Indian Journal OF PUBLIC HEALTH

Quarterly Journal of the Indian Public Health Association

VOLUME XXIV April—June, 1980 NUMBER 2

EDITOR

PROF. S. C. SEAL

ANNUAL SUBSCRIPTION Rs. 25.00 (Inland) SINGLE COPY Rs. 6.25 (Inland)

INDIAN JOURNAL OF PUBLIC HEALTH

Quarterly Journal of the Indian Public Health Association

VOLUME XXIV | April—June, 1980 | NUMBER 2

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EDITORIAL

Tobacco smoking is a very old practice. But till recently, it has not drawn much attention from public health personnel. Only for last several decades, public health personnel have been much concerned with ill effects of smoking. Tobacco production in the world has increased to a great extent in the course of some years. It is estimated that at least 120 countries in Africa, America, Asia, Europe and Oceania grow tobacco commercially. The reasons for higher production of tobacco in developing countries are increase of domestic sale and Government's policy to support and encourage production so as to reduce import.

In European countries, more than 50 percent of the people are regular smokers. In Asia and other continents the situation is possibly not different. In some regions, smoking in adult males has shown slightly downward trend, but a rising trend has been noted among teenagers and women. In some countries of Europe 10-50 percent adult women are cigarette smokers. Study in a rural area of West Bengal in 1975 has shown that 48.7 percent males and 0.2 percent females are smokers. These rates are slightly less than those found in 1944 in the same area corresponding figures being 63.6 and 0.5 percent Study among officers in some industries in Calcutta has shown 59.45 percent as current smokers. In the latter study, decreasing trend in smoking has been noted with increasing age. Several other studies show that smoking in males is inversely correlated with socioeconomic status and level of education.

Harmful effect of smoking on health has been conclusively proved in various studies. Association of smoking with respiratory illnesses such as chronic bronchitis, lung cancer, laryngeal cancer is well established. The risk of developing lung cancer is 32 times as great for heavy smokers as for nonsmokers. The risk also increases with the number of cigarettes smoked in a day. Risk of developing chronic bronchitis is also 20 times more for heavy smokers than for non-smokers. Death rate from coronary artery disease is much higher among smokers than among non-smokers.

Women who are smokers gain less weight during pregnancy and usually have low birth weight babies. Perinatal mortality is higher when hypertensive women are smokers. Some studies have revealed that respiratory diseases are higher among children whose fathers are regular smokers.

Habit of smoking is the result of psychological and social factors. Curiosity, influence of home and friends, advertisements, desire for expression of masculinity, assertion of independence in case of teen agers are some of the causes of smoking. It requires strong motivation to give up the habit of smoking. Some adjustments are required in the daily practice. Since regular smoking is a kind of addiction possible treatments such as group therapy, drug therapy may be needed.

Anti-smoking campaigns are necessary not only to stop smoking but also to prevent people from begining smoking, especially by teen-agers and women. Measures to promote sale of cigarettes must be curbed. A caution like 'Cigarette Smoking is injurious to health' printed on the packet is contradictory to massive advertisements for promotion of sales. It may be necessary to initiale legislative measure to reduce sale of cigarette.

World Health Organisation is very such concerned with the problem of smoking. 'Smoking or Health—the choice is yours' the theme of World Health Day for the year 1980 has been rightly chosen, as the problem relates to individual's habit.

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Harmful effect of smoking on health has been conclusively proved in various studies. Association of smoking with respiratory illnesses such as chronic bronchitis, lung cancer, laryngeal cancer is well established. The risk of developing lung cancer is 32 times as great for heavy smokers as for nonsmokers. The risk also increases with the number of cigarettes smoked in a day. Risk of developing chronic bronchitis is also 20 times more for heavy smokers than for non-smokers. Death rate from coronary artery disease is much higher among smokers than among non-smokers.

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Vol. XXIV, No. 2,
April—June, 1980

MORPHOLOGICAL CONSTITUTION AND SMOKING BEHAVIOUR

Lois Philip*

Clinicians from antiquity have noted that physical types of individuals have tendencies to particular disease. Development of tools in this Century by physical anthropologists have made it possible to relate certain constitutional characteristics to disease. The science of genetics has afforded a basis for the belief that most of us have a genetic individuality. Host factors in disease have to do in part with the collection of individuals into constitutional types. The inter play of environmental factors and host factors is part of etiology. Environmental factors are not the only forces pressing upon us from the external environment but also include tastes and habits developed chiefly from within or from individual preferences. Though little study has been done of such tastes and habits, they are of importance to the practice of medicine.

It has been shown that Cigarette smokers run twice the risk of dying from coronary heart disease than non-smokers (Doll and Hill, 1964; Kahn, 1966). To be 25% over weight doubles the risk of dying (Society of Actuaries, 1959). Yet these two major health hazards have been shown by some studies in some western hemisphere to be inversely related while others have observed a direct relationship. Available evidence being too meagre do not permit a conclusion. In view of this curious situation more reliable data on body weight and smoking is warranted. The attention of researchers has been focussed on the communicable diseases and little interest has been shown in this country to study areas such as smoking behaviour. Mention of Roy (1975) who has studied this habit among Delhi University students, however may be made. No attempt has been made by any investigator to relate bodily measurements to the smoking status of individuals in this country.

Smoking Behaviour of Managerial Elite in Calcutta

A study on smoking behaviour, exploratory in nature, with the purpose of describing the characteristics of smokers, never smokers and past smokers was undertaken on a purposefully selected group of managerial elite belonging to three industrial houses and two government offices located in the city of Calcutta.

Objective and Methodology

The object of the study was to examine selected variables as they relate to smoking status of the respondents.

Out of the 290 officers included in the

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study 182 (62.7%) responded. The difference in the smoking status of the respondents and non-respondents was found to be statistically insignificant indicating that responding to the study was not influenced by smoking status. Pipe and Cigar smokers were too few to permit worthwhile compar sons. All of them were also cigarette smokers. Smokers in the present study refer to cigarette smokers.

The dependent variable of the study was the smoking status of respondents, who were categorised into current smokers, those who were smokers at the time of the study ; past smokers, those who successfully abstained from smoking for one year or over ; never smokers, those who never smoked or smoked less than 5 cigarettes till the time of the study. Current and past smokers were differentiated into light, medium and heavy smokers. Light smokers were those who consumed upto 10 cigarettes a day, medium smokers 11 to 20 cigarettes a day and heavy smokers over 20 cigarettes a day. Several independent variables related to physical, familial, social, personality, cognitive, affective and health characteristics were studied but this paper will confine itself to the morphological characteristics of the subjects.

Findings

Morphological Characteristics

Two body measurements, height and weight and one bodily ratio, weight/height^2 were used to study morphological characteristics in relation to smoking status. Height was observed in inches and weight in lbs. The respondents were categorised into four groups. Never smokers and light, medium and heavy smokers both current and past, for making comparisons.

Height

The mean values for the four categories of respondents are given in Table-1. There does exist decimal differences between the mean heights of never, light and medium smokers while the mean values for heavy smokers is 1.06 inches more than that of never smokers. Analysis of variance however, revealed that the differences were insignificant at 5% level, F=0.8821 with 3 and 178 df.

Table—1 : *Height and smoking status*

Smoking Status	Height (inches) Mean value
Never smoker	67.33
Light smoker	67.54
Medium smoker	67.65
Heavy smoker	61.39

F=0.882 with 3 and 178 df ; N.S. P=.05

Weight

Table-2 presents the mean values of weight for the different smoking categories. It is observed that the light smokers are 2.25 lbs. and the heavy smokers 7.57 lbs. heavier than the never smokers, while the medium smokers are 1.25 lbs lighter than never smokers. Analysis of variance indicated that these differences were not significant at 5% level P=1.675 with 3 and 178 df.

Table—2 : *Weight and smoking status*

Smoking status	Weight (lbs.) Mean value
Never smoker	149.93
Light smoker	152.18
Medium smoker	148.68
Heavy smoker	157.50

F=1.1675 with 3 and 178 df; N.S. P=.05

Ponderal Index (Weight/Height²)

The body ratio, Weight/Height² known as Ponderal Index was computed and multiplied by 100, for each respondent. This ratio is considered a reliable index for studying obesity in adults. The mean values obtained for the smoking categories are given in Table-3. Analysis of variance showed that there was no siginificant variation between the four smoker categories at the 5% level F= 0.562 with 3 and 178 df.

Table—3 : *Ponderal Index and smoking status*

Smoking status	Ponderal Index X 100 Mean-value
Never smoker	3.28
Light smoker	3.28
Medium smoker	3.30
Heavy smoker	3.38

F=0.562 with 3 and 178 df ; N.S. P=.05

Discussion

Though very little difference was observed in the mean height among the smoking categories, the heavy smokers had an average height of over an inch (1.06) compared to the never smokers. The difference in weight was more evident between the smoker groups. The mean weight of the heavy smoker was 7.57 lbs. more than that of the never smokers. The ponderal index showed hardly any difference between the categories. Notwithstanding the variation in the difference in the two body measurements and one bodily ratio, they were found to be statistically insignificant. The reason for this may be due to the small numbers of subjects studied. Seltzer (1963) was able to relate morphological constitution and smoking and did so using 12 measurements and 10 ratios on a larger group. He found smokers to have greater measurements in body size as well as in some body ratios. He ascribed the differences ascertained as highly suggestive of genotype deviations in the different smoking classes. Khosla and Lowe (1971) in Britain on a very large group made observation which were opposite to Seltzer's findings. Matarazzo and Saslow (1960) and Fletcher and Doll (1969) also found similar observations in relation to weight. Thomas (1960) in her long term study spread over 10 years with 600 odd subjects was however not able to find body built difference in smoking types, except with heavy smokers. Thomas' observation is similar to the trends obtained in this study as well. Seltzer (1963) draws attention to the study of Fisher in Germany with mono and dizygotic twins where he showed that smoking habits of monogygotic twins were more alike than dizygotic ones. He therefore concluded that the genotype exercises considerable influence on smoking and the particular habit of smoking adopted. Attention is drawn to the relationship between parents' and childrens' smoking habits observed in respect of two generations in the present study reported. It was shown that 45.16% of fathers of smokers were also smokers, while only 25.86% of fathers of never smokers smoked. A statistically significant number of children of smokers (48.38%) smoked as compared to never smokers (5.88%). Whether this is due to the particalar genotype or because of the social influence remains to be determined. However, the study of Foss (1973) on college children observed no relationship between parental smoking with that of their childrens' smoking habits. This

finding precludes the genotype influence on smoking. Horn (1960) and Matarazzo and Saslow (1960) studying the smoking habits of school children found a definite association between smoking behaviour of parents and children.

Conclusion

To find a relationship between morphological constitution and smoking behaviour has interested researchers in the Western World in their attempts to control chronic diseases. The findings have been varied and inconclusive.

Seltzer (1963) found smokers to have bigger body dimensions and suggested genotype variations. Khosla and Lowe (1971) using ponderal index wt/ht^2 as a satisfactory way of measuring obesity, observed smokers to be lighter than non-smokers especially after the age of 35 years when there was a tendency to put on weight. Thomas (1960) and Pincherele (1971) did not find any significant difference in the smoking types.

The present study examined a number of variables in respect of smoking behaviour of which only morphological characteristics and smoking habit of parents and children have been presented in this paper. A major limitation in drawing any conclusion, which was not intended, is the smallness of the number of subjects covered. This did not permit studying variations due to some importance variables, such as age differences. The study was an exploratory one and as such a number of variables were studied. The subjects belonged to Social Class I and it was not too easy to convince these busy men to participate in such investigations.

There is sufficient reason and scope to examine whether relationships exist between morphological characteristics and smoking and other habits hazardous to health. Precise studies of a longitudinal nature on different cohorts in this country, which have such a variety of anthropological types, are sure to lead to interesting observations. The validity of using obesity as a measure of studying genotype variations may also be critically examined in taking up future studies of this nature.

In India there is an increasing prevalence of degenerative and malignant diseases, especially amongst those categorised under Social Class I and smoking has been cited as a contributory factor in the causation of these diseases. Since citizens in the administrative and technical fields are, valuable to the country's progress and make up the majority of Social Class I, there is an urgent need to pay attention to the etiological factors of diseases which affect them.

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INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XXIV, No. 2
April—June, 1980

SERO PREVALENCE OF BRUCELLOSIS AMONG CAPRINE KEEPERS AROUND JAIPUR (RAJASTHAN)

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Introduction

Serology has always been an important tool in diagnosis of various important Zoonotic diseases because many a time it is difficult to confirm these diseases in man and animals by cultural findings. Research workers from all over the world like Godlevskaya *et al* (1968) from Russia, Renoux (1970) from France, Foley and Corridan (1968), Mcdevitt (1970) from England, Chatterjee (1968), Mukherjee (1970), Sen and Khanna (1978) have reported Brucella agglutinins in human workers attached to animal industry. The present study was undertaken to assess the problem of brucellosis in Caprines and Caprine keepers.

Material and Methods

Location

The study was undertaken in four panchayat samities ; Head Quarter Bassi, Sanganer, Jhotwara and Amber around Jaipur city.

