CHAPTER - II

ENVIRONMENT AND ITS EFFECT ON

DISTRIBUTION OF DISEASES

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2.1 Introduction :

It is the well established fact that the man is controlled by the environment in which he resides. It is true that environment shapes the health of individual and that of society. Eventhough genotypical factors which are fixed are responsible for the cause of disease but they are not related for the spread of any disease in the society. The phenotypical factors which are variable in nature are responsible for the spread and proliferation of the disease in a society. Medical geographer is mainly concerned with these phenotypical factors in relation to the spread of diseases in any region will be the focal theme of his studies.

While considering the aforesaid preposition, the researcher is trying to analyse the effect of environment **Gn** the distribution of pattern of diseases in the rural areas of Kolhapur district. While selecting rural area by excluding the urban one, the researcher has thought of different environmental set up found in the villages. Eventhough there is no much difference in the factors of physical environment in rural and urban areas, the vast difference can be witnessed in a socio cultural factors. In the urban areas the socio cultural factors are fully altered for the sake of well being of the urbanities, while in the rural area eventhough they are altered, not to the extent as they have been changed in the cities.

The analysis made by the researcher in this chapter is based on the physical and socio-cultural factors which are responsible for the distribution of diseases in the villages of Kolhapur district. These factors have been analysed tahsil wise and for all diseases in general as main aim of the researcher is to concentrate his attention on the sample villages where P.H.Cs. have been located. Here the general death rate has been considered instead of cause specific death rates.

Environment in relation to the studies in medical geography well can be differentiated between 1) Physical and 2) Socio-cultural.

(Physical environment consists of physiography, drainage, climate etc.,while socio-cultural environment consists of population growth, education, sex, age, housing, standard of living, food habits, diet, water supply, pollution, social customs etc.)

It seems to be impossible to collect the data about all depending variables of environment at village level. The researcher has selected some of the important aspects for his studies about which reliable and continuous data were made available. Amongst the physical environmental factors physiography and climate (rainfall factor) have been selected and corelated with disease distribution in rural area of Kolhapur district, and from the socio-cultural variables age, sex and literacy have been corelated.

(The problem of infant mortality is of high magnitude in the developing countries like India. In India the grevience of this problem is increasing in the rural areas rather than in urban areas. More infant deaths may be partly due to the fact that family resources are insufficient to take care of many children and hence families those have large number of children have high mortality rate (Chandrashekar, 1972). Considering the statement of Chandrashekar, 'it may not be improper to study infant mortality in relation to socio-cultural factors in rural areas of Kolhapur district. Hence in the section of infant mortality (2.4) the researcher has analysed this aspect in relation to female litercy and has tried to show the tahsilwise inequalities in the infant mortality rates in the villages of Kolhapur district.

A study of disease ranking is very useful in understanding the distributional pattern of diseases in an area, because it provides an idea of the relative dominance of different diseases in order of importance (Pandurkar, 1981). The ranking technique is based on percentage of deaths of particular diseases like Diarrhoea, Tuberculosis, Measle, Accidents, Cholara, Dysentry, Enteric fever, Leprosy, Snakebite, Suicide, Diptheria, Smallpox, Rabies Tetanus, Jaundice and Heart diseases.

2.2 Effect of physical environment on the disease :

The environment as stated earlier may be divided into two types 1) Physical and 2) Socio-cultural. The effects of physical environment on the health of man can well be studied with physiography and climate as they are the chief factors. The physiography determines the distribution of different diseases in a area. Certain diseases may be found at certain physiographic features. Kolhapur district is located on the western side of Deccan plateau and is having a hilly region above 900 metres from mean sea level and gradually slopes down to the east and the river plain of Panchganga and its tributaries is located at a height above 450 metres. The researcher could not establish perfect relationship between physiography and distribution of diseases but the general pattern of distribution of diseases shows that the death rate is low on a mountainous region especially in the offshuts of Sahyadry where the people are strong and stout. The river basins and plains located between two successive offshuts of Sahyadry; namely Krishna, Kumbhi, Bhogavati, Dudhganga, Vedaganga and Panchganga show higher death rate than the hilly region. The alluvial leveled plain of Panchganga located at a height of 300 to 450 metres from mean sea level comprising of Hatkanagle and Shirol tahsils

