 (17.2)
	Health Worker	48 (8.0)	51 (12.5)	99 (9.8)*

(*p < 0.05, **p ≤ 0.01, ***p ≤ 0.001; Figures in parentheses indicate percentage)

Table 4 gives the distribution of reach of top three media with reference to the literacy status, place of residence and religion of the study population. Data reveal that TV was the main source of information for TB. Reach of TV as a source of information increased with an increase in the literacy status, 25.5 per cent for illiterates and 70.5 per cent for graduates and above. The second highest reach was 'message display on buses' irrespective of the literacy status of the respondents except the illiterates. 'TV and radio' were sources of information for illiterates or for those who had only primary education. Message display sources like 'wall paintings and hoardings' were sources of information for those who had higher level of education. Further, it was also observed that TV was the main

source of information for study subjects residing in the rural areas and urbanized villages (73.2%) and unauthorized colonies (48.3%) and hoardings were the main source of information for residents of other areas, the highest reach was for those residing in regular colonies (51.5%). The 'message display' on buses had the second highest reach in rural areas and urbanized villages (48.3%), regular colonies (47.8%) and slums and resettlement colonies (31.1%) and in the rest of the places, it was 'wall paintings'. The study subjects residing in the walled city areas reported their sources of information as hoardings as first (38.6%), wall paintings as second (28.4%) and boards as third (18.2%). The sources of information differed with reference to religion, for example, TV was the first source of information for Hindus (44.4%) while it was hoarding for Muslims, Christians and others (36.6%). But for Hindus, hoarding was the third source of information (35.4%).

While analysing the source of information for inter-personal communication in relation to literacy status, it was observed that relatives were the most common source for illiterates. In case of respondents with an educational level of less than graduation and graduates and above, doctors were the most common sources of information. Health care workers were poor source of information irrespective of the literacy status of the respondents.

The most common source of information for interpersonal communication also showed a variation in relation to the place of residence; doctor for rural areas/urbanized villages and friend or relative for slums/resettlement colonies, unauthorized colonies, walled city and regular colonies.

The media sources preferred by the respondents for transmission of messages regarding TB for the future were TV (85.6%) followed by radio (49.6%), newspapers (28.1) and posters (14.6%).

DISCUSSION

IEC campaigns are an integral component of all health programmes. The use of a variety of communication channels; including print, out-door and mass media approaches has been advocated and found useful for increasing the number of audiences who can receive health related information¹⁴. Information in relation to symptoms of TB, costs and facilities available for diagnosis and treatment through mass media has also been observed to be successful in enabling people to demand direct smears and an increase in case findings for TB in Cali, Colombia¹⁵.

TABLE 4
DISTRIBUTION OF TOP THREE MEDIA SOURCES OF INFORMATION
WITH LITERACY STATUS, PLACE OF RESIDENCE AND RELIGION
OF THE STUDY POPULATION

Characteristic		Media Source (%)		
		1 st	2 nd	3 rd
Literacy Status	Illiterate	TV (25.5)	Bus and Hoarding (Both 14.1)	Radio (6.9)
	Schooling upto primary	Hoarding (59.9)	Bus (38.2)	TV (16.7)
	Schooling from middle upto high school	TV (52.4)	Bus (48.2)	Hoarding (39.2)
	Graduate and above	TV (70.5)	Bus (54.7)	Wall painting (47.4)
Place of residence	Rural and urvanized village	TV (73.2)	Bus (48.3)	Radio (42.2)
	Slum and resettlement colony	Hoarding (35.1)	Bus (31.1)	TV (27.7)
	Unauthorized colony	TV (48.6)	Wall painting (24.3)	Newspapers (21.6)
	Walled city	Hoarding (38.6)	Wall painting (28.4)	Board (18.2)
	Regular colony	Hoarding (51.5)	Bus (47.8)	TV (41.9)
Religion	Hindu	TV (44.4)	Bus (40.1)	Hoarding (35.4)
	Muslim/Christian/others	Hoarding (36.6)	Bus and TV (23.7)	Wall painting (20.6)

The review of programme performance in Delhi before and after the launch of intensive IEC campaigns in 2001 also reveals that the success rate of new smear positive cases which showed a downward trend from 1997 to 2000, improved in 2001 and 2002¹². This increase can be attributed to a greater awareness generated by the IEC campaigns amongst the people or expansion of the programme or to both. The government IEC campaigns in Delhi used a variety of media methods for dissemination of information regarding TB to the general population of Delhi. Considering the metropolitan character of Delhi, where a mixture of people with different socio-demographic backgrounds reside in various areas having different infrastructure facilities, social interaction and standards of living; the reach of the media methods used in the government campaigns may

vary from place to place, group to group, and needs to be studied for making future policy decisions.

