CHAPTER- 8

MICRO-LEVEL ANALYSIS –PREVALENCE OF DISEASE AND ITS CORRELATES

8.1 Introduction

The population of Gujarat was mostly affected by communicable diseases in the past (1721-1949). The prevalence of diseases like malaria, infection of the lungs, diarrhea, bronchitis, alimentary canal fever and skin diseases were common. There were also epidemics of leprosy, scrofula and influenza. According to the National Family Health Survey (NFHS-4,2015-16: Gujarat), infectious diseases like cholera, diphtheria, hepatitis, enteric fever, dengue etcetera and non-infectious diseases, like diabetes, asthma, cancer and heart diseases are common ailments in the State population in the present times.

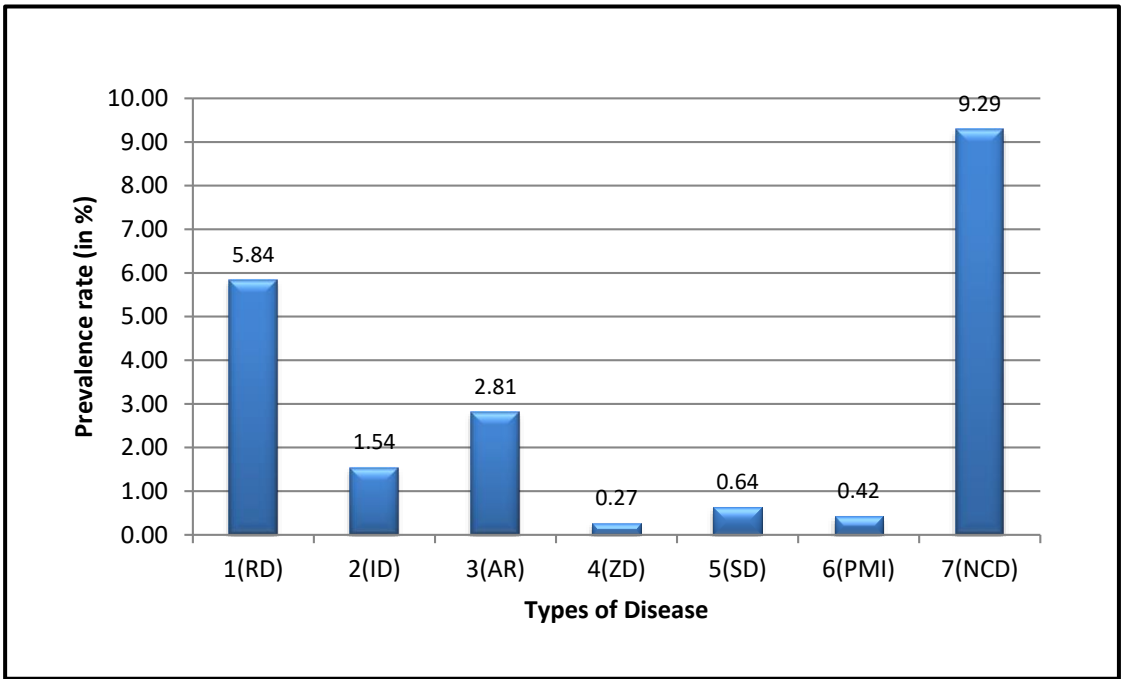
According to Integrated Disease Surveillance Project (IDSP) Vadodara (Gujarat) Report-2009, the most prevalent diseases are fever, acute diarrhoea diseases and malaria in Vadodara district. *Taluka*-wise analysis of prevalence rate (number per 100 persons) has revealed the highest prevalence rate of fever in Chhota Udaipur *taluka* (4.43) and Savli *taluka* (4.27), acute diarrhoea disease in Vaghodia *taluka* (1.44) and Vadodara *taluka* (0.92), and malaria P.V. in Vadodara (0.10) and Chhota Udaipur (0.09) *talukas*. Higher prevalence of malaria P.V. in Vadodara and Chhota Udaipur *talukas* is considered to be associated with the urban industrial pollution and hilly and forested area respectively of the two *talukas* as these provide suitable conditions for the growth of mosquitoes (Refer Chapter - 6).

