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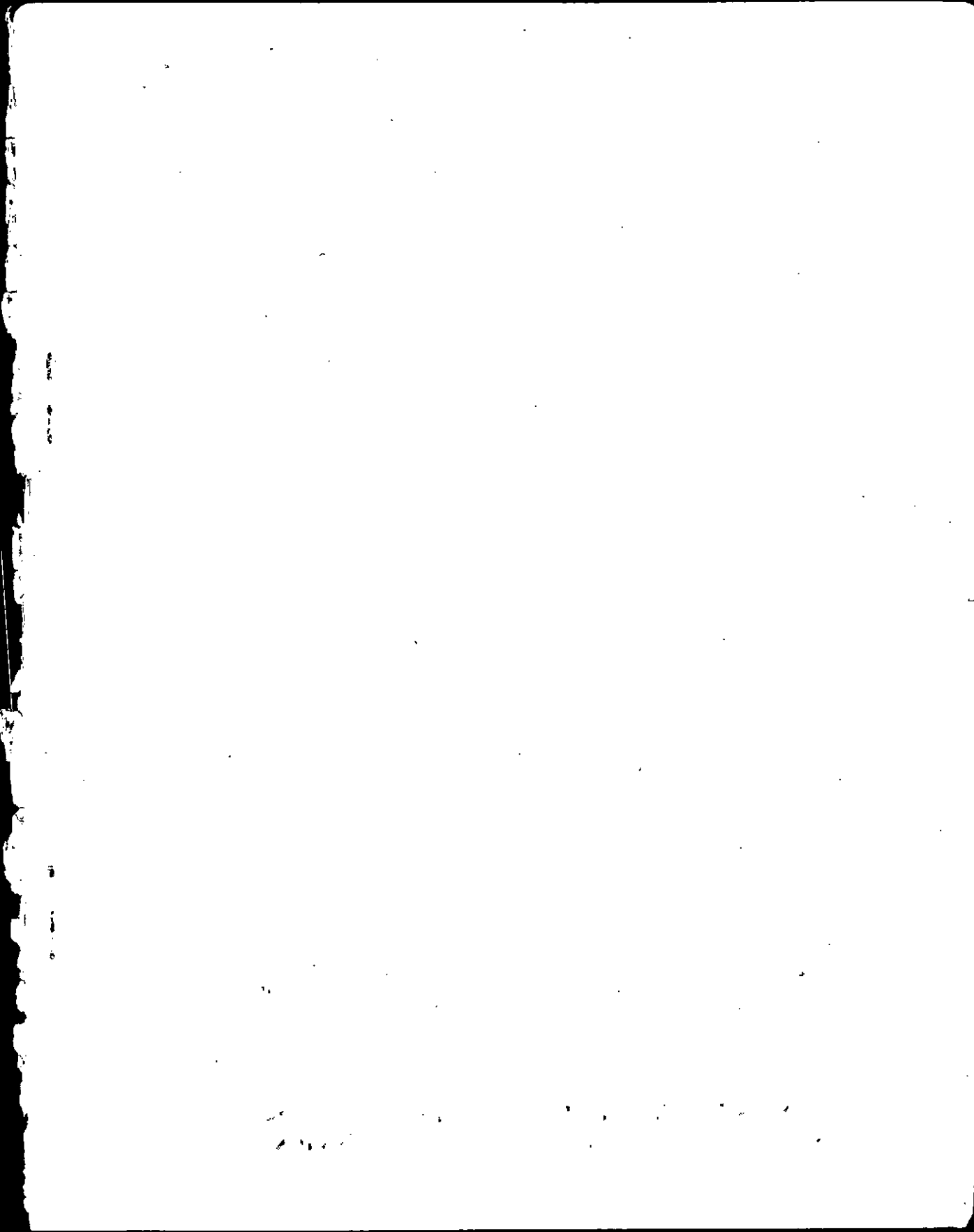
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India is facing today the problem of population explosion. In 1929 the birth rate in India was 48.8/1,000 and death rate was 47.9/1,000 thus resulting in the growth rate of only 0.9/1,000. Today with the advancement of preventive and curative methods we have brought down the death rate to 13/1,000 but the birth rate has not come down proportionately and is still 35/1,000 resulting in the growth rate of 22/1,000. This has resulted in the population explosion.

The scarcity of facilities and resources available to deal with this problem demands a method of sterilisation which should be appealing and safe for the patients. Method should be capable of being performed as an out patient procedure on large number of persons without compromising the quality of Medical Services imparted to them. In addition the procedure should be such as not to impose heavy burden on the Government ex-chequer and which can be safely and quickly learnt by the technical personnels involved. To all these requirements laparoscopic sterilisation only provides the perfect answer. It is a technique based on well documented scientific data all over the world.

In this connection, I would like to stress the problem of acceptability. This is the single most important motivating factor. We have experienced that coercion and incentive alone are not enough for a large scale sterilisations.

Tubectomy Camps using the laparoscopic procedure have ushered in a new approach in the field of family limitations. It has been particularly useful for the people residing in rural areas, where inadequate medical and surgical facilities exist. Moreover a large number of people could avail highly skilled and specialized services at their door steps. This has been possible only because of the technical ease of the laparoscopic procedure.

In L.L.R.M. Medical College, Meerut laparoscopic sterilisation were started in January, 1981. Initially the procedure was performed exclusively in the S.V.B.P. Hospital, Meerut and very soon became popular as one of the most effective method of female sterilisation. Later for the first time camps were organised to fulfil the demands of the peripheral hospitals of various districts and P.H.Cs. These camps proved a boon to rural

population. Since January, 1981 more than 58,000 ligations have been performed by the Department of Obstetrics and Gynaecology of L.L.R.M. Medical College, Meerut. Out of these more than 38,000 ligations have been performed in the field. The author established the world record for the maximum number of laparoscopic ligations (611 cases) performed by a single surgeon in a single day, at the District Hospital, Aligarh.

It has been found in the present series that this method has been widely accepted by the women of this region. They come in groups and even bus loads being held without even much publicity. This has given a great encouragement to the author and enthusiastic workers and has provided an impetus to work more and more for this cause and to extend these facility into the interior of Western U. P.

It will be in fitness to highlight the various advantages of laparoscopic sterilisation over other methods of sterilisation.

1. The patients hospital stay is not more than six hours and the patients can resume normal activity from the next day. In the Indian setting this is a factor of great importance for the women, who has to manage the entire house hold work.
2. The procedure can be performed within very short time and one surgeon can easily carry out as many as 200-300 cases per day.
3. The procedure is less expensive than abdominal ligation and the expenditure per case being approx. Rs. 300/- as compared to Rs. 600/- per case of abdominal ligation.
4. It can be done in local anaesthesia without any complications.

Laparoscopic sterilisation is one of the best techniques of sterilisation available to us at present. It is therefore, necessary for the Government to increase the availability of this procedure to a large section of the population as far as possible.

We must exploit the current high acceptability of this procedure. I would like to utter word of caution that this method must not be allowed to degenerate into unpopularity as happened in the case of vaginal ligation. This is specialised technique and should be performed only by trained specialist. We must give great importance to the proper selection and follow up of the cases which is the key to the success of this technique. We must believe in quality rather than quantity so that the acceptability of this method is sustained for a long time to come. If we are able to maintain the popularity of this method we could be able to achieve our targets at a much faster rate.

USHA SHARMA

A STUDY OF AN EPIDEMIC OF DENGUE FEVER IN DELHI

By

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Introduction

Arthropod borne viral fevers are quite common in India. Sporadic cases of Dengue like fevers occur throughout the year in Delhi in small numbers. However, there have been only two major recorded epidemics of Dengue fever in Delhi. The 1967 epidemic was caused by Dengue virus 2 (Balaya S., et al, 1969) and the 1970 epidemic by Dengue virus 1 (Chuttani C. S. 1970). Both the epidemics were widespread involving all areas of rural and urban Delhi. The over all incidence recorded in the 1970 epidemic was 17%.

In 1982, an unusually large number of fever cases of short duration were reported from various clinics and hospitals of Delhi during the months of August and September. The disease appeared to be widespread and the symptoms were suggestive of viral fever. Investigations were undertaken in order

- (1) To study the distribution of epidemic in different areas of Delhi.
- (2) To study the spread of epidemic.
- (3) To study the clinical features of the

disease, its age distribution and duration.

Material and Method

The survey was conducted by selecting three representative areas of Delhi, viz. rural, urban and urban slums. Besides this, data was collected from various dispensaries of Delhi Administration situated all over Delhi.

The three areas selected for the purpose of investigation were :

- (1) Two villages in Rural Delhi, namely Kishan Garh and Maidan Garhi of Mehrauli block.
- (2) A Government Colony in South Delhi, namely Kidwai Nagar.
- (3) An urban slum in South Delhi, namely Nehru camp.

A house to house survey was carried out in the selected villages and urban slum area, whereas in the urban area twenty per cent of the houses of three blocks of Kidwai Nagar were surveyed through a systematic random sample. The population thus covered in the three areas, viz. rural,

urban & urban slum was 4772, 1509 and 565 respectively.