In the present study, the main sources of information in relation to the media methods used in the government IEC campaigns were TV (41.3%) followed by messages displayed on buses (37.6%) and hoardings (35.2%). Another study conducted in an urban slum of Delhi reported the media sources of information for TB to be TV (41.4%), radio (22.4%) and posters (6.9%)⁹. In a rural area of Delhi, according to a study, mass media accounted for 33.8 per cent in relation to the sources of information for TB¹⁰. These two studies were carried out either prior to or just after the government IEC campaigns and in limited areas of Delhi whereas the present study covers the whole of Delhi and has been done after two years of implementation of the IEC campaign on TB. This may be the reason for the variations in the media-based sources of information between them.

In addition, inter-personal communication with relatives (35.6%), friends (28.6%), doctors (17.2%) and health care workers (9.8%) was a very important source of information in the present study. The importance of inter-personal communication with relatives, friends, neighbours, doctors and health care workers has also been highlighted in some previous studies conducted in an urban slum⁹ and a rural area of Delhi¹⁰. Among the sources of inter-personal communication, relatives or friends were observed to be higher in comparison to doctors or health care workers for both the genders, all localities except rural areas/urbanized villages and all educational strata except those with graduation and above. This important group of relatives or friends are part of the general population and can be employed in the IEC campaigns. Also, it highlights the issue of improving the inter-personal communication between health workers, doctors and the general population.

Inter-personal communication methods used in the government campaigns was observed to have a very low reach (only 4.3%) in the present study. This could be due to the use of these methods selectively and on a low scale.

Except for the recall of the core message for cost of treatment (89.6%), recall of the other messages was observed to be low ranging from 14.3 per cent for symptoms suggestive of TB to 55.1 per cent for place of treatment. This highlights the lacunae in spreading awareness among the general population which are to be taken into account for future IEC campaigns. Also, there is a need

to target individuals of both the genders as both males and females were not fully aware of all the core messages. The reach of media applied in the government campaigns including TV, radio, messages on buses, wall paintings, and boards was observed to be significantly higher among the males and thus, the same can be used in future to reach them. TV, radio and posters are also preferred by the people as the sources of information. Among the females, inter-personal communication with relatives or friends has emerged to be the chief source of information followed by the IEC campaign on mass media. Females, therefore, can be indirectly reached through these relatives or friends in addition to the direct media methods. Also, the health care centers that cater to women like MCH clinics need to have IEC materials on tuberculosis besides providing information to them through the health personnel.

In the current study, the TV was found to be the highest rated communication medium among people belonging to all the educational strata except those who had education up to primary school level only. It also revealed that TV as a source of information increased with an increase in the educational level of the individuals. A somewhat similar finding of TV being the main media source for TB knowledge and a significantly higher source of information among the literates compared to the illiterate population has been reported in an urban slum of Delhi⁹. It also has the highest reach among the residents of rural areas and urbanized villages and unauthorized colonies. It is also the foremost media choice by the study subjects in the present study for dissemination of TB related messages in the future. Thus, the findings of the current study highlight the importance of TV as a source with the highest reach and preference.

CONCLUSION AND RECOMMENDATION

The findings suggest that the use of multi-media approach for IEC activities is appropriate and may be continued. Mass media have emerged as the most visible as well as the most preferred sources of information by the respondents for RNTCP in Delhi. In addition to the existing mass-media networks in Delhi, inter-personal communication has also played an important role. Therefore, the authors feel the necessity for developing interactive methods for imparting education which could be especially useful for people with low literacy level.