shows higher death rate which is above 11.0 per one thousand estimated population (Map 2.11D). It is the general observation of the researcher while collecting the data for this work that the spread of water borne diseases especially Diarrhoea and Dysentery are more in the areas of river basins than in hilly region. It might be because of percentage of Molasses thrown in the rivers by the sugar factories located in this river basin. While conducting the sample interviews with the villagers, it has been reported that occurance of ancylostomiasis (Hook-worm) which is a helminthic disease is of higher prevalence in the areas of river basins of Kolhapur district. As the hookworm larvae live in the upper half inch of the soil, the outwash in the river might be adding the disease germs in the river water which is generally used for the drinking purpose. While studying the cause specific death rate of the different primary health centres, it has been observed that the P.H.C's located in the western hilly areas of Sahyadry namely Kadgaon, Solankur, Nesari and Rashiwade have more deaths by Asthma, the respiratory disease than in the plain area. The physiographic differences might be attributing to high incidence of Asthama in the hilly region.

2.2.1 <u>Climate</u>:

It can affirmatively be stated that climatic conditions have an important effect on the health and hence climatic factors

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Fig 2.1

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FIG 2.2

show seasonal variation in prevalence in different types of diseases. Amongst the chief elements of climate, rainfall alone can modify the health of man and society. The monthly distribution of rainfall may affect the seasonal distribution of water borne diseases in any region With considering this presumption, the author has corelated the monthly distribution of rainfall and number of monthly deaths occuring at different P.H.Cs (Fig.2.1 & 2.2). The monthwise number of deaths occuring at twelve different P.H.Cs have been corelated with calculating the percentage of monthly rainfall occuring at each P.H.C. The south-west monsoon begins in the month of June and more than 80% of the annual rainfall occurs in four months viz. June, July, August and September, while in the early winter months amount of rainfall decreases sharply. It has been found out that number of deaths start increasing by the onset of monsoon and they decreases when amount of rainfall starts declining. The P.H.Cs which are located in the Sahyadry ranges show more number of deaths during rainy season. The water borne diseases like Dysentery and Diarrhoea start increasing by onset of monsoon) The graphs show the positive relationship between number of deaths and amount of rainfall. Eventhough deaths are occuring through out all months of the year, the percentage of deaths occuring during rainy season is comparatively more than in nonrainy season of the year.

2.2.2 Vital statistical rates :

The study of different statistical rates may be the perfect yardstick to measure the health conditions of any region. The overall wellbeing of any region can be judged by studying different rates of health statistics. Due to this, researcher had calculated the Birth rates, General death rate Infant mortality rate (I.M.R.) and Still birth rate (S.B.R.) for the rural area of Kolhapur district for a span of 20 years i.e. 1961 to 1980 and has been shown in Fig.2.3.

The general birth rate shows a gradual decrease through out the span of twenty years. Within this period birth rate has declined by 50% (in 1961 32.8 and in 1978 15.4). It shows that the efforts made by state government to decrease the birth rate have become fruitful. Even the birth rate of this region is lower than the state average. The general death rate also shows constant decrease nearly by 50% withing 20 years period (1962 14.5% and in 1978 6.9%). It might be because of improved medical facilities provided for rural areas mainly by introducing P.H.C., P.H.U. and sub centres in the rural areas. As compared to average death rate of Maharashtra state, the region's death rate is low. The constant decrease in death rate indicates the overall wellbeing of the region in regards to medical facilities.