The information was collected for the period August to October 1982, on a pre-designed proforma regarding the age and sex, onset of fever, character and duration of fever, headache, bodyache, loss of appetite, vomiting, pain in abdomen, diarrhoea, congestion of eyes, upper respiratory symptoms, rash and haemorrhages etc.

Secondly, the data of fever cases diagnosed clinically as Dengue fever was collected from 83 dispensaries of Delhi Administration situated in different areas of Delhi, and analysed to find out the extent of the epidemic.

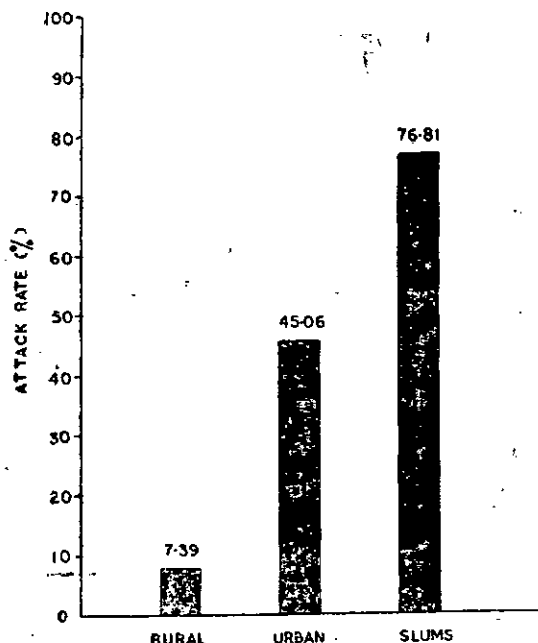
Observations and Discussion

Of the three areas surveyed for the period August to October 1982, the highest attack rate (76.81%) of febrile illnesses suggestive of Dengue fever, was recorded in urban slums (Fig. 1). In one of the South Delhi colonies (urban area) 45.06% of the population suffered from at least one bout of fever during this period. In the rural areas, the intensity of the epidemic seemed to be milder, with an overall attack rate of only 7.39%.

The epidemic of 1982, happens to be the third recorded epidemic of Dengue fever in Delhi. The earliest record of an epidemic of febrile illness akin to Dengue fever in Delhi, has been made in 1967 by Balaya S., et al 1969. There has been no available data of any epidemic of Dengue

fever before this, but sporadic cases could have remained undetected or labelled as pyrexia of unknown origin. The second

FIG. 1
ATTACK RATE OF DENGUE FEVER EPIDEMIC
IN DELHI
AUG.—OCT 1982



epidemic in Delhi occurred in 1970 (Chuttani C. S., unpublished data). The overall attack rate of the 1970 epidemic was 17% and varied from 8.6 to 45.4% in different areas of Delhi. In both the epidemics of 1967 and 1970 the incidence of disease was observed to be higher in the central part of the city compared to the peripheral areas. This was attributed to a higher density of the vector, *Aedes aegypti* in the thickly populated areas of the central part. The present study reflects the urban

slums to have got affected the most (76.81%), as they happen to be densely populated. Even in a well developed Government Colony of South Delhi about 45% of the population got affected. It seems that the epidemic did not spread to the outskirts of Delhi with the same intensity, where the housing is more open. Data collected from various Delhi Administration dispensaries also corroborates the fact that the intensity was milder in the outskirts as comparatively lesser number of cases were recorded at the dispensaries located peripherally.

Surveys carried out in the month of September 1982 by the Division of Entomology and Vector Control of National Institute of Communicable Diseases in different areas of Delhi found varying prevalence of *Aedes aegypti* index in different areas. The highest breeding index of 20-50% was reported in Central Delhi.

All the south Delhi areas Showed a high breeding index (25.8-42.8%). Peripheral areas in East Delhi and West Delhi showed lower breeding index of 3-5% only. Lower density of *Aedes aegypti* in the peripheral areas could be the reason for a lower incidence in rural areas.

Virological studies carried out at the National Virus Research Institute, Pune show Dengue Virus 2 as the agent responsible for this epidemic. The first recorded epidemic of 1967 was also caused by the same strain of virus whereas in the second epidemic of 1970 investigated by Chuttani C. S., in collaboration with Virus Research Centre, Pune the causative organisms was Dengue Virus 1. The occurrence of an epidemic of Dengue Virus 2 after a gap of 15 years can possible be explained by a drop in herd immunity.

Table 1: Age-Sex Specific Attack Rates of Dengue Fever in Urban Slums - 1982 Epidemic

Age group (in years)	Male			Female			Total		
	Popu- lation	No.of cases	Attack rate (%)	Popu- lation	No.of cases	Attack rate (%)	Popu- lation	No.of cases	Attack rate (%)
Less than 1	13	9	69.23	8	6	75.00	21	15	71.43
1-4	54	46	85.19	44	33	75.00	98	79	80.61
5-14	73	59	80.82	64	50	78.13	137	109	79.56
15-44	151	113	74.83	135	106	78.52	286	219	76.57
45-60	8	4	50.00	11	6	54.55	19	10	52.63
Above 60	2	1	50.00	2	1	50.00	4	2	50.00
Grand Total	301	232	77.08	264	202	76.52	565	434	76.81

Table - II : Age and Sex Specific Attack Rate of Dengue Fever in Urban Areas-1982 Epidemic

Age group (in years)	Male			Female			Total		
	Popu- lation	No.of cases	Attack rate (%)	Popu- lation	No.of cases	Attack rate (%)	Popu- lation	No.of cases	Attack rate (%)
Less than 1	11	2	18.18	6	1	16.67	17	3	17.65
1—4	41	19	46.34	38	13	34.21	79	32	40.51
5—14	140	73	52.14	139	69	49.64	279	142	50.90
15—44	514	246	47.86	497	219	44.06	1011	465	45.99
45—60	54	13	24.07	29	14	48.28	83	27	32.53
60+	22	7	31.82	18	4	22.22	40	11	27.50
Grand Total	782	360	46.04	727	320	44.02	1509	680	45.06

Table - III : Age-Sex Specific Attack Rates of Dengue Fever in Rural Areas—1982 Epidemic

Age Group (in years)	Male			Female			Total		
	Popu- lation	No.of cases	Attack rate (%)	Popu- lation	No.of cases	Attack rate (%)	Popu- lation	No.of cases	Attack rate (%)
Less than 1	79	2	2.53	64	1	1.56	143	3	2.10
1—4	249	15	6.02	213	18	8.45	462	33	7.14
5—14	791	55	6.95	649	26	4.01	1440	81	5.63
15—44	1105	119	10.77	1038	76	7.32	2143	195	9.09
45—60	222	16	7.21	170	15	8.82	392	31	7.91
Above 60	107	5	4.67	85	5	5.88	192	10	5.20
Grand Total	2553	212	8.30	2219	141	6.35	4772	1353	7.39

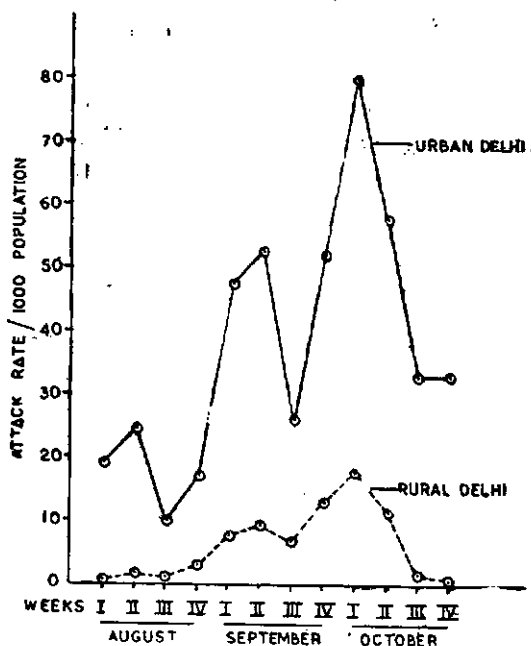
Table I, II & III show the age-sex specific attack rates of Dengue fever in the three areas surveyed. The data shows that all ages were affected by the disease. Though there was no statistical difference between the attack rate of the disease in different age groups in the urban, slum ($\chi^2=9.5794$, $df\ 5$, $p > 0.05$), yet age played a significant part in the urban ($\chi^2=20.267$, $df\ 5$, $p < 0.01$) and the rural ($\chi^2=105.333$, $df\ 5$, $p < 0.001$) areas, the lowest affection being at the extremes of age, with infants suffering the least. No such difference had been observed in the 1970 epidemic (Chuttani C. S., unpublished data), though the 1967 epidemic (Balaya S. et al, 1969)¹ caused by the same strain as the 1982 epidemic, mostly affected the adults. Relatively lower incidence of disease in small children and elderly persons in the rural and urban area could be because of their restricted movement and confinement to the household. While in the case of city slums where the conditions for breeding of vector are highly prevalent, this difference was not visible. The disease almost affected both the sexes equally except for the age group 15-44 yrs, in the rural area, where the attack rate happened to be higher in males ($t=2.7921$, $p < 0.01$). This can possibly be explained by the fact that this is the group in particular which comes to the city more often for jobs and business. Their visit to the city could have made them contract the infection, where it happened to be of a greater magnitude.