The reach of the messages displayed on buses, hoardings and wall paintings in the present study is next to the reach of TV. Both males and females

irrespective of their educational level, place of residence and religion, prefer these sources. In the walled city areas, TV or radio were not the main sources of information on TB. Therefore, for reaching out to the maximum number of people in all parts of Delhi, the authorities should adopt an area-specific and need-based multi-media approach.

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REPRODUCTIVE AND GENERAL HEALTH PROBLEMS AMONG WOMEN IN THE REPRODUCTIVE AGE GROUP IN JAMNAGAR

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ABSTRACT

This study assesses the type and extent of reproductive and general health problems prevailing among women in the reproductive age group (15-44 years) in Jamnagar district of Gujarat. Gynaecological history of the sample respondents preceding three months of data collection for the study revealed that 205 (34.16%) of them had some reproductive morbidity viz excessive vaginal discharge (27.50%), burning in micturition (4.66%), pruritus (3.33%), prolapse of uterus/vagina (1.33%), foul smelling discharge (1.00%) and infertility (2.66%). The pattern was almost same in rural, urban and slum settings. 35.36 per cent of the women had some kind of menstrual problems, of which 27.41 per cent had dysmenorrhoea, 8.46 per cent had irregular menstruation and 2.87 per cent had excessive bleeding. 274 (45.66%) women suffered from some kind of general health problem during the last one year like backache (22.50%), headache (18.16%), acid peptic disease (10.83%), arthritis (4.83%) and cardio-vascular symptoms (4.00%). Health problems were more prevalent in lower socio-economic class and illiterate women. 170 (28.83%) women had acute illness like ARI, fever, diarrhoea and dysentery during the last one month preceding the study. On clinical examination, 41.66 per cent of women were found anaemic, more in slum and rural areas. Prevalence of hypertension was 2.82 per cent and obesity was 5.33 per cent among the sample respondents.

Keywords: Reproductive morbidity, General morbidity, Anaemia, Acute complication, Literacy.

A woman requires special attention while she passes through 15-44 years phase in her life because during this period, she becomes matured sexually and socially, marries, becomes pregnant and experiences childbirth. Moreover, if

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she is in a nucleus family, she maintains her social as well as economic development. Reproductive health of a woman is influenced by some aspects of health. Unfortunately, women are often deprived of access to health care, literacy, information, skills and human rights.

Every year, 200 million women become pregnant and 6,00,000 die worldwide. 60 million deliveries take place every year which are normally attended by a relative or an untrained birth attendant. Further, 50 million women suffer from acute complications, of which 18 million suffer from long-term complications¹⁻³.

Woman's health is important because she becomes responsible for the whole family. Unfortunately, data on reproductive and general morbidity of the women in the age group of 15-44 years is scarce, not only in developing countries but also in developed countries. So, the present study has made an attempt in this direction.

OBJECTIVES

- (i) To study the pattern of reproductive morbidities prevailing among women in child bearing age;
- (ii) To find out the pattern of general morbidity of the women; and
- (iii) To compare the prevailing reproductive and general morbidity among women in rural, urban slum and non-slum settings.

MATERIALS AND METHOD

A cross-sectional study was carried out in Jamnagar district of Gujarat from March 1999 to September 1999. 600 women in the reproductive age group were taken as sample respondents for the study. To find out the prevalence of general morbidity of women in rural as well as in urban settings, 300 each from rural and urban settings were taken as sample respondents. Sample population was further divided into 150 each for urban slum and non-slum setting. Multi-stage sampling technique was adopted to draw the sample.

Jamnagar town of Jamnagar district represented urban areas which has 17 wards. In the first stage, ward no. 3 was chosen through simple random sampling which has three slum areas and 10 non-slum areas. Patel Colony, big in size with 12 streets, was chosen through simple random sampling for non-slum areas. Again, street no. 9 was chosen through simple random sampling and 150

women in the reproductive age group were taken as sample respondents. Out of three urban slum areas, Bhimwas with a population of 3,272 (1998-'99) was chosen through simple random sampling. Bhimwas was further divided into Bhimwas I, II, and III. Bhimwas I was chosen through simple random sampling and 150 urban slum women were taken as respondents.