Generally the problems related to infant mortality are



FIG. 2.3

more severe in the rural areas. The infant mortality rates (I.M.R.) have been calculated per thousand live births which indicate that there is rapid decline in infant mortality. The I.M.R. has decreased from 80 per thousand live births in 1962 to 28 per thousand live births in 1978.

The maternal mortality is it self a major cause of infant mortality. But it is often ingored. In an under developed country like India where the incidence of maternal mortality itself is abnormal, its relation to infant servival must not be lost sight of (Chandrashekar, 1972). The health, attitude, ability and understanding of the mother are directly concerned with the welfare of the baby. The death of the mother during labour or before the baby reaches its first birthday has profound effect on it's survival and welfare.

The causes of maternal mortality are many and they may be either biological, economical, social or cultural. The maternal mortality rate in the rural areas of Kolhapur district fluctuates between 1.0 & 3.5 per thousand live births. The graph of M.M.R. shows gentle decline within the span of 20 years. It might be because many of the deliveries occuring in villages are either performed by trained doctors at P.H.C. or by trained nurses and Auxillary nurse mid wives (A.N.M.) at P.H.C. or at the residence of delivered woman.

In general, the region shows the decrease in birth rate, death rate and infant mortality rate which reveals that the work of primary health centres in providing the medical facilities in rural areas of Kolhapur district is to the satisfaction.

2.3 Socio-cultural environment :

The physical and socio-cultural factors together influence the health patterns of the community. In the earlier section the effect of physical environment on health has been studied. Here, the effect of socio-cultural environment is discussed. As socio-cultural factors vary from place to place and from time to time, the distribution pattern of diseases also varies frequently. Eventhough, there are many socio-cultural factors prevailing, the few like age, sex and literacy have been discussed throughly as the data have became available for these three attributes.

2.3.1 Age :

It is rather difficult to find out the relation between incidence of particular disease and the age. Still the study of age pyramid may give a general conclusion about the mortality pattern in any area. Generally, it is stated that the deaths below 4 years of age and above 60 years of age are more, while



FIG. 2.4

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the adolescent population which is directly exposed to the disease show more number of deaths (Pandurkar, 1981). Fig.2.4 deals with age group wise percentage of deaths occuring in rural area of Kolhapur district in a span of twenty years. The graph shows that more than 30 percent of the total deaths (both male & female) have occured at the age of 60 and above during 1962. This percentage has increase upto 58.48 in year 1980. It means during twenty years the death of the people above 60 years have increased twice. On the contrary, the percentage of infant deaths (below one year) has decreased from 18.12 percent to 9.17 percentage during twenty years. There is also a constant decrease in the percentage of deaths in the young population who are between 1 and 14 years of age. It indicates that in the villages of Kolhapur district the infant and young population is more safer than working and old population. The rural working population is much exposed to environmental alteration and due to which they are the victims of environmental hazards. The physical resistance is declining sharply amongst the agricultural workers due to continuous strain while working in the fields in the under nutritional conditions.

Fig.2.5, depicts the age pyramids of the 5 year interval which clearly shows that number of deaths occuring above 60 years



FIG. 2.5

of old are constantly increasing while number of death occuring among and infant and young population are decreasing sharply. As age increases the possibility of death decreases and hence 15 to 19 years age group shows the lowest number of deaths. Hence this group may be called as the safest age group amongst all. Again after 20 years of age the possibility of deaths increases and it reaches to the maximum after 60 years of age. In the villages, the people above the age of 20 years are called as workmen. The people of this age group who are mainly agriculturist expose to environmental disorders and are the victims of Diarrhoea, Dysentery, Tuberculosis and Tetanus.