Collection of cases and information

Previously drawn up schedules were filled in, for individual family and individual member in positive family making records of personal history, occupat on, symptoms and number of animals kept by each family.

Laboratory diagnosis

Milk and blood samples were brought to Laboratory and were subjected to milkring test, and standard tube agglutination test for brucellosis respectively (Sharma *et al* 1968). Antigen used, was obtained from I.V.R I. Izatnagar. Routine cultural examinations were made for isolations.

Results and Discussions

Goats kept by two hundred seventy seven families in four selected villages were studied for brucellosis. Thirty one families were found having goats positive for brucellosis. The tables 1 to 3 present number of goats kept in each family and number of goats positive in each family according to the size of the flock in villages

In Sanganer 16.85% families, Amber 15.19% families, Bassi 7.02% families were having goats sero positive for Brucellosis. Amongst families with 11 or more goats, 45.81% were sero-positive. In majority of the families keeping more than one goat only

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Paper accepted at VIII National Conference on Communicable diseases 8th to 10th December, 1978 held at All India India Institute of Hygiene and Public Health, Calcutta

Table 1

Incidence of caprine brucellosis in families as per number of goats kept

No. of goats kept in each family.	No. of families			
	No. Tested	Percentage	No. positive	Percentage
1 Goat only	130	46.93	8	6.15
2 to 5 goats	108	38.99	9	8.33
6 to 10 goats	15	5.41	3	20.00
More than 11	24	8.66	11	45.83
Total	277		31	11.19

Chi Square test highly significant ($p<0.05$)

Table 2

Family incidence of caprine brucellosis invillages by milk ring test

Name of the Village	No. of families		
	Tested	Found positive	Percentage
Amber	70	12	15.19
Sanganer	89	15	16.85
Bassi	57	4	7.02
Jhotwara	52	—	—
Total	277	31	11.19

Chi Square test highly significant ($p<0.05$) at d. f. = 3

Table 3

Number of positive goats in each family

Goats positive in each family	Number of families having goats				
	1	2 to 5	6 to 10	11 and more	
Number tested	130	108	15	24	277
One	8	8	3	11	30
More than one	—	1	—	—	1

Table 4

Distribution of brucella agglutinins in families having positive caprines (20 to 80 IU)

Village	Families having Caprine Brucellosis	No. of families tested.	Number of members tested	Number +ve	percentage
Amber	12	9	9	4	44.44
Sanganer	15	5	5	—	—
Jothwara	—	—	—	—	—
Bassi	4	4	4	1	25
	31	18	18	5	27.77

one was showing brucella agglutinins while other remained free (Table 3). Number of animals positive in each family has no correlation with diseases in that family. Why one showed agglutinins and other remained free, may be due to age, time of collection of material, intensity of infection and individual resistance. The number of families tested and found positive is given in table No. 4. At Sanganer the test in human beings could only be done after 4 months whereas at the rest of headquarters it was done within a fortnight. The symptoms reported by persons showing brucella agglutinins were fever, (commonest symptoms), chills, joint pains, weakness, repeated attacks of diarrhoea, abdominal pain and cough.

It is possible that no brucella positive case was found in Sanganer as blood was taken after four months of animal studies. At other places Amber and Bassi 4 out of 9 and 1 out of 4 occupationally disposed persons respectively gave positive results. It is in agreement with finding of many workers like Renoux (1970), Mukherjee (1970) that 38% and 26.8% persons connected with farming and dairying showing agglutinins.

In present findings fever is the predominated symptoms but not of the characteristic type. This is in agreement with Mukherjee (1970). Foley and Corridan (1968) reported that 72.5% Veterinarians, 7.8% Dairy farmers positive for brucellosis. Mcdevitt (1970) reported 100 Veterinary Surgeons working in private practice had significant agglutinins for brucellosis, while other group employed in ministry of agriculture had less evidence of exposure to brucellosis antigen which they might have acquired in private practice. Godlevsakaya *et al* (1968) while studying Zoonoses among meat processing workers reported 35.8% workers positive serologically for Brucellosis.

Summary

Goats kept by two hundred seventy seven

families in four selected villages Jhotwara, Amber, Sanganer, Bassi were studied for presence of brucella agglutinins. Thirty one families were found having brucella positive goats in their families keeping more than eleven goats were 8.68% and of these 45.83% families were having brucella positive goats. In Amber 4 out of 9 persons and at Bassi 1 out of 4 persons tested from the families haveing positive brucella seropositive goats were showing Brucella agglutinins in titre varying from 20 IU to 80 IU. Fever and chills were reported by almost all persons during past one year.

Acknowledgements

Senior author is highly thankful to ICAR for granting Junior fellowship in veterinary public health, Principal Medical College, Jaipur, Director, All India Institute of Hygiene & Public Health, Calcutta to undertake the work at Jaipur.

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INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XXIV, No. 2,
April—June, 1980

PERCEPTION REGARDING NEED FOR ANTE-NATAL CARE AMONG RURAL AND URBAN WOMEN IN DELHI

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The importance of care dnriug pregnancy for the protection of health of the mother and the new born baby has been clearly recognised by health professionals. In the light of this recognition, the various agencies involved in health services—both governmental and others—have expanded the scope of maternal health services through institutional and domiciliary approach incorporating antenatal, natal and post natal care as its major components.

The concern for health administrators should not be limited with provision of services only. But they have the added responsibility to see that the services are properly utilised by those individuals for whom they are meant in order to achieve the desired results. Studies by Anand V Srinivasa[1], Selwyn[2], Anderson[3] and Coe & Wessen[4] on utilisation process and its determinants in relation to health services have indicated that in addition to the nature and characteristics of health services themselves, the cultural and socio-economic background of the individuals and above all, their perception or awareness regarding the 'need for' such a service and the knowledge about the availability' of the same are very important factors to be considered. Just like any other components of health services, this should be true with maternal health services too.

There is enough evidence to indicate that the awareness regarding health service facilities and positive health habits is growing gradually among people everywhere. Though, this is more reflected in the urban population this awareness is slowly spreading towards the rural and semi-urban areas in the out-skirts of the urban areas also.

Keeping this in view an attempt is made to explore the views among women in two selected communities regarding the need for antenatal care, which is one of the important components of personal health care services.

Objectives of this study

1) To explore the views of women regarding the need for antenatal care and the time at which it is to be initiated.
2) To assess their knowledge regarding purpose of antenatal care.
3) To examine the relationship if any between their knowledge and some of the personal factors, like age, education, number of children born, age of the last child etc.

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Methodology

This study was conducted among women residing in two selected areas—a Central government employees residential colony in urban Delhi and a village under the rura zone of Municipal Corporation of Delhi. A two stage random sampling was adopted for both the communities and a sample of 10% census blocks was drawn in the first stage and from these selected cens us blocks a sample of 25% house-holds was drawn in the second stage.

In these sampled households married women were contacted at home (in case where more than one, the eldest lady was included) and were interviewed to obtain information on antenatal care. Where no female member could be contacted at the time of home visit those households were excluded from the sample. The sample constituted 153 households in urban area and 93 in the rural area of which the responses were received from 122 (80%) women in urban community and 77 (8?.6%) women in the rural community.

Findings

(a) *Need for antenatal Care*

By and large majority in both urban and rural community were of the opinion that consultancy during pregnancy is important (Table I). However this need was felt by more women residing in the urban community (94.2%) as compared to those from rural area (62.7%).

Table I

Distribution of women by their views on need for antenatal care.

Needs for antenatal	Urban No. %	Rural No %
Yes	115 (94.2)	48 (62.7)
No	7 (5.8)	29 (37.3)
Total	122 (100)	77 (100)

(X^2=32.5, d.f = 1, p=0.05)

An individual's knowledge or awareness about a particular health habit could have some relation with his/her personal characteristics like age or educational status and some of the related experiences. Therefore the views regarding antenatal care among the study population was analysed in relation to such variables.

Age

The distribution of women in the two selected communities by age indicates that majority of the women from urban community belonged to higher age groups whereas those from the rural community were comparatively younger. (Table 2)

Table 2

Distribution of women by age and their views regarding antenatal care in two communities.

Age	Urban			Rural		
	Yes	No	Total	Yes	No	Total
16—19	—	—	—	3 (15)	1 (25)	4 (5.2)
20—24	3 (75.0)	1 (25 0)	4 (3.3)	11 (84.6)	2 (16.5)	13 (17)
25—29	9 (90.0)	1 (10 0)	10 8.2)	8 (61.5)	3 (38.5)	11 (14.4)
30—34	16 (88.8)	1 (11.2)	17 (14 0)	9 (64.3)	5 (35.7)	14 (18 2)
35—89	16 (100)	—	16 (13.2)	7 (58.3)	5 (41.7)	12 (15.6)
40—44	26 (92.9)	1 (7.1)	27 (22)	5 (45.4)	6 (51.6)	11 (14.4)
45+	45 (93 8)	3 (6.2)	48 (39.5)	5 (41.7)	7 (58.3)	12 (15.6)
Total:	115 (94.2)	7 (5.8)	122 (100)	48 (62.7)	29 (37.3)	77 (100)

Thus 61.7% women in the urban community were aged 40 years or more whereas only 30% of the rural women belonged to this group. It was further noticed that the awareness about the need for antenatal care amongst the urban respondents remained high (above 90%) in all the age groups, except the group aged 20-24 years, in which the number of women was very small. Interestingly, among the rural women it was seen that their awareness decreased with the increase in age from which it may be concluded that women in younger age groups are comparatively more concerned about the antenatal care than those in the higher age groups. (above 35 years).

Educational Status

The distribution of respondents by their educational status resemble the national pattern (Table 3) showing a much higher proportion of illiterate women in rural community (66.1%) compared to urban community (11.4%).

Though there is an indication of increasing awareness with increasing literacy among the rural women this does not remain true with the urban group. It can be observed that among the urban group all the illiterate women have expressed favourably about the need for antenatal care whereas in the rural group 41.5% among the illiterate have differed in their opinion. However, it is important to note that out of the 29 rural respondents who have opined that antenatal care is not important, 20 (69%) were illiterate and the rest of them (31%) were all below 9th standard of education. Among the urban women also 35% of those who were not in favour of antenatal care were below 9th standard education.

Number of Children born

Since it was thought that the experience of women in pregnancy and child-birth might have some influence on their view regarding need for antenatal care their response was analysed in relation to the number of children born to them.

Table 3

Distribution of women by educational status and their views on need for antenatal care.

Educational Status	URBAN			RURAL		
	Antenatal care needed			Antenatal care needed		
	Yes	No	Total	Yes	No	Total
Illiterate	14 (100)	—	14 (11.4)	31 (58.5)	20 (41.5)	51 (66.1)
Upto 5th	14 (77.8)	3 (22.2)	17 (14.0)	4 (40)	6 (60)	10 (13.1)
6—9th	30 (88.2)	3 (11.8)	33 (27)	10 (11.0)	3 (23.0)	13 (16.8)
10th Pass	40 (11)	—	40 (32.8)	2 (100)	—	2 (2.6)
Above 10th	17 (94.4)	1 (5.6)	18 (14.8)	1 (100)	—	1 (1.3)
Total :	115 (94.1)	7 (5.8)	122 (100)	48 (62.7)	29 (37.3)	77 (100)

The distribution of women in the two communities by the number of children born was more or less similar except that in the urban group there was no lady who had no previous experience with pregnancy & childbirth. (Table 4)

All women with only one child in the urban group have felt the need for antenatal care, while in the rural group only 46.1% have felt the same need. Similarly, all women with more than 6 children among urban group responded favourably for need for antenatal care against only 67% with similar opinion among the rural group, which is definitely higher than the proportion among those with only one child (46.1%) in the same group.

Age of the youngest Child

To examine if the recent experience with pregnancy has any relation with the women's views regarding need for antenatal care their response was analysed in relation to the age of their youngest child.

It can be observed from table 5 that 18.7%

Table 4

Distribution of women by the number of children born to them and their views on antenatal care.

No. of Children	URBAN Antenatal care needed Yes	No	Total	RURAL Antenatal care needed Yes	No	Total
Nil	—	—	—	2 (100)	—	2 (2.6)
Only 1	17 (100)	—	17 (13.8)	6 (46.1)	7 (53.9)	13 (16.8)
2 or 3	55 (91.7)	5 (8.3)	60 (48.5)	23 (70)	10 (30)	33 (42.9)
4 or 5	34 (94.4)	2 (5.6)	36 (29 5)	11 (55.2)	9 (44.8)	20 (26.1)
6 +	9 (10)	—	9 (7.8)	6 (67.1)	3 (32.9)	9 (11.6)
Total :	115 (94.2)	7 (5.8)	122 (100)	48 (62.7)	29 (37.3)	77 (100)

Table 5

Distribution of women by age of last child and their views on antenatal care

Age of last child	URBAN Antenatal care needed Yes	No	Total	RURAL Antenatal care needed Yes	No	Total
No children	—	—	—	2 (100)	—	2 (2.6)
1 year	7 (87.5)	1 (12.5)	8 (6.3)	10 (55.5)	8 (44.5)	18 (23.5)
1—3 yrs.	14 (93.2)	1 (6.8)	15 (12.5)	20 (76)	6 (24)	26 (33.7)
4—5 yrs.	10 (91.1)	1 (8.9)	11 (9.1)	6 (75.5)	2 (24.5)	8 (10.4)
6 or more	84 (95.1)	4 (4.9)	88 (72.3)	10 (43.5)	13 (56.6)	23 (30 1)
Total :	115 (94.2)	7 (5.8)	122 (100)	48 (62.7)	29 (37.3)	77 (100)

among urban women had their youngest child below 3 years while among the rural women 59.8% had their youngest child aged 3 years or below. Awareness regarding need for antenatal care remained high among urban women in all the groups, the lowest being among those with their youngest child aged less than 1 year (87.5%). However in the rural group, among women with their youngest child aged 6 years or more, only 43.5% have favourably responded for antenatal care. It appears that the recent experience with pregnancy indicated by the age of the youngest i.e. less than 6 years has slight favourable influence on the views regarding need for antenatal care among rural women which however is not seen among urban women.