Out of 10 Talukas of Jamnagar district, Lalpur was chosen through random sampling and Pipertoda village with a population of 3,098 (1998-99) was randomly selected. 300 respondents were selected from Lalpur, representing rural areas.

The sample respondents were interviewed by using a pre-tested semi structured interview schedule. General examination of women was conducted in the presence of ANM or Anganwadi Worker.

Anaemia was diagnosed based on clinical examination of conjunctiva, tongue and nails with presence of pallor. Blood pressure was recorded by using simple sphygmomanometer as recommended by WHO. Body mass index was calculated as: $\text{Weight (Kg)} / \text{Height}^2 \text{ (m)}$.

FINDINGS

Socio-Demographic Profile

261 (43.50%) women were in the age group of 15-24 years. Out of 429 families, 270 were nuclear and the others were joint families. More number of joint families were found in rural areas (42.72%) as compared to urban slums (27.19%). 47.78 per cent had married below 18 years of age. A large number of women (61.84%) conceived first time before they had completed 20 years of age; 83.46 per cent in urban slums and 65.81 per cent in rural areas. 66.41 per cent of the women in slum, 46.69 per cent in rural and 28.44 per cent in non-slum areas had more than two live children. 185 (30.83%) women were illiterate, of which maximum of them (52.66%) were from slum areas followed by 33.66 per cent from rural and 3.33 per cent from non-slum areas. 597 (99.50%) women were Hindus and remaining three were Muslims (Table 1).

TABLE 1
DISTRIBUTION OF WOMEN AS PER THEIR DEMOGRAPHIC
AND SOCIO-ECONOMIC CHARACTERISTICS

Characteristics	Urban slum (n=150) n (%)	Urban Non-slum (n=150) n (%)	Rural (n=300) n (%)	Comb ined (n=600) n (%)
Age wise distribution				
15-24 years	53 (35.33)	57 (38.00)	151 (50.33)	261 (43.50)
25-34 years	52 (34.66)	53 (35.33)	86 (28.66)	191 (31.83)
35-44 years	45 (30.00)	40 (26.66)	63 (15.33)	148 (24.66)
Type of family (n= 429)				
Nuclear family	84 (71.79)	68 (64.15)	118 (57.28)	270 (62.93)
Joint family	33 (27.19)	38 (35.84)	88 (42.72)	159 (37.07)
Marital status				
Unmarried women	19 (12.66)	41 (27.33)	88 (29.33)	148 (24.66)
Married women	125 (83.33)	107 (71.33)	206 (68.66)	438 (73.00)
Widowed/ divorced/ deserted	06 (04.00)	02 (01.33)	06 (02.00)	14 (02.33)
Marital profile				
Married under 18 years*	99 (75.56)	23 (21.10)	94 (44.33)	216 (47.78)
Conceived first time under 20 years**	106 (83.46)	26 (26.26)	129 (65.81)	261 (61.84)
Living children more than 2*	87 (66.41)	31 (28.44)	99 (46.69)	217 (48.00)
Socio-economic status				
Per capita monthly income Rs. <500/-	62 (41.33)	00 (00.00)	86 (28.66)	148 (24.66)
Illiterate	79 (52.66)	05 (03.33)	101 (33.66)	185 (30.83)

* Percentage calculated from denominator as ever married women

** Percentage calculated from the denominator as ever married women excluding women whose age is <20 yrs and still not conceived.

Menstrual Problems

Menstrual problems were noticed among 209 (35.36%) women during the last three periodic cycles, dysmenorrhoea being the commonest problem (27.41%) followed by irregular menstruation (8.46%), excessive bleeding (2.87%), prolonged bleeding (1.18%) and intermenstrual bleeding (0.33%). No statistically significant difference was found between urban and rural women with regard to menstrual problems.(Table 2)

TABLE 2
DISTRIBUTION OF WOMEN ACCORDING TO MENSTRUAL PROBLEMS

Menstrual problems	Urban (n=293)	Rural (n=298)	Combined (n*=591)
Dysmenorrhoea	77 (26.27)	85 (28.52)	162 (27.41)
Irregular menstruation	29 (09.89)	21 (07.04)	50 (08.46)
Excessive bleeding	08 (02.73)	09 (03.02)	17 (02.87)
Prolonged bleeding	04 (01.33)	03 (01.00)	07 (01.18)
Intermenstrual bleeding	01 (00.34)	01 (00.33)	02 (00.33)
Number of women who had menstrual problems	111 (37.88)	98 (32.88)	209 (35.36)