2.3.2 Sex :

It is rather difficult to relate the incidence of particular disease and sex. Generally women are better equipped than men to get over the diseases. They are moreover less exposed to the hazards of life than men. In that sense, it is not woman but man who is in weaker vessel (Mishra,1970). The findings quoted by Mishra tallies with rural area of Kolhapur district. Here also female are more equipped than male. During 15 years period i.e. from 1956 to 1980 female death rate is always less than male death rate and the difference between male and female death rate becomes very sharp after 1971 (Fig. 2.6A). Eventhough both male and female do work in the fields,



FIG. 2.6

the women after finishing the agricultural work are not exposed to the environmental condition, while male immediately receive the disease organism as they remain outdoor for a longer period. Fig.2.4, shows that the percentage of female deaths are less than male deaths at the infant stage, in the stage of working population and in old population while number of female deaths are more than male deaths in young population i.e. 1-14 years. At the infant stage both male and female child are treated equally but the girl during her maidenhood is not properly treated especially at the time of illness than a boy of that age hence at early age the female deaths happen to be more because of gross negligence of their parents. In the working group and old age group female deaths are less than male deaths. Eventhough, the general death rate shows that male death exceeds the female death, there are certain diseases where female death rate exceeds the male death rate. In the villages of Kolhapur district it has been found that female death rate of tuberculosis, cancer and leprosy is more than the male death rate while in the diseases like Diarrhoea and Dysentery it is less. The causes behind the high increase in the female death rate in the case of Cancer, Tuberculosis and Leprosy need to be investigated separately.

2.3.3 Literacy :

Literacy and educational level are the major criteria for judging the attitude of the people towards health. The personal



and public hygiene, the disease curing measures, sanitration etc. are much more dependent on the literacy factor. The literacy and educational level of women determines the nutritive value of food prepared by the woman. Illiterate people are not aware of the scientific process of curing the disease. Literacy and educational level of woman also determines the standard of health care taken by woman of her infants and children. The tahsil wise relation between death rate and percentage of literacy has been discussed and is shown in Fig.2.7. It has been found out that percentage of literacy increases when death rate decreases. In the tahsils like Hatkanagle, Shirol and Karvir within 20 years percentage of literacy has increased due to which the death rates have decreased.

2.4 Infant mortality in rural area :

In the India's rapidly increasing population, one baby gets its birth every second and half. It means, two million births occur during the year. Some eight million persons are dying every year. Of this more than two million are infants below the age of one year that is about hundred infants deaths per 1,000 live births a year. This is the magnificent and challenging problem of infant mortality in India. In Maharashtra, out of every one thousand new births, seven die in first week

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of life, another 33 die in a third and fourth week, while 40 More die between one month and one year of age. Some 30 percent of Maharashtra's annual deaths are of infants below the age of one year.

For a detailed and systematic study of infant mortality of any region, the adequate information about biological, economic, social and cultural factors affecting the death of the infants is necessary. To study the infant mortality in a region the data about dependants variables are needed. But our vital statistics supply very little information due to which detailed study could not be conducted.

In the village; of Kolhapur district the infant mortality rate shows declining trend and is much below the average of India and Maharashtra. In 1961, the rate was 80 per 1,000 live births which has reduced upto 30 per thousand in 1980 (Fig.2.3). The male infant mortality is much higher than the female.

The analysis about the infants deaths occuring at a particular intervals (deaths under one week, one to four weeks, one to three months, three to six months and six to twelve months) is done and shown in the Table 2.1. It shows that, more than 50% of infant deaths are occuring within one month after their births. This percentage of deaths occuring within a month is increasing successively throughout the span of 20 years.

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Year	Under one week	1 to 4 weeks	1 to 3 months	3 to 6 months	6 to 12 months
1962	30	20	12	13	25
1963	32	21	11	16	22
1964	30	12	16	19	23
1965	24	16	22	15	23
1966	33	18	17	12	20
1967	32	22	17	12	17
1968	31	20	16	14	19
1969	29	21	17	13	20
19 7 0	37	22	13	12	16
1971	35	22	14	13	17
1972	35	24	14	10	17
1973	34	22	17	12	15
1974	40	22	15	10	13
1975	43	19	14	9	15
1976	46	27	7	8	12
1977	34	25	13	11	17
1978	39	20	11	12	16
<u>1</u> 979	34	18	18	9	21
1980	40	25	9	8	18

Table 2.1 : Percentage of Infant deaths in different age groups in Kolhapur district (rural).