Purpose of antenatal care

Apart from the knowledge that antenatal care is important, to have a meaningful participation in this programme by women, it is essential that the purpose of antenatal care is clearly understood by them. In both the communities those women who responded favourably for the need for antenatal care were further questioned in order to explore their perception regarding the purpose of antenatal care. Table 6 indicates the responses of the two groups of women for the same.

It can be seen that among the urban (115) and the rural (48) women who have favourably responded for need for antenatal care

Table 6

Purpose of antenatal care as perceived by women in two communities (more than one purpose has been expressed by some women)

Purpose	Urban No. of women	Rural No. of women
1. Check up	95	33
2. To detect complications	15	8
3. For Registration	7	19
4. To get tonics	2	5
5. To protect health of mother and baby	6	—
6. To protect health of baby	3	1
7. To protect health of mother	1	—
8. For confirmation of pregnancy	3	1
9. To ensure services and help at the time of delivery	2	—
10. Assures treatment for mother and child for 3 years	—	1
11. To get guidance like advice on food	1	—
12. Because others do it	—	1
13. Not known	1	1

maximum number (82.6% and 68.7% respectively) have expressed 'checkup' as the main purpose. Though most of the women have mentioned 'checkup', some gave further clarifications like check up of position of the foetus, check up of blood pressure, blood or urine examination (though not very clear as to why these examinations are conducted) etc.

'To detect complications and defects' was another purpose mentioned by 13.1% women in urban and 16.7% women in rural groups. A few in the urban group have further specified this in terms of detection of disease in mother, detection of abnormal position of the foetus and to detect weakness which probably might be anaemia.

"Registration" has been considered as an important purpose of antenatal care by 7 (4.7%) women in urban and 19 (39.5%) womean in rural groups. Other related responses such as 'to ensure service and help at the time of delivery' and "assures treatment for mother and child for 3 years" were stated by 2 women in urban and one in rural area respectively.

Among urban group 10(8.7%) women mentioned 'protection, of health of either mother or child or both' as the purpose whereas only one lady from the rural areas has the same opinion.

Two women in the urban and 5 women in the rural area have said that the purpose of antenatal visit was 'to get tonics.' Distribution of nutritional supplements like Iron, Folic Acid and other vitamins, which is one of the routine activities performed by the MCH Services staff has been probably taken note of by these women.

Though 2 ladies have agreed to the importance of antenatal care, they were ignorant of the purpose of this care whereas one lady from the rural area frankly expressed her view that "others do it so it should be important".

Stage of pregnancy at which consultancy is to be initiated.

Since antenatal care is a service to be extended throughout the period of pregnancy it was thought worthwhile to understand the views of women regarding the stage of pregnancy at which routine consultancy is to be initiated. The responses are indicated in table 7.

Table 7

Distribution of women by their views regarding stage of pregnaney at which consultancy to be initiated.

Months of Pregnancy	Urban		Rural	
	No.	(%)	No.	(%)
1	14	(12.1)	1	(2.1)
2	8	(6.9)		
3	37	(32.1)	6	(12.5)
4	13	(11.2)	6	(12.5)
5	32	(28.1)	16	(33.3)
6	5	(4 3)	13	(27.1)
7	4	(2.6)	2	(4.2)
8	—		2	(4.2)
No response	3	(2.6)	2	(4.2)
Total :	115	(100)	48	(100)

In the urban group 19% of women opined that antenatal care should be started from as early as first or second month of pregnancy whereas only one lady from the rural area

had similar opinion. The view among 37 women (32.1%) in the urban area was that routine consultancy should be initiated from third month onwards in comparison with 6 women (12.5%) in the rural group. Majority (60.4%) among the rural women felt that consultancy need be started from fifth or sixth month of pregnancy, while only 32.1% among urban women held the same view.

Discussion and conclusions

The knowledge about importance, availability and purposes of antenatal care services is important for women in reproductive age group in order that they make use of such services as and when such a need arises. In a study conducted by Anand and Srinivasa[1] on utilisation of MCH services by urban women the main rersons for not availing the services were found to be unawareness about the availability of the services and lack of felt need for the same. However, considering the present social status of women in India, it can be assumed that the decision for availing antenatal services by a pregnant lady may depend to a great extent on the consent and cooperarion from her husband and other elderly women in her family. Therefore in this study while exploring the views of women regarding antenatal care, all married women irrespective of their age have been included.

It is clearly seen from this study that the awareness about need for antenatal care is much higher among the women from urban community as compared to those from rural area. By and large women from the urban areas have better education and better opportunities for exposure to a variety of health care facilities. Moreover, among urban women, the tendency is more to adopt institutional deliveries rather than domiciliary and for this, prior antenatal registration with an MCH institution or hospital is preferable, if not essential. Those factors might have some influence on their views regarding antenatal care. While higher level of education has shown a positive relation with favourable views on antenatal care among rural women the same does not seem to exist among urban group. On the other hand, even the illiterate urban women have expressed their favourable view regarding antenatal care which probably indicates the importance of their experience with health facilities over their educational status.

Again, among the rural women, the tendency is for increased awareness regarding positive health habits like antenatal care in the younger age group which is not evident among the urban women.

The number of children born to a lady as an indicator of her experience with pregnancy did not show any conclusive relationship with the views on antenatal care in both the groups. However, when the recent experience with pregnancy, assessed in terms of the age of the youngest child, was related to their views, it was seen that the absence of a recent pregnancy, has reduced the awareness among rural women. It could be possible that the concept of antenatal care, though not very new, has started percolating into the rural area only recently and therefore, those women who had their last child birth 5 or 6 years back, might not have had any chance to hear about it, or experience it. However, while making any conclusion it is important to remember that

for indicating recent pregnancy, it is the age of the youngest living child and not the actual pregnancy which is considered. Further it may be thought that, the experience of having a pregnancy is not the only important factor, but in addition its nature, and outcome are also important in provoking women to feel for the need for antenatal care.

Analysis of the various purposes of antenatal care expressed by women, clearly indicated that their knowledge was incomplete and inadequate. Majority in both the groups knew that check up was the purpose though they might not be very clear as to what exactly was to be checked for.

Registration of pregnancy has been indicated as the purpose of antenatal care by 7 urban and 19 rural women. Though this routine activity is to facilitate the functioning of MCH staff, the preference attached to registered antenatal women for natal services and further child care services has probably made these women to consider this as one of the purposes of antenatal care. Probably the opinion of 60.9% rural women that antenatal care is to be initiated from 5th or 6th month of pregnancy, may also have some relation with the period of registration because generally a pregnancy is registered in an MCH institution around 5th or 6th month.

It appears that in both the groups many women had vague ideas about antenatal care but they needed more clarifications. There is definite need felt for emphasising health education to these women explaining clearly the importance, objectives and types of services available to them under antenatal care. There is no doubt that while planning such educational activities, the target population which needs priority attention is the women in reproductive age group especially those who are in the reproduc ive phase. However as already mentioned, the decision making process in a family in relation to use or non use of antenatal service should not be overlooked and elderly women and men also should be well educated and informed about the importance of antenatal care.

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Vol. XXIV, No. 2,
April–June, 1980

STUDIES ON THE *CULICIDAE (DIPTERA)* MOSQUITOES IN SURAT, GUJARAT AND THEIR POTENTIAL DISEASE RELATIONSHIP

A. P. Pandya*

Since the discovery of the involvement of mosquitoes in the transmission of Filariasis (Manson 1878) and Malaria (Ross 1897) considerable data have been collected in India on distribution, systematics and bionomics of mosquitoes. Even though, only recently workers have attempted delineation of specific ecologies of vector/non vector species of mosquitoes (Wattal 1964, Wattal and Sen Gupta 1966; Wattal et al 1967, Rahman et al 1973, Pandya and Mehta 1974, 1975, 1977; Mahadevan et al 1978). However, very little work (Shalaby 1971, Pandya and Mehta 1974, 1975[a,b], 1977[a,c], Majumdar 1975) has been carried out on this medically important group of insect in Gujarat.

In the light of aforesaid, an attempt was made during Oct' 1975 to Oct' 1978 to gather information on the *Culicidae* mosquitoes of Surat City.

Materials and Methods

Collection of free living adults were made in and around habitation and likely resting and breeding sites in open terrain. The collections were carried out during 8-00 to 11-00 A. M. During the present study 108 mhr employed in collection of adult mosquitoes. The adults were identified and recorded.

Specimens from different breeding sites were collected in individual specimen tubes by S. L. S. method (Single larva Survey) (Sheppard et al 1969). The larvae from each collection were individually reared in small specimen tubes in the laboratory into adult and identified. Records of potential and actual breeding habitats were maintained.

Results

A total of 2,053 mosquitoes belonging to five genera (Table-1) consisting of sixteen

Table 1

Most common Genera of Mosquitoes found in Surat

Sl. No.	Mosquitoes Genera	Number of mosquitoes collected	Percentage
1.	Culex	1324	64.5
2.	Anopheline	453	22.6
3.	Aedenine	234	11.3
4.	Mansonia	30	1.0
5.	Armigeres	12	0.6
	Total	2053	100.00

*Entomologist, Department of Preventive and Social Medicine, Govt. Medical College, Surat-395001.

species, as indicated in the following list, were encountered during the study. The figures and letters given in parentheses indicate the numbers collected and places of collections as, R-Human dwelling, C-cattleshed and O-outdoor.

1. *A. (Cellia) stephensi*, Liston (137,RC).
2. *A. (Cellia) culicifacies*, Giles (29, RC).
3. *A. (Cellia) subpictus*, Grassi (284, RC).
4. *A. (Cellia) sundaicus*, Rodenw (3 R)*.
5. *C. (Culex) pipiens fatigans*, Wiedemann (1249 RC).
6. *C. (Culex) vishnui*, Theobald (19 RC).
7. *C. (Culex) gelidus*, Theobald (19 RC).
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10. *C. (Lutzia) fascanus*, Wiedemann (10 R).
11. *Aedes (Stegomyia) aegypti*, Linnaeus (216 R).
12. *A. (Stegomyia) albopictus*, Skuse (3 R).
13. *A. (Aediomorphus) vittatus*, Bigot (14 R-0)
14. *A (Aediomorphus) vexans*, Meig. (1 R).
15. *Mansonia (Mansonoides) uniformis*, Theobald (30 R).
16. *Armigeres subalbatus*, Walker (12 R).

Larval Habitats

A total of 305 potential habitats were examined, of which, 49 (16.06%) showed presence of immature stages of mosquitoes (Table-2). 65.30% positive containers were

Table 2

Larval habitats of various species of mosquitoes* in Surat.

Habitats	Potential habitats examined	Positive habitats	Percentages	Breeding species of mosquitoes
(A) **Indoor**	155	32	20.62	
1. Iron drums	71	24	33.8	*A. aegypti A. stephensi.*
2. Cement tanks	10	4	40.0	*A. aegypti*
3. Earthen pots	74	4	5.4	*A. aegypti, A. subpictus. C p. fatigans*
(B) **Outdoor**	150	17	11.33	
4. Treehole	20	1	5.00	*A. aegypti*
5. Rain water collection	11	4	33.39	*C. p. fatigans, A. subpictus,*
6. Iron Tar Drum	98	12	12.24	*A. vittatus C. p. fatigans*
7. Borrow pit and cess pit	20	0	0.00	—
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* Mosquitoes revealed from immature stages :

Culex pipiens fatigans (26), *A. Stephensi* (18), *A. subpictus* (22), *Aedes aegypti* (129) and *Aedes vittatus* (23).

found indoor in comparison to 34.70% outdoor habitats. The difference observed between indoor : outdoor mosquitoes breeding habitats was statistically significant ($Z^* = 2.22$, $P = 0.05$).