* Excludes menopausal women and women who underwent hysterectomy
 χ^2 (Presence or absence of menstrual problems) = 1.60 df= 1 p>0.05
 (Figures in parentheses indicate percentage)

Gynaecological Problems

One out of three women (34.16%) had one or more gynaecological problems during the last three months. The commonest problem was excessive vaginal discharge (27.50%) followed by burning in micturition (4.66%), pruritus (3.33%), Prolapse of uterus/vagina (1.33%), foul smelling discharge (1.00%) and incontinence (0.50%). 2.66 per cent of the women were found infertile at the time of the study. The prevalence of gynaecological problem was 36 per cent each among rural and slum women while it was 28.66 per cent among non-slum women which was not statistically significant (Table 3).

TABLE 3
DISTRIBUTION OF WOMEN ACCORDING TO GYNAECOLOGICAL PROBLEMS DURING THE LAST THREE MONTHS

Gynaecological problems	Urban slum n %	Urban non- slum n %	Rural n %	Combined n %
Excessive vaginal discharge	39 (26.00)	34 (22.66)	92 (30.66)	165 (27.50)
Foul smelling discharge	01 (00.66)	00 (00.00)	05 (01.66)	06 (01.00)
Burning in micturition	13 (08.66)	03 (02.00)	12 (04.00)	28 (04.66)
Pruritus	06 (04.00)	06 (04.00)	08 (02.66)	20 (03.33)
Prolapse of uterus/vagina	02 (01.33)	03 (02.00)	03 (01.00)	08 (01.33)
Incontinence	00 (00.00)	02 (01.33)	01 (00.33)	03 (00.50)
Primary infertility	01 (00.66)	02 (01.33)	04 (01.33)	07 (01.16)
Secondary infertility	05 (03.33)	03 (02.00)	01 (00.33)	09 (01.50)
Problem per woman	0.44	0.35	0.42	0.41
Number of women who had problems	54 (36.00)	43 (28.66)	108 (36.00)	(34.16)

χ^2 (Presence or absence of gynaecological problems)=2.64, df =2, P> 0.05

Sickness in Last Month

As high as 33 per cent of rural and 30.66 per cent of slum women had experienced sickness during the last one month while it was less among non-slum women (16.66%). Major sicknesses found during the last three months among respondents were ARI (18.00%), diarrhoea and dysentery (3.16%), worm infestation (3.83%) and fever (2.16%).

TABLE 4
DISTRIBUTION OF WOMEN ACCORDING TO SICKNESS
IN LAST ONE MONTH

Sickness	Urban slum n %	Urban non- slum n %	Rural n %	Combin ed n %
ARI	24 (16.00)	19 (12.66)	65 (21.66)	108 (18.00)
Fever	06 (04.00)	02 (01.33)	05 (01.66)	13 (02.16)
Diarrhoea	06 (04.00)	01 (00.66)	05 (01.66)	12 (02.00)
Dysentery	03 (02.00)	00 (00.00)	04 (01.33)	07 (01.16)
Worm infestation	07 (04.66)	01 (00.66)	15 (05.00)	23 (03.83)
Others	01 (00.66)	03 (02.00)	06 (02.00)	10 (01.66)
Sickness per woman	0.31	0.17	0.33	0.28
Number of women who had sickness	46 (30.66)	25 (16.66)	99 (33.00)	170 (28.33)

$$X^2 = 13.64, df = 2, p < 0.001$$

Health Problems During the Last One Year

A higher percentage (60%) of slum women reported to have suffered from health problems during the last one year as compared to rural (43.33%) and non-slum (36%) women (Table 5). Leading health problems as reported by the respondents were backache (22.50%), headache (18.16%), acid peptic disease (10.83%), arthritis (4.83%), anorexia (4.66%), ophthalmic problems (4.16%), cardio-vascular symptoms (4.00%), dental problems (2.66%) and skin diseases (2.66%).