This chapter focuses on the micro level study of the prevalence of diseases in the study area as well as the measures taken to prevent them. This was done to compensate the limitations of secondary level data. The sample villages and the households therein are the same from which data on spatial and structural characteristics have been gathered and analysed in the earlier chapter. The method followed in collection of data is also the same.

8.2 Prevalence of Communicable and Non-Communicable Diseases

Data generated through primary investigation has been used to calculate the prevalence rate of different diseases among the surveyed population and presented in Figure 8.1. It is clear that prevalence of non-communicable diseases is the highest among all diseases in both types of villages. Around ten (9.29) persons in every 100 persons have been affected by non-communicable diseases which includes body pain, cardiovascular diseases, strokes, hypertension, diabetes, obesity, paralysis and cancer etcetera. Communicable diseases including tuberculosis, whooping cough, acute respiratory infection, smallpox and chickenpox etcetera have affected about six (5.84) per cent of the sample population. Effects of arthropod borne diseases like malaria and dengue (2.81), intestinal diseases like typhoid fever, cholera and acute diarrhea (1.54) are relatively less in the sample villages. The least number of persons have been affected by surface infection diseases (0.64), ailments due to physical and mental impairment (0.42) like blindness, hearing disability, and zoo nose diseases (0.27) like chikunguniya fever.

Figure – 8.1 : Prevalence Rate of Communicable and Non-Communicable Diseases by Land Size Category: Sample Villages

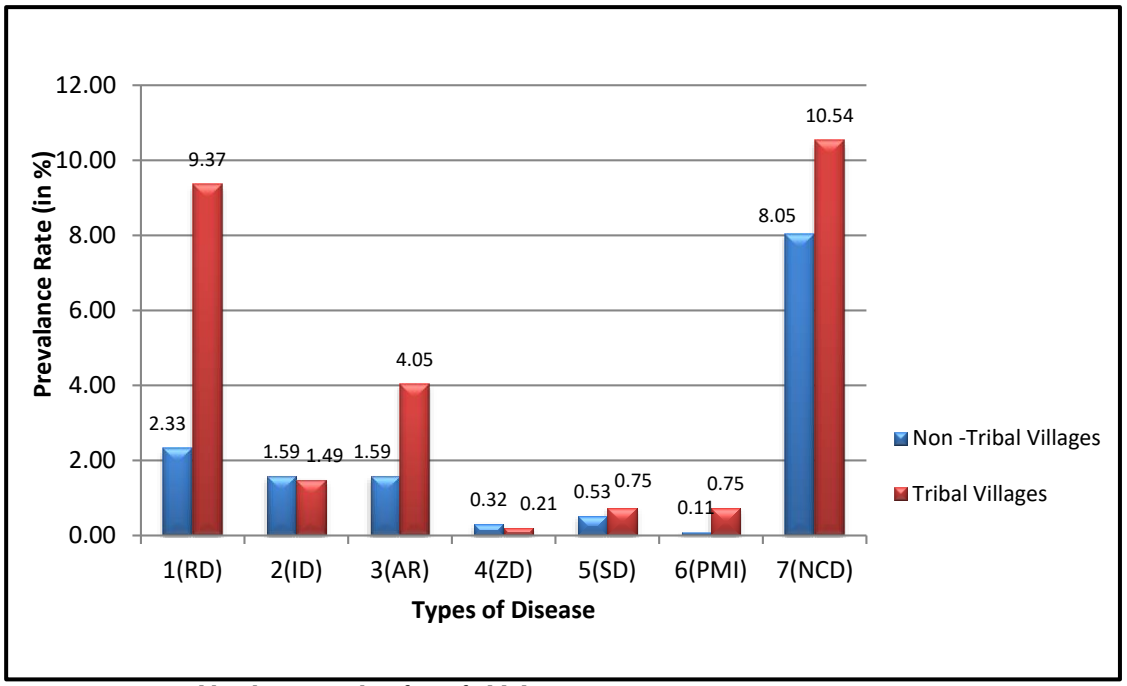


Source: Computed by the researcher from field data.

Note: 1.R.D: Respiratory Disease, 2. I.D: Intestinal Disease,3.AR: Arthropod-Borne Disease, 4.ZD: Zoo Noses Disease,5.SD:Surface Infection Diseases, 6.PMI: Physical and Mental Impairment, 7.N.C.D:Non-Communicable Disease.