Discussion

During the present study sixteen species of mosquitoes belonging to five genera viz : *Culex* (64.5%), *Anopheline* (22.6%), *Addenine* (11.3%), *Mansonoides* (1.00%), and *Armigeries* (0.6%) have been recorded. *Aedes* (*Aediomorphus*) *vittatus*, Bigot ; *Aedes* (*Aediom*) *vexans*. Meig ; *Culex* (*Lutzia*) *fascanus*, Widdemann and *Mansonia* (*Mansonoides*) *uniformis*, Theobald have been reported for the first time in Gujarat (Pandya and Mehta 1975[b], 1977[c]). In addition to these, the present study records three more species Viz : *Anopheles* (*Cellia*) *Sundaicus* Rodenw ; *Culex* (*Culex*) *sinensis*. Theobald and *C.* (*Culex*) *whitmori*, Giles for the first time from Gujarat.

The present study failed to record *Anopheles* (*Cellia*) *spendidus*. Koidzumi ; *A. theobaldi*, Giles : *A.* (*Cellia*) *jeyporiensis*. James ; *A.* (*Cellia*) *fluviatilis*. James ; *A.* (*Cellia*) *annularis*. Van der Wulp ; *A.* (*Cellia*) *vagus*. Donitz, *A. pulcherrimus*, Theobald and *A. barbirostris*, van der Wulp which were recorded earlier from Ukai Reservoir area (Pandya and Mehta 1975, N. M. E. P. per. Communication).

During the larval survey, 16.06% (49/305) habitats showed presence of immature stages. Nearly 65% of breeding habitats were recorded indoor representing mainly breeding of *Aedes aegypti* (Pandya and Mehta 1974). Statistically, significantly high indoor breeding of mosquitoes have been observed during the study ($Z^* = 2.22$, $P = 0.05$). The reasons for high indoor breeding may be related to the practice of water storage, due to low pressure and inadequate water supply.

Potential Disease Relationship

Malaria

Malaria is getting priority in Public Health Programme due to its resuragence in major parts of India. The problem of malaria in Gujrat is due to two species of *Plasmodium* Viz :- *P. vivax* and *P. falciparum* is transmitted by *Anopheles stephensi* and *A. culcifacies*. Other species, Viz :- *A. fluviatilis*, *A. annularis*, and *A. sundaicus* have been recorded from Surat District but their role in the transmission yet remains undetermine. In the Maldive Islands, *A. subpictus* is the active malaria vector (W H O unpub.) and also suspected to be the sole vector of malaria in Bitra and Chettet Islands (Roy et al 1978). The large numbers of wild caught *A. subpictus* have been dissected from different parts of India but only one sporozoite positive specimen has been recorded from Puttukottai, Tanjore district (Russell et al 1939, Rusell and Rao 1940). However, Russell and Mohan (1939) recorded experimently one gland infection in 67 *A. subpictus* fed on donor with

$$Z^* \text{ Risk factor} = \frac{P_1 - P_2}{\sqrt{\frac{P_1 q_1}{N^1} + \frac{P_2 q_2}{N^2}}}$$

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found indoor in comparison to 34.70% outdoor habitats. The difference observed between indoor : outdoor mosquitoes breeding habitats was statistically significant ($Z^* = 2.22$, $P = 0.05$).

Discussion

During the present study sixteen species of mosquitoes belonging to five genera viz : *Culex* (64.5%), *Anopheline* (22.6%), *Addenine* (11.3%), *Mansonoides* (1.00%), and *Armigeries* (0.6%) have been recorded. *Aedes* (*Aediomorphus*) *vittatus*, Bigot ; *Aedes* (*Aediom*) *vexans*. Meig ; *Culex* (*Lutzia*) *fascanus*, Widdemann and *Mansonia* (*Mansonoides*) *uniformis*, Theobald have been reported for the first time in Gujarat (Pandya and Mehta 1975[b], 1977[c]). In addition to these, the present study records three more species Viz : *Anopheles* (*Cellia*) *Sundaicus* Rodenw ; *Culex* (*Culex*) *sinensis*. Theobald and *C.* (*Culex*) *whitmori*, Giles for the first time from Gujarat.

The present study failed to record *Anopheles* (*Cellia*) *spendidus*. Koidzumi ; *A. theobaldi*, Giles : *A.* (*Cellia*) *jeyporiensis*. James ; *A.* (*Cellia*) *fluviatilis*. James ; *A.* (*Cellia*) *annularis*. Van der Wulp ; *A.* (*Cellia*) *vagus*. Donitz, *A. pulcherrimus*, Theobald and *A. barbirostris*, van der Wulp which were recorded earlier from Ukai Reservoir area (Pandya and Mehta 1975, N. M. E. P. per. Communication).

During the larval survey, 16.06% (49/305) habitats showed presence of immature stages. Nearly 65% of breeding habitats were recorded indoor representing mainly breeding of *Aedes aegypti* (Pandya and Mehta 1974). Statistically, significantly high indoor breeding of mosquitoes have been observed during the study ($Z^* = 2.22$, $P = 0.05$). The reasons for high indoor breeding may be related to the practice of water storage, due to low pressure and inadequate water supply.

Potential Disease Relationship

Malaria

Malaria is getting priority in Public Health Programme due to its resuragence in major parts of India. The problem of malaria in Gujrat is due to two species of *Plasmodium* Viz :- *P. vivax* and *P. falciparum* is transmitted by *Anopheles stephensi* and *A. culcifacies*. Other species, Viz :- *A. fluviatilis*, *A. annularis*, and *A. sundaicus* have been recorded from Surat District but their role in the transmission yet remains undetermine. In the Maldive Islands, *A. subpictus* is the active malaria vector (W H O unpub.) and also suspected to be the sole vector of malaria in Bitra and Chettet Islands (Roy et al 1978). The large numbers of wild caught *A. subpictus* have been dissected from different parts of India but only one sporozoite positive specimen has been recorded from Puttukottai, Tanjore district (Russell et al 1939, Rusell and Rao 1940). However, Russell and Mohan (1939) recorded experimently one gland infection in 67 *A. subpictus* fed on donor with

$$Z^* \text{ Risk factor} = \frac{P_1 - P_2}{\sqrt{\frac{P_1 q_1}{N^1} + \frac{P_2 q_2}{N^2}}}$$

P. falciparum in South India. Similarly Roy (1943) recorded gut and gland infection of *P. vivax* and *P. falciparum* in *A. subpictus* near Calcutta. *Anopheles subpictus* share 62.69% of *Anopheline* population, its role in transmission of malaria, if any require further investigation.

Filariasis

Filariasis in India, is caused by two species of Nematodes viz :- *Wuchereria bancrofti* and *Brugia malayi* (Not recorded in Gujarat) transmitted to man by mosquitoes *Culex pipiens fatigans* and *Mansonia* spp. (*annulifera*, *uniformis* and *indica*) respectively. In Gujarat, the population at risk of filariasis increase from 4.57 million in 1970 to 12.19 million in 1976. Whereas N.F.C.P. has protected a population of 1.52 million i.e. 27.3% (Sharma and Rao 1977). *Culex pipiens fatigans* is known transmitter of *W. bancrofti* in this area. Pandya and Mehta in 1977 have reported 1.42% infectivity rate in case of *C. P. fatigans*, collected from present study area. Very recently *Mansonia (Mansonoides) uniformis*, a known vector of *B. malayi* have been recorded from Surat. (Pandya and Mehta 1977) however, its extent of distribution, ecology and role in transmission yet require further investigation.

Mosquito Borne Virus Diseases

A number of mosquito borne virus diseases are known to be present in India. The most important group affecting human population belongs to *Dengue* group of viruses and *Chikunguniya*. Besides these, another important viruses are *Japanese encephalitis* and *West Nile*.

Surat, has been recognised as endemic for *dengue* virus and first virological proved epidemic was reported in 1967. (Deodhar 1971). *Aedes aegypti* is the proven classical vector of *dengue* and *dengue* like group B viruses as well as *Chikungunya*. This mosquito is a domestic breeder as recorded in the present study. In earlier study, authors found nearly 70% of breeding place of *A. aegypti* belonged to domestic category (Unpub. Data).

Culex tritaeniorhyncus, Giles is most important vector of *Japanese encephalitis*. In addition to this, *Culex pseudo vishnui*, *A. hyrcanus*, *C. vishnui* and *A. barbirostris* are also known as vector of *J. E. Virus* in India (Hati 1976). It is reported that, during recent outbreak of *J.E.* in U.P., Bengal etc. (1978) nearly 4200 people suffered, with 1500 deaths. The J.E. virus has been isolated from last three species during 1973 epidemic in West Bengal (Chakravarty et al 1975). The pig is known reservoir of *J.E. Virus* in India and Japan. Ghosh et al (1978) have reported antibodies of *West Nile*, *J. E.* and *Dengue* viruses in *Suncus murinus*, *Rattus r. rufesceus*, *Mus booduga* and *Bandicoota bengalensis* in Pune district, Maharastra.

West Nile, strains have been isolated from *Culex pipiens fatigans* and *Culex univittatus* during 1965-67 in Manjri near, Pune (V.R.C. unpub.). Thus the role of *C fatigans* in case of arboviruses transmission and the role of small mammals in the cycle of transmission requires further investigation in this area.

Summary

In the present study sixteen species of *Culicidae* mosquitoes belonging to five genera

viz :— *Culex* (6 species), *Anopheline* (4 species), *Aedenine* (4 species) *Mansonia* (one species) and *Armigeres* (one species) have been reported. of which, *Culex sinensis*, Theobald, *C. (Culex) whitmori*, Giles and *Anopheles* (Cellia) *sundaicus*, Rodenw have been reported for the first time in Gujarat. 16.06% larval habitats showed presence of immature stages. Nearly 65% habitats were indoor and mainly *A. aegypti* and *A. Stephensi* breeding was noted. Potential Disease, Relationship of vector species has been discussed.

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INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XXIV, No. 2
April—June, 1980

PATTERN OF CARE DURING PREGNANCY AND LACTATION IN SUNDERPUR
(An urban slum area of Varanasi)

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The urban health centre of the Department of Preventive and Social Medicine was established in 1965 to provide better maternal child health services and organise teaching programme for undergraduate and postgraduate students. Sunderpur urban slum area of Varanasi is 2 km. from the Institute of Medical Sciences, Varanasi. The present study was undertaken to find out pattern of care during pregnancy and lactation.

Material and Methods

Two hundred and eighteen pregnant and lactating women were interviewed to find dietary habits, practices during pregnancy and child birth etc. in pretested schedule by door to door visit in years 1976-77 and at the same time antenatal and delivery records of these women were verified from the records of urban health centre. The dietary survey was conducted by personal interviews and mean intake of nutrients was calculated on the information obtained by fortyeight hour recall method.

Observations

It was observed that 88.1 per cent of the women were illiterate, 7.3 per cent had primary education and 4.6 per cent of the women had education above middle class. As many as two-third of the families were single and one-third still continued to have joint family system.

The per capita income distribution of these women is shown in Table 1. More than 50 per cent had per capita income of less than Rs. 50/- p.m.

Table 1

Distribution of pregnant and lactating mothers according to per capita income

Income groups (Rs.)	No.	Per cent
1— 10	0	0.0
11— 25	10	4.6
26— 50	104	47.7
51—100	93	42.7
101—150	10	4.6
150	1	0.4
Total	218	100.0

Environmental sanitation

Only 50 per cent of these women were living in pucca houses, while 13.8 per cent in

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semi-pucca and 35.3 per cent in Kacha houses. 58.7 per cent houses had adequate ventilation. As far as the water supply of these families is concerned, 31.7 per cent were having tap water, 61.9 per cent well water and 6.4 per cent had hand pump in their houses. It was further observed that 89.4 per cent of these women were going for open field defecation while 10.6 had PRAI latrines in their houses which were used only in bad weather.

Antenatal registration and child birth

The regular antenatal check up was attended by 80.3 per cent of women, while 19.7 per cent never had any medical check up. 34.9 per cent of those registered were attending domiciliary visits of the midwife, while 50.0 per cent could be motivated to attend antenatal clinic at the urban health centre, 1.1 per cent attended University Health Centre 14 per cent attended antenatal clinic of the University Hospital. It was found that 17.4 per cent in first trimester, 62.24 per cent in second trimester and 20.41 per cent in third trimester of pregnancy were registered for antenatal care. Only one-third of the deliveries were helped by the midwife while 22 per cent deliveries were conducted in the hospital. Rest of the deliveries were conducted by untrained dais or improvised trained dais or the women's own relatives. Blade and scissors were the main items used for cutting the umbilical cord, while negligible percentage did use sickle (Table 2). Postnatal cord application of ash was still being practiced in 34 per cent of the newborn babies.