Data collected from the dispensaries of Delhi Administration situated all over Delhi revealed that the disease was widely spread

in the city with maximum number of Dengue fever cases being reported in the month of September. Of the 130464 cases recorded at 88 dispensaries during August-October 1982, 53.37% cases occurred in September itself.

Attack rates of dengue fever worked out from the population survey in relation to the various weeks of three months of the epidemic experienced by Delhi is shown in Figure 2. It may be observed from the graph that though the epidemic had achieved a high plateau in September, yet the peak was observed in the first week of

FIG. 2
EPIDEMIC CURVE OF DENGUE FEVER
IN DELHI
AUG.-OCT. 1982



October, both in the urban as well as rural Delhi. The fever cases came down by the

end of October when extensive antimosquito measures were instituted with aerial fogging throughout the city by the health authorities.

In both, 1967 & 1970 epidemics, the disease was recorded by an unusually high incidence during September-October. The same was the situation during the epidemic of 1982.

All patients suffered from an acute onset of fever. In majority of the cases it was accompanied by headache (90%) and bodyache (90%). In about 50% of the cases, it was accompanied by chills. Loss of appetite was recorded in 75% of the cases, though only 33% had vomiting at least once. Congestion of eyes was present in 45% of the patients and symptoms of upper respiratory affection in 25% cases. Rash was observed in about 10% cases. Few patients had pain in abdomen and diarrhoea during the course of disease. Majority of the cases had fever ranging between

2-10 days (Mode & Median of 6 days). There was no statistically significant difference in the symptomatology between the three areas.

The predominant symptoms of the earlier epidemics have been the same as this. Rash which has been complained in 10% of the cases this time, was observed only in a few cases in 1967 and none in 1970. The difference of certain clinical symptoms like rash noticed in 1967 and 1982 epidemic caused by Dengue Virus 2 was not reported during 1970 epidemic caused by Dengue Virus 1.

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FAMILY JOINTNESS & PSYCHIATRIC MORBIDITY—A COMMUNITY SURVEY

By

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Introduction

The common denominator in all human cultures is the most organised, well knit and functional unit called the family. It has been stressed that a strong built in resistance exists within the joint family set up which ensures a lesser vulnerability towards development of mental illnesses. Rapid industrialization, urbanization and search for better work opportunities have led to a severe onslaught on joint family system in India. The present paper has attempted to analyse the correlation between family jointness levels and prevalence of mental morbidity.

Material and Methods

The rural and urban universe of this study has been village. Mati of Sarojini Nagar development block of district Lucknow and Alambagh ward of the city of Lucknow respectively. The study population comprised of 325 adults from 100 rural and 298 adults from 98 urban families selected by Systematic Random Sampling. Prevailing psychiatric morbidity was identified using Mental Health Questionnaire

(Verghees & Beig, 1973) as screening and Present State Examination (Wing et al, 1978) as the confirmatory tools.

There is a general consensus that family jointness implies upon three important areas viz. jointness in living, finances and jointness in decision making. Each of these areas was separately explored and rated according to Family Jointness Scale proposed by Agarwal et al (1978).

Observations

The prevalence of mental disorders has been 83/1000 in rural and 130/1000 in urban area. While psychoses and mental retardation had almost prevalence, alcoholism, drug addiction and personality disorders were found almost doubled up in the urbanites studied. Amongst various diagnostic categories, anxiety neuroses has been significantly higher in the urbanites, while in the rural area hysterical neurosis (30.7/1000) had the highest prevalence.

On correlating the psychiatric morbidity with levels of family jointness, it has been found highest in totally nuclear families in both the study groups (Table I).

Table I- Family Jointness in relation to Psychiatric Morbidity

Family Jointness	Rural				Urban			
	Study Popu- lation	Mentally Morbid		Study Population	Mentally Morbid		Z	P
		Number	Pravalece per 1000		Number	Pravalece per 1000		
Totally Joint	87	4	45.97	64	6	93.75	1.12	>.05
Pratially Joint	65	3	46.15	64	7	109.37	0.98	>.05
Partially Nuclear	57	3	52.63	48	4	83.33	0.62	>.05
Totally Nuclear	116	17	146.55	122	21	172.13	0.54	>.05
Total	325	27	83.07	298	39	130.87	1.93	>.05

Intra group comparison reveals a significant inverse relationship of psychiatric morbidity with levels of family jointness in rural area ($X^2=9.5$, d.f.=3; $p<.01$) but not

in urban area ($X^2=1.5$, d.f.=3, $p>.05$). Inter group comparison according to levels of family jointness did not yield any significant difference.

Table II- Family Size in relation to Psychiatric Morbidity

Family Size	Rural			Urban			Z	P
	Study popu- lation	Mentally Morbid		Study Popu- lation	Mentally Morbid			
		Number	Pravalece per 1000		Number	Pravalece per 1000		
4 or less	112	13	116.07	129	19	147.28	1.1	>.05
5 to 10	174	11	63.21	151	17	112.58	1.7	>.05
11 & above	39	3	76.92	18	3	166.66	0.9	>.05
Total	325	27	83.07	298	39	130.87	1.93	>.05

Rural $X^2=2.1$, d.f.=2, $p>.05$

Urban $X^2=1.28$, d. f.=2, $p>.05$

These findings become more interesting on analysing the psychiatric morbidity in accordance with the family size. In both study groups, the lowest prevalence has been in those drawn from medium sized families (5 to 10) member maximum (115.07/1000) psychiatric morbidity in rural area has been surprisingly observed amongst adults hailing from small families (4 or less), while in urban area it has been in large families (11 or more). However, all the intra-group and inter-group variations according to family size have been statistically insignificant.

Discussion

Several Indian researchers have attempted to delineate the relationship between size and type of family and psychiatric morbidity. They have reported variable results. Regarding family type, Sethi et al (1967 & 1972) and Castairs and Kapoor (1972) did not report any association. But Thacore (1973) & Nandi et al (1977) found it to be higher in joint families and Vergheese and Beig (1973) in nuclear families. remains yet unresolved. Moreover, the observations are hot. Thus at best the issue Comparable in totality with the present one, as levels of jointness have not been assessed. Other studies which are hospital based are not being discussed due to their limitations.

Similar controversy is reflected in relation to family size. Castairs & Kapoor (1977) and Thacore (1973) did not find any effect of family size on the prevalence of mental morbidity. On the other hand Vergheese and Beig (1973) & Sethi et al

(1974) reported a higher prevalence in large families but Nandi (1976) reported the contrary. While the variations noted in this study need to be further explored to establish the facts.

The relationship of schizophrenia and M. D. P. with family structure is in all likelihood not so significant as is for neurosis. In this respect, the findings of the present study raise certain interesting questions. Does joint family act as a buffer against mental illnesses in rural area while it has no such role in urban context.

Furthermore, in rural area psychiatric morbidity has been found to be correlated with family jointness but not the family size. Is it that the type and intensity of interaction amongst family members and not merely their number is more important in relation to mental illnesses? The answer to these may lie in further research.

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IMPORTANT INFORMATION

XIV Annual Conference of IAPSM is scheduled from 16th to 18th Feb., 1983 at Jaipur. Members are requested to contact the following :

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HOSPITAL ADMISSIONS IN THE AGED—A RETROSPECTIVE STUDY

By

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Introduction

Ageing is a natural phenomenon and is a vulnerable phase of life during which physical, mental and social disruption is more pronounced. Frank has defined ageing as an "involutionary process which operates cumulatively with the passage of time and is revealed different organ systems as inevitable modifications of cells, tissues and fluids." Carlson considered it to be "a gradual depletion of the hereditary tissue reserves or factors of safety, that the ageing individual becomes gradually less able to meet the usual accidents and the unusual stresses of living". No one knows when old age begins.

In general two age groups seek hospital care more often—the very young and the very old. For the young, there are special paediatric clinics and wards. For the old such speciality has yet to be developed in our country. This study was carried out to assess the medical problems of elderly catering to general hospital and who required hospitalisation.

Material and Method

A retrospective study was carried out by studying the medical records of 776 cases who were 60 years and above. Cases admitted to B. Y. L. Nair Hospital, Bombay from 1st January 1981 to 31st March 1981 were considered for study.

These cases were analysed with reference to epidemiological factors :

Observations and Discussion

Total admissions to hospital from 1st January 1981 to 31st March 1981 were 10,660. Out of these, 776 were of age 60 years and above (7.28%). In a similar hospital based study at Lucknow, Kunwar (1961) observed 7.1% of the total hospital admissions were consisting of aged persons (60 years and above).

A similar age distribution in the case of males and females was noticed with the maximum number of observations in the age group 60-65 years.

Table I—Age Distribution According to Sex

Age (in years)	Males		Females		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
60—62	249	(46.90)	93	(37.96)	342	(44.07)
63—65	93	(17.51)	62	(25.31)	155	(19.97)
66—68	20	(3.77)	7	(2.86)	27	(3.48)
69—71	75	(14.12)	30	(12.24)	105	(13.53)
72—74	18	(3.39)	8	(3.27)	26	(3.35)
75+	76	(14.31)	45	(18.37)	121	(15.59)
TOTAL	531	(100)	245	(100)	776	(100)

$X^2=8.22$ Not significant ($P>0.05$)

Old people of different religion were admitted to the hospital but majority of them (in both sexes) were Hindu as Hindu religion dominates in Indian Population.