Figure 8.2 further presents a comparative picture of the diseases in the two groups of villages. The figure makes it clear that prevalence of non-communicable diseases is higher in the tribal villages (10.54) than in the non-tribal villages (8.05). Similarly, prevalence of respiratory diseases is also much higher in the tribal villages (9.37) in comparison to the non-tribal villages (2.33). On the whole, higher proportion of the population in the tribal villages is affected by all types of diseases excepting for intestinal and zoo nose diseases. There is of course only a marginal difference between the two types of villages with respect to the latter two categories of diseases.

Figure – 8.2 : Prevalence Rate of Communicable and Non-Communicable Diseases by Land Size Category in Non-Tribal and Tribal Villages



Source: Computed by the researcher from field data.

Prevalence of different diseases in the sample population by land size category of the two types of villages has been tabulated and presented in Table 8.1a and Table 8.1b. As is clear from Table 8.1a, the non-communicable diseases have the highest prevalence (8.05) in the population of the non-tribal villages. It further indicates that a very large segment of the population with 3.01 to 4.00 acres and 4.01 to 5.00 acres of land is affected by such diseases (11.11 and 20.45 persons per 100 population). The prevalence rate is by and large the same in all other category of land holding size excepting 2.01 to 3.00 acres where not a single person is affected by any type of communicable disease. Among all the non-tribal villages, the prevalence of non-

communicable diseases such as cardio vascular diseases, strokes, diabetes, obesity, paralysis, cancer, hypertension etcetera and cases of arthritis is the maximum in Kelanpur village (Appendix - 1).

The other types of diseases that have affected a relatively higher (2.33) number of persons in the non-tribal villages is the respiratory diseases. Here again, the medium and large size land owning households are the worst sufferers, wherein 5.00 persons among the households with 2.01 to 3.00 acres, 4.44 persons among the households with 3.01 to 4.00 acres and 2.94 persons among the households with 5.01 and more acres reported being affected by respiratory diseases. The maximum number of persons of Tundav village is found to be suffering from tuberculosis (Appendix - 2).

Diseases related to the intestine have sporadic occurrence, with affected population of only three categories of land size. The highest number (4.17) of persons affected by this type of diseases belong to the land size of 1.01-2.00 acres, followed by members of 3.01 to 4.00 acres and the landless categories with 2.22 and 1.81 persons per 100 population respectively. Cases of typhoid fever are noticed in the Tundav village (Appendix - 2).

Other types of diseases have low prevalence among the population of the non-tribal villages. For instance, prevalence of zoo nose diseases is very less and recorded only in the population of the landless (0.68) category. Surface infection diseases have affected 1.96 persons per 100 population of the land size category of 5.01 and more acres. Physical-mental impairment is recorded in 2.22 persons per 100 population of the land size of 3.01 to 4.00 acres category.

Thus, the analysis of prevalence of diseases by land size category in the non-tribal villages reveals an inverse relationship between prevalence of diseases and land size category. It implies, the population with larger land size holdings is relatively more affected by both communicable as well as non-communicable diseases in comparison to the landless, marginal and small size land owning household population. Among the communicable diseases, the highest recorded diseases are respiratory, intestinal and arthropod-borne diseases and the prevalence of these diseases is the highest among the large land owning households.

Although the number of persons affected by different diseases is higher among the population of the tribal villages in comparison to the population of the non-tribal villages, the prevalence of diseases display a different pattern across land size

categories in both types of villages. While on an average around ten (10.54) persons are affected by non-communicable diseases in the tribal villages, the population of land size categories of 4.01 to 5.00 acres (16.28), 0.01 to 1.00 acres (14.95), 2.01 to 3.00 acres (14.67) and 5.01 and more acres (13.27) have registered the highest prevalence rate of such diseases. The non-communicable diseases noticed among this population include arthritis, ear problem, eye problems, blood pressure, kidney stone, appendix, paralysis, hypertension and cancer of neck and mouth (Table 8.1b).