General Examination

250 (41.66%) women were found anaemic, on the basis of clinically observed pallor, the highest was found among women in slums (54%) followed by rural (46%) and non-slum (20.66%). Hypertension was observed in 17 (2.82%) women which was the highest among urban non-slum women (4.66%). Obesity was seen in 5.33 per cent of women but a higher number of non-slum women (8%) were found obese. 27.16 per cent of women had BMI of less than 18.7 which indicates under nourishment (Table 6).

TABLE 5
DISTRIBUTION OF WOMEN ACCORDING TO THEIR MORBIDITY
IN THE LAST ONE YEAR

Health problems	Urban slum n %	Urban non- slum n %	Rural n %	Combined n %
Backache	38 (25.33)	24 (16.00)	73 (24.33)	135 (22.50)
Headache	39 (26.00)	18 (12.00)	52 (17.33)	109 (18.16)
Acid peptic disease	21 (14.00)	16 (10.66)	28 (09.33)	65 (10.83)
Arthritis	09 (06.00)	09 (06.00)	11 (03.66)	29 (04.83)
Anorexia	15 (10.00)	02 (01.66)	11 (03.66)	28 (04.66)
Ophthalmic problems	09 (06.00)	09 (06.00)	07 (02.33)	25 (04.16)
Cardio-vascular symptoms	14 (09.33)	07 (04.66)	03 (01.00)	24 (04.00)
Abdominal pain/ chronic diarrhoea	08 (05.33)	00 (00.00)	04 (01.33)	12 (02.00)
E.N.T. problems	04 (02.66)	02 (01.33)	02 (00.66)	08 (01.33)
Dental problems	09 (06.00)	03 (02.00)	04 (01.33)	16 (02.66)
Skin disease	06 (04.00)	01 (00.66)	09 (03.00)	16 (02.66)
S.T.D.	01 (00.66)	00 (00.00)	01 (00.33)	02 (00.33)
Tuberculosis	00 (00.00)	00 (00.00)	01 (00.33)	01 (00.16)
Asthma	06 (04.00)	01 (00.66)	03 (01.00)	10 (01.66)
Others	04 (02.66)	02 (01.33)	03 (01.00)	09 (01.50)
Morbidity per woman	1.22	0.62	0.70	0.81
No. of women having health problems	90 (60.00)	54 (36.00)	130 (43.33)	274 (45.66)

$X^2=17.69$, $df=2$, $p< 0.001$

TABLE 6
DISTRIBUTION OF WOMEN ACCORDING TO GENERAL EXAMINATION

Examination finding	Urban slum n %	Urban non-slum n %	Rural n %	Combined n %
Anaemia (clinical)	81 (54.00)	31 (20.66)	138 (46.00)	250 (41.66)
Hypertension (Diastolic B.P. > 90 mm Hg)	03 (02.00)	07 (04.66)	07 (02.33)	17 (02.82)
Obesity (BMI* >28.6)	06 (04.00)	12 (08.00)	14 (04.66)	32 (05.33)
Under nutrition (BMI* <18.7)	43 (28.66)	26 (17.33)	94 (31.33)	163 (27.16)

X^2 (Presence or absence of anaemia)=38.84, df = 2, p <0.001

* Source: FAO/WHO/UNU (1985) Energy and Protein requirements, Tech. Rep. Ser., No. 724

DISCUSSION

Literacy status and socio-economic conditions were remarkably lower in urban slum and rural areas as compared to urban non-slum areas. Approximately three-fourths of the slum women and half of the rural women got married before the legal age of 18 years which indicates continuance of the custom of early marriage in slums and rural areas. This practice needs to be banned with the practical implementation of the legal age of marriage. Further, more than 83 per cent of women in slum, 65 per cent in rural and 26 per cent in non-slum conceived first time before they completed 20 years of age reflecting early bearing of child after marriage risking their health and survival. Adolescent women are more vulnerable to pregnancy-related complications and the women getting their first conception between 15 and 19 years are twice at risk of dieing during childbearing in comparison to women of twenties². More attention is needed in rural and urban slum areas with regard to early child bearing. This weaker and vulnerable section of community makes approximately 85 per cent of the population in India.