Table II—Religionwise Distribution According to Sex

Religion	Males		Females		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Hindu	364	(68.56)	185	(75.51)	549	(70.48)
Muslim	122	(22.97)	42	(17.14)	164	(21.13)
Others	40	(7.53)	18	(7.35)	58	(7.47)
Not recorded	5	(0.94)	—	—	5	(0.64)
TOTAL	531	(100)	245	(100)	776	(100)

$X^2=3.81$ ($P>0.05$)

X^2 —test showed that there is no significant difference in the religion distribution in males and females ($P>0.05$).

Certain chronic diseases like degenerative diseases of heart and blood vessels, cancer, diabetes, cataract, respiratory illnesses, etc. are more frequent among the older people. But not all require hospitalisation. Accidents are a health problem in the elderly. The bones become fragile due to a certain amount of decalcification as a result of which

they break easily. In this study, percentage of fractured cases from injuries was 67.9 per cent (55 out of 81 injuries).

Average duration of hospitalisation appears to be maximum in injuries and carcinoma cases (14.33 days and 14.64 days respectively).

Table III : Distribution of Cases According to Diagnosis, Sex and Average Duration of Hospitalisation

Diagnosis	Males	Females	Total	Average duration of hospitalisation (in days)
1	2	3	4	5
Respiratory tract diseases	51 (9.60)	13 (5.31)	64 (8.25)	8.77
Heart diseases	57 (10.73)	20 (8.16)	77 (9.92)	11.08
Eye disease	62 (11.67)	28 (11.43)	90 (11.60)	12.14
C. I. Tract disease	65 (12.25)	20 (8.16)	85 (10.95)	10.39
Injuries (including fractures)	38 (7.16*)	43 (17.55*)	81 (10.44)	14.33
Carcinoma	26 (4.90)	12 (4.90)	38 (4.90)	14.64
C. N. S. Involvement	39 (7.34)	22 (8.98)	61 (7.86)	12.90
Miscellaneous	122 (22.98)	60 (24.49)	182 (23.45)	11.27
More than one disease	53 (9.98)	17 (6.94)	70 (9.02)	12.14

(Contd.)

1	2	3	4	5
Not recorded	18 (3.39)	10 (4.08)	28 (3.61)	—
TOTAL	531 (100)	245 (100)	776 (100)	11.52
Average disease per sick person	1.12	1.06	1.10	

(*Z = 3.81 $P < 0.01$)

(Figures in bracket indicate percentage)

The distribution of different diseases is more or less same in males and females except injuries where incidence was significantly more in case of females ($P < 0.01$). This may be due to the fact that women are commonly involved in domestic duties even during old age. Average disease per aged sick person found to be 1.12 and 1.06 in males and females respectively.

Percentage of discharged cases were more in eye disease, respiratory tract disease, gastro intestinal tract disease and injuries. Most of the patients who expired were suffering from heart diseases, carcinoma, nervous system involvement and more than one diseases. In this study overall fatality rate was 10.3 per cent while in Kunwar's study it was comparatively higher i. e. 19.5 percent.

Table IV—Distribution of Cases According to Diagnosis and Outcomes

Diagnosis	Discharged	Expired	Cases went A. M A.	Not recorded	Total
1	2	3	4	5	6
Respiratory tract disease	56 (27.50)	6 (9.32)	2 (3.13)	— —	64 (100)
Heart disease	55 (71.43)	18 (23.38)	4 (5.19)	— —	77 (100)
Eye disease	89 (98.88)	— —	1 (1.11)	— —	90 (100)
C. I. Tract disease	70 (82.35)	7 (8.24)	8 (9.41)	— —	85 (100)
Injuries (including fracture).	70 (86.42)	3 (3.70)	8 (9.88)	— —	81 (100)

(Contd.)

1	2	3	4	5	6
Carcinoma	24 (63.16)	9 (23.68)	5 (13.16)	—	38 (100)
C. N. S. involvement	43 (70.49)	13 (21.31)	5 (8.20)	—	61 (100)
Miscellaneous	168 (92.31)	7 (3.85)	7 (3.85)	—	182 (100)
More than one disease	49 (70.00)	17 (24.29)	3 (4.29)	1 (1.43)	70 (100)
Not recorded	9 (32.14)	—	2 (7.14)	17 (60.71)	28 (100)
TOTAL	633 (81.57)	80 (10.31)	45 (5.80)	18 (2.32)	776 (100)

(Figures in bracket indicate percentages)

Diseases like cancer, blood pressure and heart disease (which were responsible for majority of death in this study) could have been prevented with a little care, preventive measures and timely treatment.

The elderly tend to stay longer in hospitals because of the nature of their diseases. In relative terms of number who require long term care is small but because each of

them may require care for years rather than days, the impact on hospital services is large and is growing. In this study maximum number of total cases were hospitalised for 8-15 days (Table 5). Old people who required hospitalisation for more than 30 days were mainly of injuries, including fractures. 38.18 percent of fractured cases were hospitalised for 30 days and more.

**Table V: Distribution of Cases According to Duration of Hospitalisation and
(a) Age Groups**

Age (in years)	Duration of hospitalisation (in days)								Total	
	<1	1	2—3	4—7	8—15	16—22	23—30	30+		Not recorded
1	2	3	4	5	6	7	8	9	10	11
60-62	13 (3.80)	23 (6.73)	51 (14.91)	83 (24.27)	86 (25.15)	32 (9.36)	18 (5.26)	24 (7.02)	12 (3.51)	342 (100)
63-65	4 (2.58)	12 (7.74)	18 (11.61)	33 (21.29)	39 (25.16)	15 (9.68)	11 (7.10)	18 (11.61)	5 (3.23)	155 (100)

(Contd.)

1	2	3	4	5	6	7	8	9	10	11
66-68	1 (3.70)	3 (11.11)	1 (3.70)	9 (33.33)	6 (22.22)	5 (18.52)	1 (3.70)	—	1 (3.70)	27 (100)
69-71	2 (1.90)	9 (8.57)	10 (9.52)	26 (24.76)	23 (21.90)	13 (12.38)	7 (6.67)	11 (10.48)	4 (3.81)	105 (100)
72-74	—	4 (15.38)	5 (19.23)	3 (11.54)	10 (38.5)	1 (3.85)	—	1 (3.85)	2 (7.69)	26 (100)
75+	3 (2.48)	10 (8.26)	15 (12.40)	21 (17.36)	28 (23.14)	14 (11.57)	13 (10.74)	13 (10.74)	4 (3.31)	121 (100)
(b) Sex										
Males	16 (3.01)	38 (7.15)	65 (12.24)	131 (24.67)	133 (25.04)	53 (9.98)	37 (6.97)	41 (7.72)	17 (3.20)	531 (100)
Females	7 (2.86)	23 (9.38)	35 (14.28)	44 (17.96)	59 (24.08)	27 (11.02)	10 (5.31)	26 (10.61)	11 (4.49)	245 (100)
TOTAL	23 (2.96)	61 (7.86)	100 (12.89)	175 (22.55)	192 (24.74)	80 (10.31)	50 (6.44)	67 (8.63)	28 (3.61)	776 (100)

($r = 0.07$ $P > 0.05$)

($X^2 = 7.58$ $P > 0.05$)

(Figures in bracket indicate percentages).

Correlation coefficient 0.07 ($P > 0.05$) indicates that there is no correlation between age and duration of hospitalisation. This is confirmed by percentage table, which shows fluctuating trends of duration of hospital stay in different age groups.

Average duration of hospitalisation for males and females was 11.28 days and 11.75 days respectively. This showed that there is no relation of sex to duration of hospitalisation ($P < 0.05$).

Acknowledgement

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MORBIDITY PATTERN AMONG THE CASES EXAMINED IN 3 PHC AREAS UNDER ROME PROGRAMME

By

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Introduction

Medical College, Mysore implemented Reorientation of Medical Education (ROME) Programme in March 1978, by adopting Primary Health Centres (PHCs) of Hunsur, Gargeswari and Hoskote. A team of 4 specialities; i. e., Medicine, Surgery, Obstetrics and Paediatrics visited each PHC proper once a week. The team of Preventive and Social Medicine visited the villages in the PHC areas. Each team consisted of the department staff, students and interns. The staff members included Professors, Assistant Professors and Lecturers who attended the rotation. On an average of 10 interns attended each visit. Regular visits of the students could not be planned without affecting their time table at the college level. Therefore, about 15 students per visit were posted only during their Community Health Postings. The visits were scheduled in the mornings and an average of 2 hours were spent in the field.

Routine laboratory investigations e.g., haemoglobin estimation, stool examination, blood for malarial parasite and sputum

examinations were done routinely. At the PHCs, the specialities examined all cases including the referred cases.

P & S. M. team did refer cases to the specialities either at PHCs or at the teaching hospital depending upon the distance from the village and the convenience of the patients.

Material and Method

The records of the 9,203 cases, examined from March 1978 to December 1979, were analysed to study the type of disorders for which the rural folks consulted the visiting teams. This would help to gain insight in some of the health needs of the community.