Source : Compiled by author based on vital statistics.

This percentage decreases during 1 to 6 months and again increases during 6 to 12 months of their birth. It indicates that more infant deaths are occuring during early period of their lives. The educational level of the parents, the standard of living, the monthly income and the tendancy of nourishment of infants might be some of the reasons behind this high mortality.

Amongst the important factors responsible for infant mortality, the female literacy is one. The attitudes of female towards infants while nourishing them is determined by literacy and educational level of the mother and hence these two factors are corelated and are shown in Fig.2.8. The analysis of female literacy and infant mortality for the 20 years period with the successive interval of 10 years is made tahsilwise. It shows that the tahsils of low female literacy indicate high occurance of infant deaths. In the tahsils like Shirol, Hatkanagle, Karvir and Gadhinglaj have higher female literacy where infant death rate is below 30 per thousand live births. While tahsils like Bhudargad and Gaganbawda, where female literacy is low the higher incidence of infant mortality is noticed which is above 60 per thousand live births.

In this district, amongst the total yearly deaths, some 20 percent deaths are occuring of the infants below one year of age. The tabsils which are located in the hilly region like



FIG. 2.8



Chandgad, Bhudargad, Ajara and Gadhinglaj have more percentage of infant deaths than the tahsils like Shirol and Karvir which are located in river basin (Fig.2.9).

The tahsilwise distribution of infant mortality during 1966 to 1980 shows that the rate increases from north towards south. The northern most two tahsils namely Shahuwadi and Panhala have lowest infant mortality rate; while tahsils like Chandgad, Gadhinglaj and Kagal have higher infant mortality rate. In the remaining tahsils the rate is moderate and varies between 35 and 65 per one thousand live births. The district average of the rural area has decreased from 50.93 during 1966 to 1970 to 32.92 during 1976 to 1980. This gradual decline might be because of improved medical facilities which are readily available at different P.H.Cs. Eventhough, the district shows decreasing trend in mortality, there is a need to check this rate. Repeated deliveries, lack of immunization and vaccination, lack of knowledge of mother in taking care of children might be some of the reasons behind this rate. Planned parenthood, increase in maternal and paediatrics centres in rural areas, prompt and proper immunization and vaccination might be some of the solutions for solving this acute problem of infant mortality of this district.



2.5 <u>Tahsilwise inequality in mortality rates in rural</u> area of the district :

The tahsilwise average death rate has been calculated and is shown for three successive periods of 1967-1971, 1972-1976 and 1977-1980 (Map 2.11). The Choropleth map depicts that the rural mortality rate of a district as a whole has decreased gradually from 10.09 (1967-1971) to 6.83 (1977-1980). The tahsil wise differences can be noted precisely. During 1967-71, the tahsils namely Gaganbawada, Karvir and Kagal show the death rate above 11 per one thousand estimated population, while northern most tahsils namely Shahuwadi and Panhala show the death rate which is below 8.5, while rest of the tahsils have moderate death rate and is between 8.6 and 11.0/1000 estimated population.

As the average rural mortality rate has declined upto 6.83 during 1977-80, the tahsilwise decrease can be easily noted. The tahsils which were showing high mortality have declined sharply. It has happened mainly in the case of Gaganbawada and Karvir tahsils. The improvement in the medical facilities might be one of the reasons for this sharp decline.