Men play an important role in determining education and employment status, age of marriage, family formation pattern, access to and utilization of health and family welfare services for women and children. Men's cooperation is essential for the success of better health status and welfare of women. Research shows that women in good health are less likely to be poor. They are more productive and make a greater contribution to the welfare of others¹.

Menstrual problems were noticed in 35.36 per cent of women with almost equal distribution in urban and rural areas. The commonest menstrual problem was dysmenorrhoea in 27.41 per cent of subjects while it was 25.2 per cent in another study⁴. Untreated menstrual problems affect women's reproductive and social health which needs special attention by the health policy makers.

Almost one-third of women (34.16%) complained of one or more gynaecological problems in the last three months. The common problems were excessive vaginal discharge (27.50%), infertility (2.66%) and prolapse of uterus/vagina (1.33%). High prevalence of gynaecological morbidity was recorded by other studies also in India like presence of leucorrhoea^{4,5,6,7,8}. However, vaginal discharge may be pathogenic or even non-pathogenic which needs early detection of cause and appropriate treatment. Changes in behaviour concerning health can be brought about more effectively through awareness creation and communication activities.

Approximately one-fourth of the women had acute illness in the last one month. Common sicknesses were ARI (18%), diarrhoea and dysentery (3.16%) and fever (2.16%). Sickness rate was significantly higher ($X^2 = 13.64$, $df = 2$, $p < 0.001$) in rural and slum women as compared to non-slum women, indicating impact of unfavorable environmental condition, nutritional and hygienic factors in rural and slum population.

45.66 per cent of the women suffered from one or more general health problems during the last one year. Prevalence of morbidity was the highest (60%) among the slum women followed by 43.33 per cent in rural and it was the least among non-slum women (36%). The difference was highly significant ($X^2 = 17.69$, $df = 2$, $p < 0.001$). Backache was (22.50%) one of the leading health problems which affects the working capacity of women. Headache was found among 18.16 per cent and acid-peptic disease in 10.83 per cent of the respondents which are generally the results of stress, a modern killer. Prevalence of chronic morbidities affects the productivity, economy and welfare of the whole family.

Prevalence of anaemia is one of the indicators of overall health status of a community. Iron deficiency reflects nutritional deficiencies and constitutes a real brake for human development⁹. On clinical observation, it was revealed that more than 41 per cent of the women were anaemic which was very high (54%) in slum followed by (46%) in rural areas and reasonably low (about 20%) in non-slum areas. This difference was statistically significant to a great extent ($X^2 = 38.84$, $df = 2$, $p < 0.001$). Swami et al in their study found that 38.7 per cent of rural women in the reproductive age group were anaemic in Chandigarh¹⁰. Anaemia is a major morbidity which causes ill health leading to lower productivity. Iron deficiency is a major cause of anaemia among the respondents of reproductive age group. Health education, food fortification, supplementation, improving bioavailability, control of parasitic infection and behavioural changes among reproductive women may help in reducing anaemia. Hypertension was observed among 2.82 per cent of women, higher among non-slum women (4.66%). A previous study had similar observation of hypertension (4%) among the women in the age group of 35-44 years¹¹. As per the BMI estimates, 5.33 per cent of women were obese, again higher among non-slum women (8%) due to hypertension, coronary heart disease, diabetes mellitus, etc.

A very high prevalence of reproductive and general morbidity was noticed among women of reproductive age, particularly in urban slum and rural areas. The various programmes on reproductive health care have not been able to make an appreciable impact on the reproductive health of women in India. Hence, contact with each and every client through home visits should be used as an opportunity to assess their needs and satisfaction and steps should be taken to obtain their feedback to further improve the coverage and quality of user-friendly reproductive health care services.

CONCLUSION

The high prevalence of morbidity among Indian women is due to their poverty, illiteracy, lack of awareness, powerlessness, low social status, malnutrition, infection, and under utilization of the existing health care services. Thus, socio-economic and biological determinants operate synergistically throughout the lives of poor women to undermine their health resulting in high level of morbidity. The challenge is to develop an effective package to increase female literacy, empower women socially and economically and practical implementation of law regarding the age of marriage and provision of good quality services to address the need of specific client groups in various settings.

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