Observations

A total of 677 visits to the three adopted PHCs were paid during the period of March 1978 to December 1979. The details of cases examined by each departmental team is presented in Table-I.

Table - I : Number of Visits and Cases Examined by individual teams from March 1978 to December 1979

DEPARTMENTAL TEAM	Number of visits			No. of cases examined		
	1978	1979	Total	1978	1979	Total
Medicine	88	38	126	1,644	260	1,904
Surgery	88	41	129	978	164	1,142
Obstetric and Gynaecology	83	32	115	1,044	320	1,364
Paediatrics	110	26	136	1,974	294	2,268
Preventive & Social Medicine	111	60	171	1,546	979	2,525
Total	480	197	677	7,186	2,017	9,203

The age and sex distribution of cases is given in Table -II. The patients below 15 years of age constituted 34.43 percent of the total cases.

Table - II : Age and Sex distribution of the cases examined

Sex	Age Group				Total	
	Below 15 years		Above 15 years		No.	%
	No.	%	No.	%		
Male	2,016	63.63	3,166	51.63	5,132	55.76
Female	1,152	36.37	2,919	48.37	4,071	44.24
Total	3,168	100.00	6,085	100.00	9,203	100.00

The study of the disorders for which the rural folks consulted the visiting teams revealed that the major disorders were respiratory disorders (19.10%), nutritional disorders (17.96%) and skin infections (16.6%) as shown in Table - III.

Table - III : Types of disorders among cases examined

Sl. No.	Morbidity	No. of cases	Percentage
1.	Respiratory disorders	1,757	19.10
2.	Nutritional disorders	1,653	17.96
3.	Skin infections	1,530	16.62
4.	Gastro-intestinal disorders	917	9.94
5.	Worm infestations	771	8.38
6.	Disorders of Musculo-Skeletal system	464	5.04
7.	Disorders of Central Nervous System	431	4.70
8.	Infections	266	2.90
9.	Disorders of Genito-Urinary system	247	2.70
10.	Cardiovascular disorders	150	1.62
11.	Congenital malformations	12	0.13
12.	Others	1,005	10.91
Total		9,203	100.00

Discussion

Among the patients examined under 'ROME' Programme, there were more males (55.75%) as compared to females (44.24%). Bhatnagar *et al* (1981) and Rao *et al* (1971) found higher morbidity among females.

It was found that the majority of disorders encountered were respiratory disorders (19.10%), nutritional disorders (17.96%) and skin infections including scabies (16.62%). Datta and Gupta (1961),

in a general health survey in urban health centre reported commonest prevalent diseases to be diarrhoea, dysentery, scabies, boils, conjunctivitis and upper respiratory catarrh. Even in the present study, 885 (9.63%) cases of scabies and 1,216 (13.21%) cases of upper respiratory tract infections were found.

Yaima *et al* (1981) in a study of the morbidity pattern among the urban school children, observed that the first four disorders were worm infestations, dental disorders, nose and throat diseases and

nutritional disorders. Worm infestations in this study constituted 771 (8.38%) of the total cases. In a longitudinal study of morbidity in rural areas, Rao et al (1970) detected that the anaemia represented more than 50% of the abnormalities, while the infective and parasitic diseases, problems of eye, ear and gastro-intestinal disorders accounted for another 25%. A high incidence of upper respiratory infections and PUO were noted. In the present study, 1,332 (14.48%) cases of anaemia were detected. It is worth noting that most of these disorders are preventable and this fact was emphasized upon the students and the interns.

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FERTILITY PROFILE AND FAMILY PLANNING PRACTICES IN A RURAL AREA

By

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Introduction

Population explosion is one of the major health problem in India specially in rural area where about 80% of the population lives. A rapid decline in death rate with a gradual decline in fertility has further aggravated the problem. To solve this problem a nationwide family welfare programme is running in this country since 1951. To evaluate the success of this programme it is very much necessary to know the trend of fertility and practices of family planning methods.

The present study was conducted to highlight the fertility behaviour and contraceptive practices in a rural area of Meerut district, Uttar Pradesh.

Material and Method

The study was carried out in a rural field practice area viz Machhra Deptt. of Social and Preventive Medicine, L.L.R.M. Medical College, Meerut from March-1978 to March 1979. A sample of 938 families was selected by a systematic sampling technique constituting 1/3rd of the total population. Data on fertility, mortality and contraceptive practices was collected on predesigned and

pretested schedule from all eligible couples in these families, where the age of wife was within the reproductive age group (15-44 years). Marital fertility rate was calculated as the number of live births during a year per 1000 married women in the reproductive age group.

Observations

Out of 5432 persons there were 1182 married women of which 886 (74.9%) were in the reproductive age group constituting 163.1 eligible couples per 1000 populations. Out of the total 886 eligible couples the number of currently pregnant women were 92 (10.4%) while 60 (6.8%) women were suffering from sterility. The mean age at effective marriage (consummation) of women was found to be 16.9 years.

The level of fertility seems to be exceptionally high as is indicated by the crude birth rate of 37.6 per 1000 population accompanied by a declining mortality with a crude death rate of 10.7 per thousand population and infant mortality rate of 78.4 per thousand live births. A total of 204 live birth were recorded during the reference period giving an overall marital fertility rate of 230.2 per 1000 married

women in reproductive age group. The specific fertility rates in different age groups as may be seen in Table-I reveals that the

fertility was maximum (326.9/1000) in age group 20—24 years and minimum (100/1000) in 40—44 years age groups.

Table - I : Marital fertility rates in different age groups

Age groups	No. of women	No. of live births	Age specific fertility rate
15—19	110	18	163.6
20—24	208	68	326.9
25—29	148	42	283.8
30—34	138	40	289.8
35—39	142	22	154.9
40—44	140	14	100.0
Total	886	204	230.2

The total fertility rate indicates exactly how many children would be born to each woman passing through and surviving the entire reproductive span of her life. The total fertility rate in the present study was calculated to be 6.6 per woman.

For the purpose of knowing the average closed interval, data on the last two live births was calculated from the women who had atleast two live births. Thus the average closed interval was found to be 32.7 months in the present study.

The child women ratio was found to be 830.6 per 1000 women of child bearing age and the crude marriage rate was calculated to be 16.2 per 1000 population.

The average number of terminations per married women was calculated to be 4.54 out of which 3.54 were live births and 1.30 ended in still birth or abortions. The improvident maternity in the sample female was found to be 51.6%.

Table-II : Distribution of Various Contraceptive Methods

Duration in years	Vasectomy	Tubectomy	Iucd	Oral pills	Condom	Others	Total %
0-2	2	6	—	—	72	2	82 (36.6)
2-4	18	4	2	2	56	2	84 (37.5)
4-6	6	4	—	—	30	2	42 (18.7)
6-8	4	—	—	—	6	—	10 (4.5)
8+	—	—	—	—	6	—	6 (2.7)
Total	30 (34%)	14 (1.6%)	2 (0.2%)	2 (0.2%)	170 (19.2%)	6 (0.7%)	224 (25.3%)

Out of 886 eligible couples only 224 (25.3%) Were practicing one or the other family planning method at the time of survey. As shown in Table-II condom was found to be most popular methods being practised by 19.2% of couples followed by vasectomy (3.4%). It is also apparent from this that acceptance of male contraceptives was much higher as compare to female contraceptives.

Discussion

The proportion of eligible couples in the present study was found to be 163.1 per 1000 population which is lesser than all India figure of 172.4 per 1000 population for rural area (Year book 78-79). The mean age at effective marriage was

16.9 years which was quite similar to all India figure of 16.6 years for rural area (Year book loc. cit) and 17.5 years reported by Raj et al (1970) in village Diggi of Meerut District.

The crude birth rate in the sample population has been found to be 37.6 per 1000 population which is comparatively lower than the estimated birth rate of 41.5 for rural area of Uttar Pradesh and from 39.8 as reported by Shivaram et al (1970). However, the crude birth rate in the present study was more than estimated birth rate of 34.2 for rural area in India in 1977 (Pocket book, 1979).

The marital fertility rate in the present study was found to be 230.2 per 1000

women which is much more than that of 178 for rural India and 154 reported by Nalwa (1978), while it is similar to 216.5 reported by Shivaram et al (1970). The total fertility in the present study (6.6/women) is quite comparable to that of all India figure of 6.8 for rural area (Year-book loccit).

The average number of terminations per women found in the present study (4.54) are more than that of 3.7 reported by Shivaram et al (1970). The improvident maternity in the sample females was found to be 51.6% which is more than 45.1% as reported by Shivaram et al (1970) and 42.8% for all India (Park, 1977).

Only 25.3% of the eligible couples in the sample population were practicing one or the other family planning methods at the time of survey which is comparatively more than 22.5% reported by Gandhi et al (1969) and 21.5% reported by Raj et al (1970). It is interesting to note that condom as a contraceptive method was being used by the maximum (19.2%) acceptors depicting the reluctance of rural population towards sterilizations.