From the Choropleth maps drawn per Fig.2.11 A, B, C the average zones of mortality may generally be drawn as shown in Fig.2.11 D. The map shows that northern most tabsils i.e. Shahuwadi and Panhala have low death rate while Karvir and Kagal



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tahsils show high death rate. The remaining tahsils are included in moderate mortality zone. It seems that people residing in tahsils located in the western hilly region have less possibility of getting the diseases than the tahsils located in the easterly plain region. The physical resistance amongst the people residing in the hilly region might be one of the reasons of low mortality. It is very interesting to note that inspite of availability of medical services in the hilly region, the possibility of getting a disease is less than the people residing in a plain region, where medical aids are comparatively more. It is true that the number of water borne diseases take a heavy toll in the plain area where drinking water is used from polluted rivers. As the tahsilwise cause specific data were not available, the area wise corelation cannot be established perfectly.

2.6 Diseases intensity and ranking :

The study of disease intensity and ranking may be very useful in under standing the disease distribution in this area. This study may provide an idea of relative dominance of different diseases in order of importance. The ranking techniques used here is based on mortality rates calculated for particular disease in particular year, for example in 1962, the deaths due to Diarrhoea were showing 81.5 as the mortality rate which is highest amongst all other diseases in that year, hence this disease has given the



first rank in 1962, while the death rate of Rabies during the same year was 0.32 per one lakh estimated population which was lowest amongst all, hence it ranks XIVth. Accordingly for each disease yearwise ranks have been calculated and are shown in Table 2.2. The displacement in the rank order has been shown in Fig.2.12.

This ranking technique shows that Diarrhoea, Tuberculosis and Leprosy are the diseases which have highly emerged out in this area. The Tuberculosis is a one of serious diseases of the region which remains first in its rank in the 20 years periods. The Diarrhoea also shows its remarkable influence in this region. The Leprosy, whose death rate is graduly increasing has emerged out from its Xth rank in year 1968 to IIIrd rank in 1980. The specilised leprosy clinics need to be attached to the public health centres in this district. The prevalence of Jaundice (infectious hepatitis) is also to be considered seriously as the disease has grouped in the higher ranking order. The eradication of Smallpox and Malaria has been noted in these villages since 1968 and 1970 respectively.

As per 1980 ranking order, the following three groups of diseases can be visualised :-

(A) Diseases of higher ranking order

I) Tuberculosis II) Heart attacks III) Leprosy

IV) Accidents V) Diarrhoea

Tableath rate per 100,000 estimated population.

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Rank	1962	4	1975	1976	1977	1978	1979	1980
I	Dia	a	T.B.	Dia	Dia	T.B.	T.B.	T.B.
	81.5	2	26.7	26.6	26.7	26.72	24.35	21.6
II	T.B.	•	Dia	T.B.	T.B.	Dia	Dia	H.A.
	54.9	5	21.3	24.1	24.4	16.8	16.8	15,97
III	Mea	C	Acc	Acc	H.A.	H.A.	Acc	Lep
	28.3	3	14.1	12.5	13.46	13.76	16.17	14.46
IV	Acc	0	Lep	Lep	Acc	Acc	H.A.	Acc
	18.8	1	9.5 7	10.6	12.47	13.28	15 .7	14.02
v	Mal	£	Mea	H.A.	Lep	Lep	Lep	Dia
	18.2	7	3.89	9.7	8.85	11.77	13.63	11.47
VI	Cho	:	Ef	Mea	Меа	Mea	Jau	Jau
	12.28	35	2.33	4.8	2.36	2.86	3.34	2.49
VII	Dys	t	Sys	Dys	Jau	Jau	Меа	Mea
	5.38	33	2.05	3.2	2.25	2.42	2.86	2.32
VIII	Ef	Ł	Jau	s.b.	s.b.	s.b.	s.b.	s.b.
	5.14	05	1.44	2.6	1.7	1.78	1.8	1.94
IX	Lep	ı	Sui	Jau	Ef	Tet	Tet	Ef
	4.8	€€	1.39	2.06	1.7	1.72	1.53	1.24
Х	s.b.		s.b.	Rab	Dys	Ef	Ef	Tet
	3.2	32	1.05	1.73	1.4	1.45	1.48	1.13
XI	Sui	5	Rab	Sui	Sui	Sui	Sui	Sui
	2.4	}	1.0	1.14	0.98	0 .9 5	0.95	0.97
XII	Dip)	Dys	Dip	Tet	Dys	Rab	Rab
	1.4	51	0.83	0.48	0.93	0.43	0.53	0.32
XIII	S.P.	2	Dip	Ef	Dip	Rab	Dip	Dys
	0.88	۲1	0.44	0.38	0.71	0.05	0.21	0.21
XIV	Rab	-	Cho	Rab	Rab		Dys	Dip
	0.32)5	0.05	0.38	0.32	-	0.14	0.16
XV	Tet							
	-							
XVI	Jau							
XVII	H.A.							