Dietary pattern during pregnancy

The data show that 74.3 per cent of women were mainly on cereal diet, while 25.7 per cent had cereals with plenty of milk during pregnancy. The average intake of calories was 1605, while protein intake was 56 g per head (The recommended ICMR[3] allowances being calories 2500 and protein 55 g during pregnancy). 82.5 per cent did not avoid any food item during pregnancy

Table 2

Praetices during delivery

Delivery conducted by	No.	Per cent	Instruments used for cutting cord	No	Per cent	Place of delivery	No.	Per cent
Relatives	16	7.3	Blade	162	74 3	Home	170	78.0
Untrained dai	39	17.9	Scissors	53	24.3			
Trained dai	37	17.0	Mango leaf	1	0.4	Hospital	48	22.0
Midwife	78	35.8	Sickle	2	0.9			
Doctor	48	22.0						
Total	218	100.0		218	99.9		218	100.0

Table 3

Food items taken during postnatal period

Food items	0—6 days		7—12 days		After 12 days	
	No.	Percent	No.	Percent	No.	Percent
Turmeric, ginger and jaggery decoction and vegetables+ chapati (fried)	22	10.1	11	5.0	—	—
All above+rice and dal	28	12.8	12	5.5	—	—
All above+Achwani	60	27.5	60	27 5	—	—
All above+Sithora	13	6.0	18	8.3	—	—
Usual family diet+milk	78	35.8	78	35.8	21	9.6
Usual family diet	17	7.8	39	17.9	197	90.4
	218	100	218	100	218	100

while 9.17 per cent could not eat well in the first trimester due to aversion of food. 3.67 per cent avoided certain vegetables like pumpkin, jack fruit, Bengalgram and pea, supposed to cause pain in abdomen. 2.76 per cent did not take condiments as these caused gastric irritation.

Special food items used in the postnatal period

Table 3 shows the food taken by the mothers during first 6 days, 7-12 days and after 12 days in the postnatal period. From the first day 22.9 per cent women received decoction of turmeric, ginger and jaggery, and by second or third day 33.5 per cent were given Achwani as drink which contains raisins, cashewnuts, almond, dried ginger, jaggery, wheat flour, turmeric and butter fat. 46.4 per cent women continued to take Achwani, or Sithora upto 7-12 days. Only 9.6 per cent women could afford milk after 12 days while rest shifted to available family diet.

Knowledge of family planning

17.5 per cent of women did not have any knowledge of family planning methods while 67.9 per cent had it but did not practise. 7.8 per cent had permanent method of family planning i.e. tubectomy while 5.5 per cent were using oral pills, condom and IUCD as method of family planning (Table 4).

Table 4

Family planning knowledge and methods used

	No	Percent
Knowledge available, but not used	148	67.9
Oral pills	8	3.7
Condom	4	1.8
Loop	1	0.4
Tubectomy	17	7.8
No knowledge	38	17.5
Widow ladies	2*	0.9

*The husbands of these lactating women died after child birth.

Discussion

The present study revealed that majority of women in this urban slum area had low educational standards and belonged to low socio-economic group. The data compiled in the same area by the B. H. U. teachers about a decade ago were not different from the present one excepting for the ma ginal increase in the socio-economic and educational status of the people which is probably due to general socio-economic development of the count·y. There has been also an overall improvemen·t in environmental sanitation in these families as compared with previous data[1]. At present about one-third of the families had safe drinking water (tap water or hand pump) as compared to 2.5 per cent who had hand pump about a decade ago. More than 50 per cent ladies are having pucca houses as compared to 30 per cent in the past but there had been not much change in the habit of open field defecation as majority of them are still practicing open field defecation. In the present study 80.3 per cent of women obtained antenatal check up including 65.1 per cent of women who attended the clinic for the purpose (Urban health centre. University health centre and Univesity hospital) while rest of the women did not realize the importance of antenatal care inspite of all the available resources in terms of midwife, social scientists, undergraduate and postgraduate students regularly visiting these families.

Poor educational status, over busy in various household chores, ignorance about the importance of antenatal check up and cultural and social traditions are the possible factors for the nonutilization of the antenatal services. Even those ladies who were registered, only 17.3 per cent could be motivated to attend the clinic in the first trimester while 20 per cent visited the clinic for the first time in 3rd trimester which makes the available services just futile.

The antenatal delivery rate coverage was much higher as compared to the data observed by Chakravarty[2] and Sarna[4] from Charaigaon and Dutta et al[5] from Pondichery. Inspite of the fact that services of midwife of the department were available only 35.8 per cent of deliveries were conducted by her while 22 per cent were hospital deliveries because of some complications, desire for post partum sterilization and certain B. H. U. employees who opted for hospital delivery. The rest of the deliveries were conducted either by trained or untrained dais. However, domiciliary delivery is the only way in our situation for normal deliveries provided they are carried out under aseptic conditions and high risk cases are referred to the nearby hospital or maternity centres. Suri et al[6] and Mittal et al[7] also observed that 97.7 and 55.83 per cent of the deliveries respectively were conducted in the homes. It was interesting to observe that most of the indigenous dais were using either scissors or new blade for cutting the umbilical cord rather than age old practice of using sickle or blunt knives of the house. Postnatally there was a practice of applying ash on the umbilical stump which was still persisting in about one-third of the cases although in two-thirds some alternative i.e. boric powder gentian violet lotion, cream etc. were used. Although the ash is said to be antiseptic and it checks the bleeding, the chances of its contamination are

always there if it is not used fresh and warm. Therefore, this practice should be discouraged.

Majority of these mothers had usual cereal diet during antenatal period. Dietary survey done in the 3rd trimester of pregnancy showed that calories, iron and calcium intakes of the pregnant women were much lower than the recommended ICMR allowances[3]. Although protein quantity was just near the requirements, but the quality was available mainly from cereal sources. As far as any dietary restrictions were concerned none in the present study showed any specific liking for food items, while they usually avoided certain vegetables (pumkin, jack fruit, Bengalgram, pea etc.) due to fear of nausea and pain in abdomen. Mittal et al[7] had noted addition of food items like ghee in the diet of pregnant women but surprisingly we did not observe it probably because of non-availability.

The diet during postnatal period mainly consisted of liquid preparations made of jaggery, turmeric, dried ginger for atleast first six days. It is believed to relieve pain abdomen, help in expulsion of dirty clots and in involution of uterus which is infact true in scientific terms also. So we should never discourage such home remedies which are benificial to the community. There is addition of Achwani and Sithora in the diet for 6-12 days, these are good sources of protein, calories and iron. After 12 days most of the women shifted back to their normal diets.

About 18 pet cent women did not have any knowledge of family planning methods while 67.9 par cent having such knowledge were not practising. This is disappointing because inspite of team workers visiting the area, motivation of adopting family planning methods is not upto the desired standard. The lack of maternal educational status in particular and prevalence of age old family customs in general are responsible for it.

Summary

Two hundred and eighteen mothers were interviewed with respect to educational status, environmental sanitation, antenatal care, practices during child birth and dietary habits during pregnancy and early lactation by door to door visits. It was found that most of the women had poor educational and socioeconomic status. Around 50 per cent of the women had poor housing conditions and unsafe water supply. Although majority of the women had obtained antenatal services, but domiciliary deliveries by untrained dais or their own relatives were common. Interestingly in most of the deliveries the umbilical cord was cut by the scissors or blades, however, the practice of applying ash over the umbilical stump was still persisting.

The caloric intake was less as compared to ICMR recommended allowances, however, the protein intake was adequate which was mainly from the cereal protein. There was a common practice of eating Achwani and Sithora during early lactation. Achwani is said to help in relieving abdominal pain, expulsion of clots and in involution of the uterus. Although most of the ladies had the knowledge about the family planning methods but they did not practise.

From the present study tentatively it can be concluded that along with the availability

of the MCH services in the community, the improvement in the maternal educational status is of paramount importance so that there is better acceptability of the services available.

Acknoweldgements

The authors are indebted to Professors S.M. Marwah, I. C. Tewari, Deparment of Preventive and Social Medicine and Professor K.N. Agarwal, Department of Paediatics for their valuable suggestions. We are aslo grateful to the mothers who cooperated in this study.

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INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XXIV, No. 2,
April—June, 1980

TETANUS NEONATORUM AS SEEN IN KALAWATI SARAN CHILDREN'S HOSPITAL, NEW DELHI IN THE YEAR 1965 AND A DECADE LATER

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Introduction

Tetanus neonatorum is one of the major health problems in India though a curiosity in the western world. It is listed as one of the ten leading causes of deaths in our country (W.H.O. 1963) and second common cause of deaths in neonates (Shah & Udani 1969).

Tetanus is one disease for which a safe, cheap and effective immunization is available. In the last few years there has been a lot of emphasis on the improvement of health services both preventive and curative to the community. According to M. C. H. programme every pregnant mother is required to be given tetanus toxoid during the third trimester of pregnancy to protect the neonate against hazards of tetanus. The M.C.H. and school health programme in the country aim at immunizing the children against tetanus in infancy, pre-school and school age period. How far, this objective has been attained is difficult to ascertain. The only way to evaluate the effectiveness of these health programmes is to determine the fall in morbidity due to this disease. The exact incidence is not easy to know but an approximation can be made to some extent by scrutiny of hospital records.

With the above objectives in view the cases of tetanus admitted in Kalawati Saran Children's Hospital, New Delhi in 1965 and 1975 were analysed.

Material and Methods

Records of admission and deaths of all children admitted in Kalawati Saran Children's Hospital for tetanus in 1965 and than in 1975 were studied and analysed.

Results

Total number of children admitted in 1965 and 1975 in Kalawati Saran Children's Hospital for various ailments were 3509 and 9799 respectively and out of which neonates admited for tetanus were 87 (2.5%) and 365 (3.7%) respectively (Table 1).

Table 1

No. of cases admitted for Tetanus Neonatorum in 1965 and 1975

Year	Total no. of cases admitted at KSCH.	No. of neonates with Tetanus.	Percentage
1965	3509	87	2.5%
1975	9799	365	3.7%

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From Tables 2 and 3 it will be seen that majority of the neonates were over 5 days of age at the time of admission and males predominated.

Table 2

Age distribution of patients

Age	1965	1975
Less than 4 days	1 (1.10%)	28 (7.1%)
5—7 days	44 (50.6%)	185 (51.0%)
8—14 days	42 (48 3%)	153 (41.9%)
Total	87	365

Table 3

Sex-wise distribution of cases

	1965	1975
Male	71 (81.6%)	287 (78.6%)
Female	6 (18.4%)	78 (21.4%)
Total	87	365

Area-wise Distribution of cases

In 1965, 69% of babies admitted for tetanus were from Delhi proper and rest 31% were from rural areas. In 1975, 56% patients were from Delhi and 44% were from rural areas. The maximum number of patients were drawn from Paharganj and trans-Jumna colonies.

Table 4

Instruments used for cutting the cord

	1965	1975
Unsterile scissors	15 (17.2%)	75 (20.5%)
New Blade	47 (54.0%)	265 (72.6%)
Scythe	10 (11.5%)	5 (1.4%)
Kitchen Knife	15 (17.2%)	20 (5.5%)
Total	87	365

The various instruments used for cutting the cords at the time of births are listed in Table 4.

Except for three neonates in 1975, all were delivered at home in both the years. The deliveries were conducted by local dais and the above table shows that the cord was cut with blade, scissors, kitchen knife or a scythe.

Table 5 shows that fatality rate was 81.6% in 1965 and 76.6% in 1975.

Table 5

Outcome of diseases

Outcome	1965	1975	Test of significance
Expired	71 (81.6%)	277 (75.9%	NS
Left against medical advice	6 (6.9%)	12 (3.3%)	NS
Discharged	10 (11.5%)	76 (20.8%)	NS
	87	365	

The causes of death in both the years were uncontrolled spasms, cardio-respiratory failure and aspiration (Table 6).

Table 6

Causes of death

Causes	1965	1975
Uncontrolled spasms	34 (47.9%)	123 (46.4%)
Cardio-respiratory arrest.	22 (31.0%)	101 (38.1%)
Aspiration.	15 (21.1%)	41 (15.5%)
Total	71	265

Discussion

Tetanus is a disease which is present all over the world but it assumes a greater significance in developing tropical countries. The presumption that this is the disease of rural population is not true. Babies born in urban slums are equally prone to this disease. Majority of cases in our hospital were from Paharganj and Trans-Jumna colonies, the localities which are highly congested and inhabited by poorer people. The mortality reported in Delhi by Anu Gupta et al in 1977 and observed by us ranged between 70-80%. With the introduction of many health programmes and advancement in modern therapeutic techniques the incidence and mortality of tetanus neonatorum has not shown even the slightest downward trend in Delhi. If at all the incidence had risen from 2.5% to 3.7% of the total admissions in K.S.C.H. The conditions during labour and a few days following delivery were essentially the same in sixties and in seventies. No material change was observed in aseptic precautions taken while attending to the mothers in labour and babies at birth during the two decades.

A baby admitted in a hospital with tetanus is a very expensive liability. The cost of treatment per patient in terms of drugs and hospital stay is around Rs. 300/- per day. This, however, does not include the effort and money spent by the parents and also the emotional trauma which cannot be measured in terms of money. A cost analysis done from CMC Hospital, Ludhiana (Griffith et al, 1964) was very revealing. According to this study the hospital expenditure on an infant who survived tetanus was Rs. 1857 an amount which a poor country like ours can illafford. According to Henderson, 1978 the cost of protective immunization against preventable diseases for which immunization is available is roughly 15-20 rupees per child. This expenditure when compared with the treatment cost of preventable diseases is a minor amount.