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PREVALENCE OF DENTAL CARIES, GINGIVITIS AND DENTAL FLUOROSIS IN SCHOOL CHILDREN OF THE RURAL AREAS UNDER P. H. C. DABRA

By

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Introduction

WHO (1973) has pointed out, that over 500 diseases, abnormal conditions and oral manifestations of local and systemic disorders, are related to oral health.

The current high prevalence of oral diseases, which include diseases of the gums, teeth and other oral tissues and their frequent recurrences and tendency to progress rapidly, have drawn the attention of the health workers throughout the world. Of all the oral diseases, tooth decay presents the greatest challenge.

Oral diseases are rampant in the rural areas due to low personal hygiene, lack of literacy and awareness and many other reasons. Unfortunately, very limited data is available about the prevalence of oral diseases in rural areas.

The present study has been undergone to findout the prevalence of dental caries, gingivitis and dental fluorosis in the school

children, in the area under R. F. H. T. C., Dabra, which is attached to the Department of P. S. M., G. R. Medical College, Gwalior.

Material and Method

The study was conducted in 6 rural primary schools in six different villages, namely Cheemak, Pichore, Billaua, Chandpur, Khadwai and Sukhlahari. All the children in these schools were examined. In all 600 children were examined and are included in the study.

The oral examination was done and the findings were noted on a pre-designed schedule. The def (decayed, extracted and filled) index was worked out in deciduous teeth and the DMF (Decayed, Missed & Filled) index was calculated for permanent teeth from the above findings.

Observations

A total of 600 children, between the age of 5-12 years were examined, of these

396 (66.00%) were males and 204 (34.00%) were females.

Out of a total of 600 children 279 had dental caries, thus giving a prevalence of 46.5%. This prevalence includes both deciduous and permanent teeth.

Age-wise, maximum cases were found in the age group of 7-10 years (193 cases or 69.17%) followed by 51 cases (18.50%) in the age group of 10-12 years and 35 cases in the age group of 5-6 years.

Sex-wise, 173 cases of dental caries were male and 106 (37.99%) were female. The sex specific prevalence of dental caries was 51.9% (106 cases out of 204 females) for females and 43.6% for males (173 cases out of 396 males) examined.

As per the type of teeth, out of a total of 645 tooth found decayed, 527 (81.7%) were deciduous and 113 (18.3%) were permanent.

Of the various decayed teeth, permanent 1st molar was found to be involved most frequently (100 i. e. 84.7%) followed by deciduous 2nd molar (266 i. e. 50.4%) and deciduous 1st molar (238 i. e. 45.1%).

The over all def/DMF was found to be 2.3. In males, the def (mean) per child was 2.3 while it was 2.1 in females. The DMF (mean) in males was 1.4 while it was 1.5 in females.

The overall def index was found to be 0.028 while the DMF index was 0.014.

Of the 600 children examined, gingivitis was found prevalent in 502 children (83.6%).

Males had a significantly higher prevalence of gingivitis i. e. 87.6% (347 cases) as compared to females, in whom it was 76.0%, 155 cases out of 204 studied. ($P < .05$).

The maximum age specific incidence was found in the age group 7-10 years (51.88 percent) followed by those in the age group of 17-12 years (34.68 percent) and those between 5-6 years of age (13.44 percent.)

The prevalence of dental fluorosis was found to be only 0.6% (4 cases out of total 600).

Discussion

The present study reveals the prevalence of dental caries as 46.5%. Miglani et al (1970) have reported a prevalence of 43.98% in their study. However, Gill & Prasad (1968) have reported a prevalence of 20.6% in Lucknow, while Gupta (1980) reported a prevalence of 11.2% in Jodhpur. These variations can be attributed to the differences in the social & cultural practices and habits of oral hygiene, diet etc. Moreover, fluoride content of water and availability of dental services also affect the prevalence (W. H. O. 1973).

A higher prevalence of caries was found in deciduous teeth (81.7%), than the permanent ones (18.3%). The prevalence also increased with age, upto the age of 10 years and then declined. Soni (1954) & Jain et al (1980) have reported similar findings in their respective studies.

The prevalence of caries was more in females (51.9%) than in males (43.6%) but no significant difference was found statistically ($P > .05$). Littleton (1963) and Silver (1974) also could not find any significant difference in the prevalence of dental caries, between the two sexes in their studies. The reason can be that the type of food consumed is practically same between the two sexes as the food cooked in the house is shared by both the sexes.

In our study, the prevalence of Gingivitis was found to be 83.6%. Day has reported a prevalence of 85% while Nanda et al (1969) found the prevalence to be between 99 to 95%.

The prevalence of Gingivitis increased with age. This is similar to the findings of Madhukanal (1971) and Miglani (1973). This may be due to the continuation of poor oral hygiene and wrong practices of cleaning teeth through the years.

Sex-wise, gingivitis was found to be more prevalent in males (87.6%) and less in females (76.00%). Nanda et al (1969) has also similar finding in his study.

Dental fluorosis was found to be prevalent in 0.6% children, Pandit et al (1940) found the prevalence to be 50-90% in Andhra Pradesh. Daver (1945), reported the prevalence as 21.7% while Jolly et al (1969) found the prevalence to be 10%. These variations depend upon the quantity of fluorides in drinking water, which varies from place to place.

Conclusions

The prevalence of dental caries, gingivitis, def & DMF index, found in school children was very high. Measures to educate the people regarding improvement in oral hygiene habits along with efficient dental services and repeated school health examinations, should be taken to bring about a fall in the prevalence of orodental diseases.

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APPEAL

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ESTIMATION OF HEAVY METALS IN THE BODY FLUIDS OF INDUSTRIAL WORKERS AND THEIR CONCENTRATION IN THE INDUSTRIAL ATMOSPHERE

By

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Introduction

The extensive use of chemicals both in industry and in home within the last five decades have made the study of these elements and their effect on our health of utmost importance. One needs to think of the greatly used refrigerators, fumigants, rodenticides, insecticides, storage battery, paints, varnishes and chemicals to realise how widely and closely they effect us both in commerce and health. Kanpur is the biggest Industrial Centre of Uttar Pradesh having many big and small industries using toxic heavy metals like lead, zinc, barium, calcium, magnesium, manganese, arsenic and chromium. WHO (1975) has emphasised for early detection of health impairment in industries.

Material and Method

A total of 376 workers of paint and printing industry were taken for the present study. They were kept under observation for

one year. Workers were subjected to clinical examination and investigation of blood and urine for the concentration of lead and chromium. These heavy metals were also estimated in the factory admosphere, where the workers were engaged in different sections.

Special urine test for lead like coproporphyrin were under taken. The permissible limits of lead and chromium in the blood were taken as 0.02 to 0.08 μgm and less than 0.06 μgm per 100 ml. of blood respectively. The permissible limits for lead and chromium in urine taken were 150 mgm and less than 25 mgm per litre of urine respectively.

Observations

The distribution of workers from different sections of paint and printing industries is shown in Table I—

Table I—Section-wise Distribution of Workers

Factory Sections	No. of workers		Total	%age of workers
	Temporary	Permanent		
1	2	3	4	5
A) Paints Factory				
1. Grinding	24	18	42	11.20
2. Ball Mills	34	19	53	14.13
3. Varnish Kitchen	32	28	60	16.00
4. Dry powders and stores	15	15	30	8.00
5. Maintenance	31	16	47	12.53
6. Packing	14	8	22	5.66
7. Laboratory	16	8	24	6.40
8. Office	14	12	26	6.93
B) Printing Section				
1. Hand composing	28	—	28	7.42
2. Lino Type	26	—	26	6.93
3. L. P. M.	18	—	18	4.80
Total :	252	124	376	100.00

The workers engaged in the Industry ranged between 16 years to 60 years. The concentration of lead and chromium in blood and urine was minimum in workers below twenty years of age and went on increasing with the age of workers. The average blood concentration amongst workers of all ages for lead and chromium was 0.09 and 0.003 $\mu\text{gm}/100$ ml. of the blood. In the age group of 50–60 years the average lead and chromium concentration in blood was 0.134 and 0.006 $\mu\text{gm}/100$ ml. of blood, which was maximum. Similarly the concen-

tration of these chemicals were lower with the higher education of workers.

Out of 376 workers under study, 126 (33.51%) belonged to below Rs. 300/- per month income group. These workers had average lead concentration of 0.124 μgm per 100 ml. of blood and 286 mgm/litre of urine. Where as the 56 workers (14.89%) of maximum income group Rs. 750/- and above per month had average lead concentration of 0.082 $\mu\text{gm}/100$ ml. of blood and 132 mgm/litre of urine.

Similar pattern had been noted in case of chromium though the relation to income is more marked in case of lead. The concentration of these chemicals in blood and urine

showed lower concentration for each subsequent economic group. This showed reduced exposure to the toxic metals for higher jobs in the factories. Table-II.