Diarrhoea - Dieric fever - Ef / Leprosy - Lep / Tetanus - Tet Snakebite - s. ttack - H.A. / Dysentery - Dys Source : Comput

(B) Diseases of moderate ranking order

VI) Jaundice VII) Measle VIII) Snakebite IX) Enteric fever X) Tetanus

(C) Diseases of low ranking order

XI) Suicide XII) Rabies XIII) Dysentery XIV) Diptheria

(D) Diseases which have been completely eradicated

XV) Smallpox XVI) Malaria XVII) Cholera

2.7 Conclusion :

While studying the environment and its effect on distribution of diseases in rural areas of Kolhapur district, it is found that the low death rate is remarkably found in the western hilly region while the eastern river plains have its high incidence. The water borne diseases show their higher prevalence in the river basin and P.H.C's located in the western hilly areas above 600 metres a.m.s. level have more respiratory diseases like Asthama and some others. It is found out that climate plays a major role in distribution of the diseases seasonally. The number of deaths start increasing by the onset of monsoon when the occurance of waterborne diseases is more. The number of deaths are more in rainy season than in non rainy season.

While studying the impact of socio-cultural factors, it is noted that number of deaths in the working age group and that of old age above 60 years is rapidly increasing while the infants and young population is much more safer. It is interesting to note that 15-19 years age group is most safest as the number of deaths are minimum.

Due to the gross negligence of parents the female deaths in the age group of 1-14 years is much more than male of that age. Female are more victimised than male in the case of diseases like Tuberculosis, Cancer and Leprosy. The factor of literacy especially of women plays very important role on the infant deaths. With increase in percentage of literacy the death rate of infants decreases sharply. It is important to note that more infant deaths are occuring within one month of their lives. It is because of illiteracy of parents mainly of women. It is surprising to find out that infants deaths are more in hilly tahsils of the district than the easterly plain region. Health education, immunization and vaccination to the children is needed in the villages to reduce the high incidence of infant mortality.

The tahsilwise cause specific mortality rates show that Diarrhoea, Tuberculosis and Leprosy are the major diseases of the villages of Kolhapur district. Specialized Leprosy Clinics are badly needed in these villages to control high incidence of Leprosy. While the Smallpox and Malaria diseases have been completely eradicated from the rural areas of this district.

REFERENCES

- Chandrasekhar, S. (1972) : Infant Mortality Population Growth and Family Planning in India. George Allen and Unwin Ltd., London. p.133.
- 2. (1972) : Infant Mortality Population Growth and Family Planning in India. George Allen and Unwin Ltd., London. p.182.
- 3. Mishra, R.P. (1970) : Medical Geography of India. National Book Trust India, New Delhi. p.182.
- 4. Pandurkar, R.G. (1981) : Spatial Distribution of Some Diseases in Maharashtra. A Study in Medical Geography. Unpublished Ph.D.Thesis, Shivaji University, Kolhapur. p.132.
- 5. _____ (1981) : Spatial Distribution of Some Diseases in Maharashtra. A Study in Medical Geography. Unpublished Ph.D.Thesis, Shivaji University, Kolhapur. p.56.