Conclusion

To conclude, though the health authorities are earnestly trying to implement immunisation programmes to reduce the incidence of preventable diseases, the morbidity figures of tetanus have not shown any decline over the last 10 years in our hospital. The pattern of the disease has remained absolutely the same. It only means that more concerted efforts on the part of health authorities, voluntary agencies, community workers and awakened citizens are required to improve the

targets fixed for tetanus immunization under the Expanded Immunization Programme. Health education and door to door immunization is the only answer to eradicate Tetanus.

Acknowledgements

We are thankful to Dr. S. Chawla, Principal, Lady Hardinge Medical College & Smt. Sucheta Kriplani Hospital and Dr. V. V. Gujral, Professor of Pediatrics for permitting us to publish the data.

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INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XXIV, No. 2,
April– June, 1980

FAMILY PLANNING AND TUBERCULOSIS

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Introduction

The family planning programme in India is running actively for many years inspite of several set backs. Huge amounts have been spent and are being spent by the Government in order to make the people conscious about the benefit of having smaller number of children. Tuberculosis, being an active infectious diseases is another problem and has got direct correlation with the increase of population. This situation will be further aggravated by the corresponding fall of the standard of living and its associated effects on the spread of the disease.

The present study has been undertaken with the following objectives : To find out—

I. The state of knowledge regarding family planning practice among patients suffering from pulmonary tuberculosis before and after the diagnosis and after stabilization of the disease.

II. Any correlation between the social class of the patient and practice of family planning.

III. Any correlation between the age at marriage and the development of pulmonary tuberculosis.

IV. The effect of pregnancy and parity on the development of the disease.

V. Changes in the attitude of patients towards family planning after the diagnosis and stabilization of the disease.

VI. Any relationship between the practice of family planning and the regularity in the visit of the patient to the clinic.

Material and Methods

This study has been undertaken by the Tuberculosis and Chest Section of the Department of Medicine and Department of Preventive and Social Medicine, J. N. Medical College, A.M.U. Aligarh, in collaboration with the District Tuberculosis Centre, Aligarh.

The cases diagnosed during the year 1970-71 have been included in this study. The married patients were interrogated and the information was colleeted on a cyclostyled proforma. Every effort was made to take

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the patients in confidence and make them aware of different family planning methods. The patients were followed up till the stabilization of disease and stoppage of treatment (average period of 3 years).

Total number of cases studied were 657 comprising of 367(55.9%) males and 290 (44.1% females.

Observations

Age, sex and religion

Out of 657 patients, included in the study, 454 (69.1%) were Hindus, 199(30.3) Muslims, 3(0.4%) Christians and 1 (0.2) Sikh. Further break-up shows that out of 367 males 263 (71.7) were Hindus and 102 (27.8) were Muslims, whereas in 290 females, 191 (65.9%) were Hindus and 97 (34.1%) were Muslims.

448 cases out of 657 (68.2%) were in the age group of 20-39 years ; maximum i. e. 234 (35.6%) in the age group of 30-40 years (Table 1).

Social Class

Majority of cases i.e. 337 out of 367 (91.8%) in males and 259 out of 290 (89.3%) in females were drawn from social class IV and V, poor and very poor group (Table 6).

Age at marriage, duration of married life and number of children born in females

Out of 367 males, 246 (67.0%) were married below 21 years of age. Among females 205 (70.7%) out of 290 were married at the age below 18 years (Table 2).

Table 2

Distribution according to the age at marriage

Age in years	Male	Female
—12	2	3
13	3	15
14	16	41
15	34	61
16	41	56
17	11	29
18	52	32
19	21	13
20	66	19
20+	121	21
Total	367	290

Males married below 21 years=246 (67.0%)
Females married below 18 years=205 (70.7%)

Table 1

Distribution of patients of pulmonary tuberculosis according to age, sex and religion

Age in years	MALE				FEMALE				Total
	Hindu	Muslim	Others	Total	Hindu	Muslim	Others	Total	M+F
10—19	3	2	—	5	5	7	—	12	17
20—29	77	20	—	97	73	44	—	117	214
30—39	84	38	—	122	79	33	—	112	234
40—49	63	17	—	80	26	12	2	40	120
50—59	28	19	2	49	4	1	—	5	54
60+	8	6	—	14	4	—	—	4	18
Total	263	102	2	367	191	97	2	290	657
Percentage	71.7	27.8	0.5	55.9	65.9	33.5	0.6	44.1	

Table 3

Distribution of female patients according to the number of children born and duration of married life

Duration of married life in years	Number of children born							Total	
	0	1	2	3	4	5	5+	No.	Percentage
0—4	12	12	10	3	—	—	—	37	12.8
5—9	3	15	19	12	5	2	2	58	20.0
10—14	5	4	5	12	9	10	10	55	18.9
15—19	3	2	3	4	11	14	15	52	17.9
20+	—	—	1	6	8	9	64	88	30.4
Total	23	33	38	37	33	35	91	290	
Percentage	7.9	11.4	13.1	12.7	11.4	12.0	31.3		

The number of those having more than 3 children was 9 out of 58 (15.5%) with duration of married life of 5-10 years, 29 out of 55 (52.7%) with duration of 10-15 years, 40 out of 52 (76.9%) with duration of 15-20 years and 82 out of 88 (93.2%) with duration 20 years and above (Table 3).

Pregnancy and onset of the disease according to age, sex, and religion

Out of 290 female patients, 143 (49.3%) developed tuberculosis within one year of child birth, while 85 (29.3%) developed the symptoms during pregnancy (Table 4).

Practice of family planning

Total number of patients found practising were 51 out of 367 (13.9%) in males and only 15 out of 290 (5.2%) in females. However only 29 out of 219 (13.2%) males and 13 out of 229 (5.7%) females in the age group of 20-39 years were found practising family planning (Table 5).

Table 4

Distribution of female patients according to the symptoms of disease in relation to pregnancy and child birth

State of females at onset of symptoms	No.	Percentage
Not pregnant	23	7.9
Pregnant	85	29.3
Within 3 months after delivery	61	21.2
3-6 months after delivery	38	13.1
6-12 months after delivery	34	11.7
More than 1 year after delivery	49	16.8
Total	290	100

Religion-wise break-up shows that 45 out of 454 Hindus (9.9%) and 20 out of 199 Muslims (10.1%) were practising family planning. Among Hindus 34 out of 263 (2.9%) males and 11 out of 191 (5.8%) females were practising family planning. Corresponding figures in Muslims were 16 out of 102 (15.7%) in males and 4 out of 97 (4.1%) in females (Table 5).

Table 5

Practice of family planning according to age, sex and religion among T.B. patients

Age in years	Hindu		Muslim		Others		Total practising			
	Practising	Not practising	Practising	Not practising	Practising	Not practising	Male		Female	
							No.	%	No.	%
10—19	—	8	1	8	—	—	1	2 0	0	0
20—29	12	136	2	62	—	—	11	22.0	3	18.7
30—39	20	143	8	63	—	—	18	36.0	10	62.6
40—49	9	80	1	28	—	2	8	16.0	2	18.7
50—59	4	28	2	18	1	1	7	12 0	—	0
60+	—	12	6	—	—	—	6	12.0	—	0
Total	45	409	20	179	1	3	51	100.0	15	100

Practice of family planning and social class

As regards the practice of family planning in various social class it was observed that only 41 out of 421 (9.7%) in class V, 12 out of 175 (6.9%) in class IV, 3 out of 38 (7.9%) in class III, 3 out of 15 (20.0%) in class II and 1 aut of 8 (12.5%) in class I were practising family planning (Table 6).

Practice of family planning in relation to the disease

As regards the practice of family planning by the patients it was ob erved that 66 out of 657 (10.2%) were practising before the diagnosis and 125 (19.0%) started practising after the diagnosis of the disease. Among 406, in whom the disease was stabilised after treatment, it was practised by 120 (29.6%) cases.

Table 6

Distribution of patients according to sex social class and family planning

Sex	I		II		III		IV		V		Total
	P	N	P	N	P	N	P	N	P	N	
Male	—	3	2	5	2	18	11	88	36	202	367
Female	1	4	1	7	1	17	1	75	11	172	290
Total	1	7	3	12	3	35	12	163	47	374	657
Percentage	12.5	87.5	20.0	80.0	7.8	92.2	6.7	93.3	11.2	88.8	

P—Practising, N—Not practising

Social classification : according to Prasad B.G. (1968).

Table 7

Distribution of cases according to family planning practice and the period of the disease (before and after diagnosis and after stabilization of disease

Period of Disease	Total No. of cases	Practising		Not practising	
		No.	Percentage	No.	Percentage
Before Diagnosis	657	66	10.1	597	90.9
After Diagnosis	657	125	19.0	532	81.0
After stabilization of disease	406	120	29.6	286	70.5

Practice of family planning after the diagnosis of the disease.

Table 7 depicts the 125 out of 657 (19.0%) were practising family planning after diagnosis of the diseases. 55 out of these 125 (44.0%) were already practising before the diagnosis was done. Amongst those who started afterwards, the most common reasons given by them were advice by the Physician in 28 (22.4%) and economic reasons in 15 (12.0%). Only 13 (10.4%) mentioned that as the disease was infective to others especially infants and children, they decided not to produce any more children (Table 8).

Table 8

Reasons for practising family planning after the diagnosis

Reasons	No	Percentage
Practising before	66	52.8
Infective disease	13	10.4
Economic reasons	15	12.0
Advice of Physicians	28	22.4
Operation done	3	2.4

Out of the remaining 532 cases who did not practice it, the most common reason as given by 256 (48.1%) cases, was lack of knowledge about family planning or its methods (Table 9).

Table 9

Reasons for not practising after diagnosis of disease

Reasons	No.	Percentage
Lack of knowledge	256	48.1
Against religion	34	6.4
Reluctance of other partner	18	3.4
Wanted to have more children	97	18.2
Wanted a male child or female child	8	1.5
No issue	61	11.5
Not interested in family planning	36	6.8
Divorced or widow or wife dead	14	2.6
Old age	2	0.4
Operation done	6	1.1
Total	532	

Regularity of the practice regarding patients' visit to the Clinic and Family Planning

It was observed that 82 out of 125 patients (65.6%) practising family planning were regularly visiting the clinic, whereas 218 out of 532 (41.0%) not practising family planning were visiting the clinic regularly (Table 10).

Table 10

Distribution according to family planning practice and the regularity for visit to clinic

	Regular for visit to clinic for check up and drug collection		Irregular for visit to clinic for check up and drug collection		Total
	No.	Percentage	No.	Percentage	
Practising	82	65.6	43	34.4	124
Not practising	218	41.0	314	59.0	532
Total	300	45.7	357	54.3	657

Discussion

Family planning and Tuberculosis control programmes, the two most ambitious programmes of our country are running simultaneously all over India. The present study was undertaken to assess the relative impact of one programme on the other.

Most of the patients were drawn from low social-economic (90.7%) class and reproductive age group of 20-39 years (65.1%). Most of the females were married before attaining the age of 18 years (70.6%). Increase in the duration of marital life was associated with increase in number of children born. Increase in marriage age will, therefore, bring down the duration of married life, specially of reproductive period and thereby reducing the number of children. This social change will automatically raise the standard of living and will bring about decrease in the incidence of pulmonary tuberculosis.

Bearing of the child was found to be related to the onset and progress of the disease. Reasons attributed may be the diminished resistance found in most of the pregnant and lactating mothers in our country, which may precipitate dormant infection.

It was surprising to observe that though family planning is being run for more than a decade, very small number (10.1%) were found practising family planning before the diagnosis of the disease. This corresponds to (12.7%) practising regularly in a study conducted by Zaheer et al (1971) amongst the grade IV employees of Aligarh Muslim University. The number of practising females was comparatively smaller. Lack of knowledge regarding family planning or its method was found to be the main reason for not

practising. However the practice was found more in person of higher social class as compared to lower social class. The similar difference in general population such as employees of Aligarh Muslim University was observed by Zaheer et al (1971).

The diagnosis of tuberculosis made these patients more conscious of family planning (before diagnosis 10.1% after diagnosis 19.0%). This trend continued even after stabilization of disease when the practice went upto 29.5%. It was also observed that the patients who were visiting the clinic regularly for check-up and treatment were practising family planning more than those who were irregular in their visit. This may be due to psychological make up of the patient about his or her well-being as well as the welfare of their family.

Under the circumstances observed in the study it is worthwhile to suggest that the two national programmes i.e. Tuberculosis Control and Family Planning should run in close cooperation towards each other. This will not only bring about better result but will also help in the motivation of the population towards birth control as well as in treatment and follow-up of tuberculosis cases. Medical and Para-Medical staff working at tuberculosis clinics, hospitals and sanatorium can undertake family welfare work very usefully and effectively among the tuberculosis patients and their families. Similar observations have been made by other workers (Editorials, 1967 a and 1967 b).

It is further suggested that in the rural areas comprising nearly 82% of our total population, the joint running of the programme is worth trial.

Summary

The present study has been undertaken to find out the relative impact of family planning, and tuberculosis control programme towards each other.

Total number of patients included were 657 (367 males, 290 females).