Table II—Presence of lead and chromium in the body fluids income-wise

Sl. No.	Income per month in Rs.	No.	Average Conc. of Lead in		Average Conc. of Chromium in	
			Blood $\mu\text{gm}/100 \text{ ml.}$	Urine mgm/litre	Blood $\mu\text{gm}/100 \text{ ml.}$	Urine mgm/litre
1	2	3	4	5	6	7
1.	Below 300	126	0.124 (.09—0.47)	286 (154—358)	0.006 (.004—.098)	42 (15—51)
2.	300—450	102	0.108 (0.14—0.38)	242 (100—400)	0.004 (0.003—0.005)	34 (18—40)
3.	450—600	32	0.098 (.086—0.28)	174 (136—322)	0.003 (0.002—0.007)	22 (12—34)
4.	600—750	60	0.086 (.082—0.18)	138 (115—244)	0.004 (0.002—0.006)	26 (18—28)
5.	750 above	56	0.082 (0.06—0.16)	132 (110—215)	0.003 (0.001—0.004)	21 (14—26)

The analysis showed that out of 376 workers 20.00 to 52.39% had diseases of blood, gastro-intestinal system and headache, 12.76% had diseases of muscular system and joints, 6.40% had diseases of Respiratory

system and 12.8% suffered from vertigo after joining these factories. The workers before joining factories had insignificant health problems. Table-III.

Table III—Diseases in Workers Before and After Factory Employment

Sl. No.	System affected	Before joining the factory		After joining the factory	
		No.	%age	No.	%age
1	2	3	4	5	6
1.	Gastro Intestinal tract	6	1.60	195*	52.39
2.	Blood (Anaemia)	12	3.20	103	27.39
3.	Muscle cramps	5	1.33	26	6.93
4.	Sensory system (Parasthesia)	Nil	—	6	1.60
5.	Respiratory Tract	3	0.8	24	6.40
6.	Headache	Nil	—	103	27.39
7.	Dermatitis	—	—	4	1.06
8.	Joints effected	2	0.53	16	4.23
9.	Muscle wastings	—	—	6	1.60
10.	Vertigo	—	—	48	12.8
11.	Ulcers	—	—	6	1.60

(*These include 58 cases of constipations and 48 cases of pain in abdomen).

The atmosphere concentration of lead had shown direct effect on the concentration of lead in the blood and urine of these workers. The concentration of lead in atmosphere had led to accumulation of it in the body fluids. The maximum concentration of

the atmosphere lead concentrations was seen in grinding, dry powder and varnish Kitchen Sections. The S. D. for lead in atmosphere was 2.017. Similar were the observations of corproporphyrin test. (Table IV).

Table-IV—Lead Concentration in Atmosphere, blood and

Sl. No.	Section	No. of worker	Average Conc. of lead in atmosphere mgm/m	Workers with Lead in blood $\mu\text{gm}/100\text{ml}$.					
				Less than 0.08 mg.		0.08 mgm		More than 0.20	
				No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9	10
Paints :									
1. Grinding		42	0.42	16	38.09	19	45.23	7	16.66
2. Ball Mills		53	0.10	30	56.60	23	43.39	—	—
3. Varnish Kitchen		60	0.24	20	33.33	37	61.67	3	5.00
4. Packing		22	0.12	9	40.90	13	59.09	—	—
5. Dry Powder and stores		30	0.34	10	33.33	16	53.33	4	13.33
6. Maintenance		47	0.14	16	30.04	31	65.95	—	—
7. Office		26	0.10	18	69.23	8	30.77	—	—
8. Laboratory		24	0.18	15	62.50	9	37.50	—	—
Printing :									
9. Hand Composing		28	0.12	10	35.71	17	60.71	1	3.57
10. Linotype		26	0.12	13	50.00	12	46.15	1	3.84
11. L. P. M.		18	0.12	11	61.11	7	38.88	—	—
Total :		376		168		192		16	

urine of workers in Different Sections of Factories

Workers with lead in urine mgm/L, Urine						Corproporphyrin test					
less than 150 mgm		150-250 mgm		More than 250 mgm		+ Two		+ Three		+ Four	
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
11	12	13	14	15	16	17	18	19	20	21	22
17	40.47	16	38.11	9	21.42	10	23.80	18	42.85	4	9.52
28	52.83	25	47.16	—	—	16	30.18	12	22.64	—	—
18	30.00	39	65.00	3	5.00	21	35.00	32	53.33	7	11.66
6	27.27	15	68.18	1	4.54	8	36.36	9	40.90	1	4.54
10	33.33	14	46.66	6	20.00	4	13.33	12	40.00	2	6.66
13	27.65	34	72.34	—	—	18	38.29	15	31.91	1	2.12
16	61.53	10	38.46	—	—	6	23.07	2	7.69	—	—
13	54.16	11	45.83	—	—	4	16.66	4	16.66	—	—
10	35.72	18	64.28	—	—	12	42.85	14	50.00	—	—
12	46.16	14	53.84	—	—	8	30.76	7	26.92	—	—
9	50.00	9	50.00	—	—	5	27.77	4	22.22	—	—
152		205		19		112		129		15	

It was observed that out of 72 workers, working in atmospheric lead concentration of 0.25 mgm/m³ and above, only 36.11% workers had normal lead blood concentration and 31.95% had normal urine lead

concentration. While out of 222 workers working in atmospheric lead concentration of less than 0.15 mgm/m³, 48.19% and 41.89% had normal blood lead and urine lead concentrations (Table-V)

Table V—Relationship Between Atmospheric lead in Blood and Urine of Workers

Lead in atmospheric air in mgm/m ³	No. of workers		No. of workers with lead in blood µgm/100 ml.				No. of workers with lead in Urine mgm/Litre							
			less than 0.08		0.08-0.02		More than 0.02		less than 150		150-250		More than 250	
			No.	%age	No.	%age	No.	%	No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Less than 0.15	222	107	48.19	111	50.00	4	1.81	93	41.89	125	56.30	4	1.81	
0.15-0.25	82	35	42.68	46	56.10	1	1.22	31	37.80	51	62.20	—	—	
More than 0.25	72	26	36.11	35	48.62	11	15.27	23	31.95	34	47.22	15	20.83	
Total :	376	168		192		16		147		210		19		

It showed that out of 72 workers, working in atmospheric chromium concentration of 0.50 mgm to 1.0 mgm per cubic meter, 48.62% and 37.5% workers had normal chromium concentration in their blood and urine respectively. While out of 304 workers,

working in atmospheric chromium concentration of less than 0.50 mgm/m³, 67.44% and 48.21% workers had normal chromium values in their blood and urine. The S. D. for chromium in the factory atmosphere was 0.110 (Table VI).

Table-VI—Relationship Between Atmospheric Chromium with Chromium in Blood and Urine of Workers

Atmospheric chromium/mgm/m	No. of workers	No. of workers with chromium in blood in $\mu\text{gm}/100$ ml. of blood						No. of workers with chromium in urine in mgm/litre						
		Less than 0.006		0.006 to 0.008 mgm		More than 25		Less than 50 mgm		Less than 50 mgm		More than 50 mgm		
		No. %		No. %		No. %		No. %		No. %		No. %		
		1	2	3	4	5	6	7	8	9	10	11	12	13
Less than 0.50 mgm/m ³	304	205	67.44	90	29.70	9	2.96	147	48.2	144	47.3	13	4.27	
0.50 mgm to 1 mgm/m ³	72	35	48.62	30	41.66	7	9.7	27	37.50	33	45.83	12	16.66	
Total	376	240		120		16		174		177		25		

Discussion

The paints and printing factory workers were selected for the present study due to the fact that inspite of several reports regarding their toxicity, lead and chromium are extensively used there in due to easy availability and low cost. The lead and

chromium can exert inhibition effect on the activity of enzymatic metabolic system (Hamilton and Herdy, 1949). The cumulative poison level goes on increasing in the body tissue with the duration of employment, which is absorbed from concentrations noted in the breathing zone of the workers of the factory (Table-IV).

The exertion and accumulation of lead is affected by dietary calcium, vitamin 'D' and Iron (Kohoe et al 1933; Gilbert, 1957). It was observed that there was no supply of calcium, vitamin 'D' and Iron from the employer's side nor the workers were in a position to have adequate intake of these items at their own. Sobel et al (1938) and Six and Goyer (1972) have also shown that low dietary level of calcium and vitamin 'D' and Iron enhance the lead absorption through gastro-intestinal tract.

It is seen that workers engaged in the paints factory, where atmospheric lead concentration is more, the percentage of workers having normal lead concentration in blood is only 35.63% (Table IV). Where as in the workers of printing unit where atmospheric concentration is less, the percentage of workers with normal lead blood concentration is 9.04% (Table IV). This is quite in conformity with the experimental study of Kohoe (1960).

The percentage of workers having normal blood and chromium level in paints and printing units are 67.44 per cent. This indicates clearly the higher concentration of chromium in paints factory in breathing zone has resulted in the increase in the chromium blood value. It was also confirmed earlier by Krishna and Mathur (1972).

The role of educational status, social status, use of protective devices, personal hygiene nutritious diet have been emphasised by Krishna et al (1975), Sobel et al (1938), Six and Goyer (1972), Kohoe et al (1944),

Barder (1960) and Valley (1959) to reduce the absorption of these toxic metals in factory environment.

The clinical examination of workers revealed the toxic effect of these heavy metals (Table-III). Barder (1960) found abdominal pain, constipation, and vomiting in case of lead absorption from stomach. Gibson et al (1968) accounted dullness, headache, vertigo and lack of concentration to lead toxicity.