Majority of the patients were drawn from poor and very poor group. 81.7% were married at the age of 18 years or below. Practice of family planning was observed in 10% before diagnosis, in 19% after the diagnosis and in 29.5% when the disease was established.

Regularity in the visit to the clinic was observed more 65 6%) in practising patients than non-practising patients (40.9%).

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INDIAN JOURNAL OF
PUBLIC HEALTH
Vol. XXIV, No. 2
April—June, 1980

A STUDY OF MAJOR CAUSES OF MORTALITY AND THEIR TREND FROM 1921 TO 1971 IN PUNE CANTONMENT@

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Introduction

Mortality data inspite of its inherent limitations are often utilised as an indirect measure of the state of health. Studies on mortality and its various aspects, in India, are limited and are mainly confiued to a few important cities like Calcutta[1], Madras[2] and Bangalore[4]. Such studies reflect the secular trends in mortality and its important causes, and are of great public health importance.

In this paper are presented mortality data pertaining to Pune Cantonment over a period of 50 years from 1921 to 1971. Pune Cantonment is an old Cantonment whose health records were maintained by the Executive Officer as far back as 1919.

The population of the cantonment has risen from 32,726 in 1921 to 77,774 in 1971, a more than two-fold rise in 50 years. Being an urban area, the population consists mainly of those in service, industry and in commerce. Agriculture plays a negotiable role in the occupational distribution. As per 1971 census almost 70% of the population of the Cantonment was literate. The male : female ratio has changed from 1000 : 723 in 1921 to 1000 : 630 during 1971[3].

Materials and Methods

This study is based on detailed examination of the Death Registers maintained by Pune Cantonment Board. Since authentic records of population were available for the census years, death records for those years were studied starting from 1921. The study was planned to cover the pattern of decennial mortality upto 1971. Mortality data for the year 1931 were, however, not available.

Death registration in Pune Cantonment is based on causes of death, certified by the following agencies : Cantonment General Hospital, the local Military Hospital, Govt. dispensaries and the local general practitioners.

An extract from the Cantonment Death Register was first prepared. ICD numbers were alloted as per the International Classification of Diseases (1975 revision)[5] and the diseases were grouped under the 17 categories stated in the nosological table.

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Analysis of the data was undertaken under the following heads : (a) Crude death rate including sex differentials in the mortality trend ; (b) Cause specific mortality.

In studying the cause-specific mortality, emphasis was laid on :

1. First five leading causes of death.
2. Secular trends in mortality.
3. Individual diseases which made major contributions in each group.

The disease-group specific mortality was calculated based on the number of deaths in a specific-disease group per 1000 of population. Most studies on mortality data have used proportional mortality rate. But population based statistics (i.e. Rate/1000 population) are considered more reliable and valid as compared to proportional mortality rates Population statistics were obtained from the cantonment records and the Regional Census Directorate, Maharashtra[3].

Findings and Discussion

The crude death rate fell from 14.08 in 1921 to 9.29 in 1971 with the lowest figure of 5.22 in 1951. Though it is not possible to say with any certainty, it is likely that incomplete registration in the post-war disturbed conditions resulted in unusually low death rates observed in 1951.

Table 1

Decennial Crude Death Rates/1000 Population

Census year	Population	Deaths	Crude Death Rate
1921	32726	461	14.08
1941	40447	547	13.52
1951	59011	308	5.22
1961	65838	572	8 69
1971	77774	719	9.29

A comparison with the national death rates for the decennial years shows that the crude death rate in Pune Cantonment has been consistently and considerably lower than the national figure. It is observed that crude death rate trends in urban areas of Bangalore also showed similar trend[4].

Sex-wise Mortality rate

A general downward trend of mortality in both sexes was observed from 1921 to 1971. In advanced countries such as England and Wales, and the USA, female mortality is

Table 2

Sex-wise Decennial Mortality Rates/1000 Population.

Year	Males			Females		
	Population	Deaths	Death rate	Population	Deaths	Death rate
1921	18990	259	13.64	13736	202	14.71
1941	24180	320	13.23	16267	227	13.95
1951	33309	190	5.70	25702	118	4.59
1961	35251	284	8.06	30587	288	9.42
1971	42495	385	9.06	35279	334	9.47

generally lower than male mortality in all age groups. Unlike the Western experience, female mortality in this country is higher than male mortality[6]. The situation in Pune Cantonment conforms to the national trend.

Leading Causes of death

In the absence of reliable morbidity data in any population. recourse is often taken to analysis of mortality data to identify important health problems. Note has to be taken of the leading causes of mortality because the institution of preventive measures against these diseases is likely to pay handsome dividends.

Table 3 shows that the group "Symptoms and ill defined conditions" was the leading causes of motality. This group mainly

Table 3

Group Specific Mortality Rates/1000 population

Group No.	Subcategories	1921	1941	1951	1961	1971
I	Infective and Parasitic diseases	1.56	2.69	0.80	0.75	0.68
II	Neoplasms	—	0.20	0.27	0.40	0.49
III	Endocrine, Nutritional and Metabolic Diseases	0.40	0.85	0.15	0.13	0.28
IV	Diseases of the Blood and Blood forming organs	0.12	0.16	0.10	0.06	—
V	Mental Disorders	—	—	—	0.02	—
VI	Diseases of Nervous system & Sense organs	0.40	0.14	0.11	0.21	0.20
VII	Diseases of the Circulatory system	0.46	2.17	1.10	1.60	1.89
VIII	Diseases of the Respiratory system	4.30	2.59	0.91	1.55	0.60
IX	Diseases of the Digestive system	0.70	2.08	0.46	0.21	0.41
X	Diseases of the Genito-urinary system	0.21	0.05	0.05	0.03	0.01
XI	Complications of Pregnancy	0.09	0.15	0.02	0.03	0.02
XII	Diseases of the Skin	—	0.05	—	0.02	0.01
XIII	Diseases of the Musculo skeleton system	—	—	—	—	—
XIV	Congenital anomalies	—	0.07	0.01	0.04	0.04
XV	Certain conditions originating in the perinatal period	0.98	0.34	0.11	1.04	1.33
XVI	Symptoms, signs and ill-defined conditions	4.68	1.83	1.10	2.34	3.07
XVII	Injury and poisoning	0.18	0.15	0.03	0.26	0.26
		14.08	13.52	5.22	8.69	9.29

consisted of deaths due to Pyr xia of Unknown Origin and Senility. Obviously these diagnoses are not very satisfactory due to lack of specificity. As such this group has been excluded from the list of the leading causes of death. The disease groups which then constituted the first five leading causes of death over the five decades were :—

(a) Diseases of respiratory system.
(b) Diseases of circulatory system.
(c) Infective and parasitic diseases.
(d) Certain casues of perinatal mortality.
(e) Diseases of digestive system.

It is noteworthy (Table 4) that the nature and sequence of the first five leading causes of mortality in this Cantonment has shown a changing pattern over the decennial years. In 1921, the top two leading causes of death were diseases of respiratory system and infective and parasitic diseases, while the disease of circulatory system were at the bottom of the list. On the other hand, in the decennial years 1951 and 1961, the leading cause group was diseases of circulatory system. It is also equally intersting to observe that, whereas the causes group "Neoplasms" was not among the first five leading causes of death during

Table 4

Leading causes of death : 1921 to 1971

	1921	1941	1951	1961	1971
1.	Diseases of Respiratory system	Infective and parasitic diseases	Diseases of the circulatory system	Diseases of the circulatory system	Certain conditions originating in the perinatal period
2.	Infective and parasitic diseases	Diseases of Respiratory system	Diseases of respiratory system	Diseases of respiratory system	Diseases of circulatory system
3.	Certain conditions originating in the perinatal period	Diseases of circulatory system	Infective and parasitic diseases	Certain conditions originating in the perinatal period	Infective and parasitic diseases
4.	Diseases of digestive system	Diseases of digestive system	Diseases of digestive system	Infective and parasitic diseases	Diseases of the respiratory system
5.	Diseases of circulatory system	Endocrine, Nutritional and Metabolic diseases	Neoplasms	Neoplasms	Neopla ms

1921 and 1941, this cause-group has made its appearance constantly among the first five leading causes of death in the years 1951, 1961 and 1971.

Diseases of Respiratory System

The mortality in this group has shown a dramatic decrease from 4.30 in 1921 to 0 60 in 1971 i.e. a reduction by 86% in 50 years.

Table 5

Diseases of Respiratory System : Death Rate/1000 Population

Diseases	1921	1941	1951	1961	1971
Pneumonias	1.28	1.43	0.63	0.76	0.43
Asthma	2.86	0.59	0.21	0.33	0 08
Others	0.46	0.57	0 07	0.46	0.09
Total	4.30	2.59	0.91	1.55	0.60

The two major diseases in this group were pneumonias and asthma. Pneumonias as a specific cause of deaths registered an increase in 1941 after which there was a sharp decline from 1 43 in 1941 to 0.43 in 1971. This may be attributable to the advent and widespread use of antibiotics/chemotherapy after 1941.

As regards "asthma", the scrutiny of death registers gave the impression that the rate of 2.86 in 1921 was rather exaggerated. All cases of breathlessness, irrespective of the underlying cause, appeared to have been labelled as "asthma". There was no mention of deaths due to pulmonary heart disease. In the subsequeut decennial years, the death rate due to asthma registered a marked decline, being 0.59, 0,21, 0.33 and 0.08 respectively in the years under study. It is considered that this sharp decline in the registration of asthma as a cause of death could be due to better and specific diagnosis of cases dying of breathlessness. This is substantiated by the fact that deaths due to pulmonary heart disease started to be recordcd from 1941.

Diseases of Circulatory System

There has been a four-fold increase in this group from 0.46 in 1921 to 1.89 in 1971. The largest single contribution to this group in 1971 was made by Myocardial Infarction. This disease was not registered as a cause of death during 1921 and 1961. It is also interesting to note the steep rise in mortality due to this cause from 1951 onwards. The cause-specific mortalily rate of 0.36 during 1961 was nearly three-times the 1951 rate of 0.13.

It is also seen that the diagnosis "Pulmonary Heart Disease" does not appear prior to 1941. In all probability such cases were labelled as asthma.

Table 6

Diseases of Circulatory System : Death Rate/1000 Population

Disease	1921	1941	1951	1961	1971
Myocardial Infarction	—	—	0,13	0.36	0.62
Pulmonary Heart Disease	—	0 39	0.24	0.55	0.53
Ill-defined Heart Diseases	0.15	0.79	0.41	0.21	0.42
Others	0.31	0.99	0.30	0.47	0.32
Total	0.46	2 17	1.08	1.59	1.89

Infective and Parasitic Diseases

The mortalily rate due to this group has shown a steady decline over the 50 years period ; from 1.56 in 1921 to 0.68 in 1971, except for a rise in 1941 to 2.69.

Table 7

Infective & Parasitic Diseases : Death Rate/1000 Population

Diseases	1921	1941	1951	1961	1971
Tuberculosis	0.79	1.63	0.49	0 35	0.40
Others	0.77	1.36	0.31	0.40	0.28
Total	1.56	2.69	0.80	0.75	0.68

Within this broad group, the relative importance of certain major diseases was also studied. Pulmonary tuberculosis as a single cause contributed to nearly 50% of mortality in this group in all the decennial years. The other 138 components of this group including dysenteries, typhoid, diphtheria and infective hepatitis together contributed to the remaining 50% of mortality in this group. This clearly highlights the magnitude of the problem of tuberculosis as a single entity. It is also seen that while mortality due to tuberculosis decreased by about 50% over the half century under study, mortality due to all other causes in the group decreased by about 64%. This indicates that improvements in environmental sanitation, immunisation programmes, development in health services and betterment of socio-economic conditions have made a greater impact on other diseases in the group than on tuberculosis. The data show that the specific national health programmes against tuberculosis had, uptill 1971, failed to make a significant impact in Pune Cantonment.

Certain Conditions Originating in the Perinatal Period

This group showed a rising trend during the period under study. The main single cause in this group was prematurity, which showed a sharp rise from 0.12 in 1961 to 1.16 in 1971, a nearly ten-fold iucrease in twenty years. Whether this sharp rise reflects a true increase in the incidence of prematurity or is due to better registration through more institutional deliveries is not clear. But it does call for the institution of more intense and effective maternal and child health care services during antenatal natal and immediate post-natal periods.

Table 8

Certain Conditions Originating in the Perinatal Period : Death Rate/1000 Population

Cause	1921	1941	1951	1961	1971
Low birth weight	0.61	0.34	0.12	0.91	1.16
Others	0 37	—	—	0.13	0·17
Total	0.98	0.34	0.12	1.04	1.33

Diseases of Digestive System

Among the diseases of digestive system, gastroenteritis formed the most frequently registered cause of death. It contributed to 0.61 in 1921 and 0.27 in 1971. The highest rate of 1.80 was recorded in the year 1941. The appreciable decrease from 1941 to 1971 was probably due to improved environmental sanitation and water supply in the cantonment coupled with better therapeutic mangement.

Table 9

Diseases of Digestive System : Death Rate/1000 Population

Diseases	1921	1941	1951	1961	1971
Gastroenteritis	0 61	1.80	0.41	0.06	0.27
Others	0.09	0.28	0.05	0.15	0.14
Total	0.70	2.08	0.46	0.21	0.41

Neoplasms

Neoplasms have been registered as a cause of death from 1941. Since then their frequency has increased from 0.20 in 1941 to 0.49 in 1971. This may be ascribed to better diagnosis as well as increased longivity.

It is also noteworthy that neoplasms have become one of the five leading causes of death from 1951 (Table 4).

Table 10

Neoplasms : Death Rate/1000 Population

Neoplasms of	1921	1941	1951	1961	1971
Digestive Organs	—	0.05	0.10	0.09	0.16
Respiratory Organs	—	0.05	0.03	0.04	0.14
Other Organs	—	0.10	0.14	0.27	0.19
Total	—	0.20	0.27	0.40	0.49

Symptoms and Ill Defined Conditions

Deaths in this group have shown a downward trend from 4.68 in 1921 to 3.07 in 1971.

The interesting feature of this group is the steep fall in "pyrexia of unknown origin" from 4.25 in 1921 to 0.05 in 1971, a 98% decrease. It is also worth noting that this single cause contributed to 90.8% of the whole group in 1921, 91.3% in 1941 and then suddenly showed a decline to 13.9% in 1951, 3.5% in 1961 and 1.5% in 1971. It is obvious that with improved diagnostic facilities cases leading to the marked reduction in the registration of PUO.

Table 11

Symptoms & Ill defined Conditions : Death Rate/1000 Population

Causes	1921	1941	1951	1961	1971
Pyrexia of Unknown Origin	4.25	1.58	0.15	0.08	0.05
Senility	0.34	0.15	0.68	1.62	2.08
Others	0.09	0.10	0.27	0.64	0.94
Total	4.68	1.83	1.10	2.34	3.07

The other interesting feature of this group is the death rate due to "senility" which has shown an increase from 0.34 in 1921 to 2.18 in 1971. This is apparently the result of many factors, such as increased longivity and expectation of life, increasing control of communicable diseases and improved health care services.

Summary and Conclusions

Mortality trends and the major causes of mortality in Poona Cantonment from 1921 to 1971 have been presented. The salients findings are as follows :

1. The crude death rate has fallen from 14.08 per 1000 in 1921 to 9.29 in 1971. The year 1951 witnessed the lowest death rate of 5.22 per 1000.

2. The disease groups which constituted the first five leading causes of mortality were :-

   (i) Diseases of Respiratory System.
   (ii) Diseases of Circulatory system.
   (iii) Infective and Parasitic Diseases.
   (iv) Certain Causes of Perinatal Mortality.
   (v) Diseases of Digestive System.

3. The diseases of respiratory system, infective and parasitic diseases and diseases of digestive system, registered a decline over the 50 year period. The sharpest decline was witnessed in the diseases of respiratory system which fell from 4.3 per 1000 in 1921 to 0.60 per 1000 in 1971. On the other hand, diseases of circulatory system registered a sharp rise from 0.46 per 1000 in 1921 to 1.89 per 1000 in 1971. The group, causes of perinatal mortality also showed an upward trend.

4. Neoplasms, joined the five leading causse of mortality from 1951 onwards.

5. Myocardial infarction was not registered as a cause of death upto 1941. From 1951 onwards it has made increasingly large contributions as a cause of mortality in the group "diseases of circulatory system".

6. Pulmonary tuberculosis shared the general downward trend in mortality caused by the group 'infective and parasitic diseases", but was responsible for over 50% of mortality in this group The specific national health programmes against this disease have not made any significant impact.

The foregoing study has generated data which were not hitherto available. The data have indicated the necessity for strengthening the maternal and child health care facilities as well as services for early detection and treatment of myocardial infarction and neoplasms. Activities under the National Tuberculosis Control Programme also need to be reviewed and revitalised.

Acknowledgement

Our thanks are due to Mrs. Shanti Devadasan, Cantonment Executive Officer, Pune Cantonment for making available the Death Registers of the cantonment and for her keen interest throughout the entire study.

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INDIAN JOURNAL OF PUBLIC HEALTH
Vol. XXIV, No. 2,
April—June, 1980

BOOK REVIEW

New WHO Publication

The eradication of smallpox from India, by R. N. Basu, Z. Jezek & N. A. Ward, New Delhi, World Health Organization South-East Asia Regional Office, 1979 (WHO history of International Public Health Series No. 2). ISBN 92 9022 105 4. 346 pages. Price : Sw. fr. 30.-.[1]

This publication was written by a health official of the Government of India and two WHO staff members who were actively involved in the Indian National Smallpox Eradication Programme. It sets forth in detail what was done at each stage of the programme. Also included are the serendipitous events and the mistakes in judgement, the national strengths which facilitated the programme as well as the weaknesses which hampered progress. Examples of the many forms used are spread throughout the volume. An annex names more than 1000 participating officials from India and from 30 other countries. A bibliography is provided containing some 300 references to published and unpublished work on the subject.

The Indian National Smallpox Eradication Programme was first launched in 1962. At that time, as in years before and preceding eradication, the number of smallpox cases in India represented over one half of the total reported from throughout the world. The policy of mass vaccination achieved a reduction in smallpox incidence in the southern states but was less successful elsewhere. In 1973 a new strategy of intensified search and containment was put into effect. In January 1975, operation smallpox "Target Zero" was launched and field operations were further intensified. Instead of village-to-village searches, house-to-house searches were introduced. On 17 May 1975, the last known indigenous smallpox case occurred.

The absence of smallpox was confirmed by a national independent assessment committee which visited 11 States, and later on by an international commission of eminent national and international scientists which met in 1977. Their reports stated that no evidence had been found of any smallpox cases having occurred after May 1975.

The benefits accruing from this gigantic achievement are not restricted to India. As Dr. V. T. Herat Gunaratne, WHO Regional Director for South-East Asia, says in his forward to the book :

The elimination of smallpox from India

1. The volume may also be obtained from the WHO Regional Office for South-East Asia, World Health House, Indraprastha Estate, Mahatma Gandhi Road, New Delhi - 110002, India, as WHO Regional Publications : South-East Asia Series No. 5.

and Asia is of real significance to the rest of the world, as several instances of the spread of the disease from countries in the region to distant areas throughout the world have been documented. In addition, many of the strategies and tactics used in the Indian programme can be applied in the programme for the control of other communicable diseases in any country.

The work provides fully documented guidance to methods for the control or evaluation of a communicable disease. It is thus of considerable interest to public health workers, epidemiologists and those concerned with the training of health personnel.

Viral respiratory diseases. Report of a WHO Scientific Group. *World Health Organization Technical Report Series*, No. 642, 1980 (ISBN 92 4 120642 X). 63 pages. Price : Sw. fr. 4.-. French and Spanish editions in preparation.

Communicable diseases of the respiratory tract are a major cause of morbidity and mortality all over the world and result in high economic losses. Their control is complex because numerous pathogenic agents are involved. This socially relevant and important health problem prompted the Organization to embark in 1977 on an intensive programme to combat acute respiratory diseases (ARD) within the context of technical cooperation among developing countries.

The present report was produced by a Scientific Group convened to advise WHO on the role that viruses play, assess their contribution to the total picture of respiratory disease and study ways of containing viral respiratory diseases, especially in underprivileged populations.

The report presents the latest available data on world mortality from acute and chronic viral respiratory diseases. Information is given on epidemiological studies carried out in Chile, China, and Indonesia, which have shown that ARD are among the commonest diseases of childhood. The factors influencing morbidity and mortality from these diseases, and the viruses, rickettsiae, mycoplasmas, and other pathogens that cause them are reviewed.

One chapter is devoted to the standard and rapid methods of viral diagnosis currently used. A simple procedure for investigating specimens from patients and a rapid diagnostic immunofluorescence technique are described in annexes.

Surveillance of viral respiratory disease at the country level could be achieved by means of a global network of surveillance units, which could also test new prophylactic and therapeutic means. The collection and processing of data by such units and the use of these data for programme planning are discussed.

Among the other aspects of ARD considered in the report are the management of such disease at the primary health level, antiviral drug therapy, the role of immunization and research needs. The report includes recommendations regarding surveillance, clinical

management, community programmes and vaccines and therapeutic agents. An illustrated guide for training health workers at the commuity level in the care of children with ARD is appended to the report.

Induced abortion : Guidelines for the provision of care and services, Geneva, World Health Organisation, 1979 (*WHO Offset Publication* No. 49). I BN 92 4 170049 1. 69 pages. Price : Sw. fr. 6.-. French edition in preparation.

The purpose of these guidelines is to assist health administrators and clinicians who, following changes in legislation or policies regardiag induced abortion, are faced with an ever-increasing demand for such services in a situation dominated by a paucity of resources. This booklet was prepared on the basis of information gathered during the course of WHO-supported research on health aspects of methods of induced abortion and their service implications ; account was also taken of information from the literature and recommendations made by a recently convened WHO Scientific Group on Induced Abortion.

After a discussion of various services required in the provision of legally induced abortion (apart from the actual operation)—pregnancy diagnosis, counselling (including advice on contraception), preoperative examination, patient screening, outpatient care, etc.—there follows a relatively detailed description of current techniques for first—and second—trimester abortions, the equipment needed, health implications, and the prevention and management of complications (both immediate and delayed). The question of training is also dealt with : which categories of personnel should be trained to perform the various techniques, and what that training should include. Lastly, there is an examination of the all-important subject of post-abortion contraception.

Annexed to the guidelines is a bibliography citing background material and review articles and books for further readinn.

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Vol. XXIV, No. 2,
April—June, 1980

INDIAN PUBLIC HEALTH ASSOCIATION

Dear Colleagues,

It gives us a great pleasure to extend to you a warm and cordial welcome to the Third International Congress of the World Federation of Public Health Associations (Geneva) and the Twentififth Annual Conference of the Indian Public Health Association to be held at Calcutta from 23rd to 26th February, 1981. We look forward to your gracious presence and valuable scientific contributions.

The overall theme will be — "Primary Health Care—World Strategy" with the following five Sub-themes :—

1. Developing National Plan of Action.
2. Special Demonstration and Research Projects in Primary Health Care,
3. Implementation of Field Programme :- (a) Supervision, (b) Information, (c) Evaluation
4. Manpower Planning and Training,
5. Community participation.

Each group may be further split up into sub-groups and simultaneous sessions will be held.

The proposed theme would be of great interest to us in India. Since various countries of the world would have advanced in their National Primary Health Care programme, the Third International Congress which will be held about two years after Alma Ata Convention, would provide an excellent opportunity to exchange experiences and to avail of multilateral consultation on the vital programme for the provision of Primary Health Care to all.

According to the Sixtyfifth Session of the WHO Executive Board which concluded in Geneva on 25th January, 1980, all activities of the WHO will be geared as never before to support National, Regional and Global Strategies for attaining the main social target of the government and WHO in the coming decades : Health for all by the year 2000, and as such you will agree with the appropriateness of the theme of the Session. We, in India, have completed already two National assessments of our Community Health Volunteers Programme and Indian experience would certainly provide good material for the deliberations.

We will appreciate very much if you could make it convenient to attend the conference and present papers on related theme of the Scientific session. You are required to send papers along with the summary (not exceeding 300 words) in duplicate to the Organising Secretary, 3rd International Congress of the WFPHA and 25th Annual Conference of the

IPHA, 110, Chittaranjan Avenue, Calcutta, 700073, by September 30, 1980.

The delegate and registration fee for the International Congress would be Rs. 500/- (Rs. five hundred only). Members of the Indian Public Health Associations, and other co-sponsoring associations, would be required to pay only Rs. 200/- (Rs. two hundred only), the remaining amount of Rs. 300/- (Rs. three hundred only) will be subsidised by the Indian Public Health Association.

May we request you to kindly inform us at an early date your plan of attending the conference. Please extend this invitation to other interested colleagues of your organization.

Dr. P. N. Khanna
Organising Secretary

Dr. N. S. Deodhar
Chairman

ASSOCIATION'S NEWS

PRIMARY HEALTH CARE—WORLD STRATEGY

The Third International Congress of the World Federation of Public Health Associations, Geneva and the 25th Annual Conference of the Indian Public Health Association will be held in Calcutta, February 23 to 26, 1981.

The overall theme will be — "Primary Health Care—World Strategy", along with the following sub-themes :—

(i) Developing National Plan of Action,
(ii) Special Demonstration and Research Projects in Primary Health Care.
(iii) Implementation of Field Programme : (a) Supervision, (b) Information, (c) Evaluation.
(iv) Manpower Planning and Training,
(v) Community Participation.

Each group may be further split into Sub-groups.

We expect the participation of world renowned experts in the field of Primary Health Care. The Congress would give a timely opportunity to exchange world wide experiences of National Primary Health Care Programmes and to identify approaches and mechanisms that may profit endeavours and programmes for provision of Primary Health Care to all peoples.

For details, please write to the Organising Secretary. Third International Congress of the World Federation and 25th Annual Conference of the Indian Public Health Association, 110, Chittaranjan Avenue, Calcutta, 700073 (India).