Vehugopal (1972) has reported constipation, abdominal pain, wasting of muscles, foot and wrist drop in workers exposed to lead.

Krishna and Mathur (1972) and Krishna et al (1975) have pointed out that the concentration of chromium in the vital fluids of body can effect vital organs like Kidney, Lungs and Liver. The adverse effect of atmospheric chrome concentration on the skin and the side effects of blood concentration have been discussed by these workers.

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PREVALENCE OF HYPERTENSION IN AN URBAN COMMUNITY

By

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Introduction

It is a well known fact that high blood pressure is the most common disorder among cardiovascular diseases and a major cause of morbidity and mortality in the urban population. It accounts for morbidity and mortality after middle age. The prevalence of hypertension varies from nation to nation and even within various parts of the country.

It is very difficult to know exact prevalence of hypertension in the community because the majority of people with elevated blood pressure levels are asymptomatic, untreated or inadequately treated. The data available in our country on the normal blood pressure of our population are very sparse.

The present study was undertaken to estimate the prevalence of hypertension in the urban community.

Material and Method

The present study was carried out in the area of urban field practice, attached to the Department of Preventive and Social Medicine, S.M.S. Medical College, Jaipur. This centre provides comprehensive health

care to the population of 8207 (1980). This community is dominated by Sindhis who have migrated from Pakistan after independence.

The individuals in the age group 15 years and above, of either sex were considered for the present study. The total population of 15 years and above was 4544. The sample size for the present study was 1205 individuals (612 males & 593 females). Household was taken as sampling unit and were randomly selected by using three digit random numbers. Random number table was used to give required sample size.

A house-to-house survey was carried out in the randomly selected house holds.

After recording the introductory data each individual was asked about any complaints during last six months. Following complaints were inquired into from each individual specifically : headache, giddiness, breathlessness, chest pain, palpitation, nervousness, epistaxis and oedema feet. History of hypertension in the family was also recorded. The blood pressure of each individual was recorded in sitting position as advocated by W. H. O. (1959).

The following criteria set by W. H. O. (1962) were used for classification of blood pressure :—

NORMOTENSIVE

Systolic blood pressure below 140 mm of Hg. and diastolic blood pressure below 90 mm. of Hg.

BORDERLINE HYPERTENSION

Where the systolic blood pressure was between 140—160 mm. of Hg. and / or diastolic blood pressure between 90 95 mm of Hg.

HYPERTENSION

Either systolic or diastolic or both blood

pressure above the borderline levels that is systolic 160 mm or above and / or diastolic blood pressure 95 mm or above.

Observations

Table I shows distribution of mean systolic and diastolic blood pressure in males and females. The mean systolic and diastolic blood pressure was increasing with age in both sexes and the mean systolic blood pressure in males was higher than females except in the age group 55—64 years. The mean diastolic blood pressure was higher in the males than females except in age group 15—24 years, however the difference was not statistically significant ($p > 0.05$).

Table I—Mean Blood Pressure Levels According to Age & Sex

Age Group (years)	Sex					
	Males			Females		
	No.	Mean B.P. mm of Hg. + S.D.		No.	Mean B.P. mm of Hg. + S.D.	
		Systolic	Diastolic		Systolic	Diastolic
15—24	108	114.88± 9.53	70.00± 7.66	205	113.97±11.87	71.24± 9.07
24—34	73	118.54±12.80	70.58± 7.94	132	115.75±10.90	74.77± 9.28
35—44	64	121.51±16.66	80.88±10.6	75	120.37±20.81	77.89±13.00
45—54	28	126.63±11.85	81.60± 6.50	41	126.43±17.45	81.10±11.98
55—64	21	134.88±15.30	85.50± 6.55	32	139.15±25.70	83.40±15.13
65+	20	150.28±22.70	82.04±11.84	21	140.47±21.00	80.11±11.61

Table II-- Prevalence of Hypertension According to Age and Sex

Age Group (Years)	Prevalence of Hypertension (%)					
	Males		Females		Total	
	No.	Prevalence	No.	Prevalence	No.	Prevalence
15-24	108	0.00	205	1.46	313	0.96
25-34	73	1.36	132	3.78	205	2.93
35-44	64	4.68	75	13.33	139	9.35
45-54	28	21.42	41	17.70	69	18.84
55-64	21	19.04	32	43.15	53	33.96
65+	20	40.00	21	28.57	41	34.15
Total		7.00		8.89		8.17

S. E. of Difference 1.92
between two proportions.

Correlation (r) = +0.917 +0.970 +0.968

Table II shows age-sex wise prevalence of hypertension. The overall prevalence of hypertension was 8.17%. The prevalence of hypertension was higher in females (8.89%) as compared to males (7.0) however, this difference was not significant statistically (SE of difference of proportion ± 1.92).

The prevalence of hypertension in males was increasing with age except in the age group 55-64 years. Similarly, the prevalence of hypertension in females was also increasing with age except in the age group

of 65 years. There was significant positive correlation between the prevalence of hypertension and age in both sexes.

Table 3 shows sexwise distribution of individuals according to their complaints.

Out of 67 hypertensive individuals 37 (55.22%) had no complaints. Headache (29.85%) was the main complaint, followed by breathlessness (14.99%), palpitation (2.99%), nervousness (2.99%), chest pain (1.49%) and epistaxis (1.49%).

Table III—Distribution of Individual According to Their Complaints

Complaints	Blood pressure	
	Number	Number
	Cases	
	753	67
No. complaints	663 (88.05)	37 (55.22)
Complaints		
Headache	32 (4.25)	20 (29.85)
Giddiness	25 (3.32)	2 (2.99)
Breathlessness	12 (1.59)	10 (14.93)
Chest pain	9 (1.19)	1 (1.49)
Palpitation	8 (1.06)	2 (2.99)
Nervousness	6 (0.80)	2 (2.99)
Oedema feet	7 (0.93)	5 (7.46)
Epistaxis	1 (0.13)	1 (1.49)

(Figures in Parenthesis show percentage.)

On the contrary out of 753, normotensive individuals only 90 i. e. 11.96 percent individuals had one or the other complaints. Thus significantly higher proportion of hypertensive individuals were having these complaints. ($\chi^2=53.10$

$p<0.001$). Further, considering all the eight complaints as symptoms complex for diagnostic or screening purpose in the community, the sensitivity specificity were worked out.

Table IV—Presence or Absence of Complaints Among the Individuals

Complaints	Hypertension	Normotension	Total
Present	30	90	120
Absent	37	663	700
Total	67	753	820
— Sensitivity	=44.78%	$\chi^2=53.1$	$p \leq 0.001$
— Specificity	=88%		
— Productive value or diagnostic value	=25%		

The sensitivity and specificity of the group symptoms was 44.78 percent and 88.05 percent respectively. The predictive or diagnostic value of symptoms was only 25.0 percent (Table IV).

Table V—Distribution of Hypertensive Individuals According to History of Hypertension at the Time of Survey

History of hypertension	Hypertension in Males/Females at the time of Survey		Total Hypertensives	
	Males	Females	No	%
Present	6	16	22	32.83
Absent	16	29	45	67.17
Total	22 (32.83%)	45 (67.17%)	67	100.00

Table V shows sexwise distribution of hypertensive according to history of hypertension in the family as found at the time of survey.

Twenty-two individuals (32.83%) (6 males and 16 females) had history of hypertension at the time of survey and 45 individuals (16 males and 29 females) had no history of hypertension in the family.

Discussion

High blood pressure is being increasingly recognized as one of the important factor in rising morbidity and mortality in the general population. A fairly high prevalence of hypertension i. e. 8.17% observed in the present study is comparable with the findings of other urban studies carried out in India by Padamavati et al (1950), Rangnathan (1977), Gupta, (1977) and Indrayan (1972), however, the prevalence was lower than reported from developed countries like U. S. A., Wilbur (1967) & Jama (1977).

Relation of blood pressure and age & sex was expected one and was in close consonance to the observations reported by Ranganathan et al (1977), Gupta (1977) in population based studies.

The main subjective complaints like headache, giddiness, breathlessness, chest pain, palpitation, nervousness, oedema feet & epistaxis, as a symptoms complex suggestive of high blood pressure, was evaluated for diagnostic or screening purposes. The use of the symptom complex for either

purpose is not recommended since a low (44.75%) sensitivity and diagnostic value (25.0%) were observed.

The 67.0 percent of hypertensive individuals were unknown about their elevated blood pressure. The 85.0% known hypertensive individuals, were not taking any regular treatment. The studies carried out in the other parts of world (Wilbur, 1967 and Wen Ping Tseng, 1977) have found that more than 50.0 percent of people screened did not know that they had hypertension or taking irregular treatment.

A high prevalence, high proportion of asymptomatic and known hypertension on irregular treatment observed in most of the community based studies clearly indicate in urgent need for a well planned control programme against this important cardiovascular risk factor that can be effectively intervened with positive results with respect to reduction in morbidity & mortality in the community.

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APPEAL

Members are requested to contact the 'Secretary General' of IAPSM Centre for Community Medicine, A. I. I. M. S., Ansari Nagar, New Delhi—2 regarding the renewal/enrolement of Membership of IAPSM.

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