From among communicable types of diseases, the highest prevalence of respiratory diseases (9.37) is recorded in the population of the tribal villages. Of all the land size categories, the highest prevalence rate of respiratory diseases is recorded among the population of the land size categories of 2.01 to 3.00 acres (16) and 3.01 to 4.00 acres (14.29). This disease, like the non-communicable diseases, has affected the population of every land size category in varying proportions. From among the respiratory diseases, whooping cough, tuberculosis and chickenpox are highly prevalent, particularly in the population of villages of Navalja (Kawant *taluka*), Tejgadh (Chhota Udaipur *taluka*) and Chalamali (Jetpur Pavi *taluka*) (Appendix – 5,6 and 7).

Plate- 8.1: Women with mouth tumor in Palasani village (Tribal area: Naswadi *taluka*)

Arthropod-borne diseases stand at the second rank with 4.05persons per 100 population in the tribal villages. In this case also, the highest prevalence rate is recorded among the population of 4.01 to 5.00 acres (11.63) of land holding, followed

by the population of 1.01 to 2.00 acres (10.16) and 0.01 to 1.00 acres (5.61). This disease is either absent or very less in other land holding categories. The densely forested villages of Navalja (Kavant *taluka*) and Tejgadh (Chhota Udaipur *taluka*) have reported the maximum prevalence rate of such diseases, wherein malaria emerges out to be the most dominant.

Intestinal diseases are the third type of diseases that have affected the population of almost all land size categories with a prevalence rate of 1.49 per 100 persons. Interestingly again, the highest proportion of population affected by such diseases belong to the medium sized land holdings of 3.01 to 4.00 acres (5.36) and 4.01 to 5.00 acres (2.33). The incidence of these diseases is the lowest in the population of landless and the small land size categories.

Surface infection diseases display a lower prevalence rate (0.75) in the tribal villages and are seen mostly among the population of small land holding categories of 0.01 to 1.00 acres (1.87) and 1.01 to 2.00 acres (0.78). From among the large size land owners, it is only the population of the land size category of 5.01 and more acres (1.77) that has been affected by such diseases.

Other diseases like, physical and mental impairment and zoo nose are relatively uncommon in the population of the tribal villages. Physical and mental impairment is recorded in only among the landless (1.94) and the persons belonging to the land size category of 3.01 to 4.00 acres (1.79). Zoo nose diseases are prevalent among the landless population of the tribal villages wherein 0.21persons per 100 population are affected by such diseases. In this group of diseases, chikungunyna was common and found in the landless population of Chalamali (Jetpur Pavi *taluka*), Tezgadh (Chota Udaipur *taluka*) villages. Apart from these diseases cases of snake bite was also reported in the villages of Chalamali and Palasani.

Plate - 8.2: Hilly area of Tejgadh village (Chhota Udaipur *taluka)*

In the final analysis, it would not be wrong to say that in the tribal villages no clear association between the prevalence of diseases and land size category is discernible, unlike in the non-tribal villages. However, in case of the diseases that have affected the population of every category of land size holdings, such as respiratory, arthropod borne and intestinal diseases, the population of the medium sized land holdings have registered the maximum number of affected persons. The population of the largest size of land holding (5.00 acres & above) have relatively less number of persons affected by non-communicable, respiratory and surface infection diseases. Besides, this population is absolutely free from other types of diseases found in the population of other land size categories. On the whole, non-communicable diseases which include diabetes, cancer, paralysis and joint pain etcetera are very common and relatively highly prevalent in the tribal villages. From among the communicable diseases, respiratory diseases, arthropod-borne diseases and intestinal diseases are more prominent in the population of the tribal villages.

Table –8.1a : Prevalence Rate of Communicable and Non-Communicable Diseases by Land Size Category

Land Size (in acres)	Non -Tribal Villages						
	1 (RD)	2 (ID)	3 (AR)	4 (ZD)	5 (SD)	6 (PMI)	7 (NCD)
Landless	2.71	1.81	1.35	0.68	0.68	0.00	7.67
0.01-1.00	1.35	0.00	0.68	0.00	0.00	0.00	7.43
1.01-2.00	1.39	4.17	0.69	0.00	0.00	0.00	6.25
2.01-3.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00
3.01-4.00	4.44	2.22	2.22	0.00	0.00	2.22	11.11
4.01-5.00	0.00	0.00	6.82	0.00	0.00	0.00	20.45
5.01 & Above	2.94	0.00	2.94	0.00	1.96	0.00	7.84
Total	**2.33**	**1.59**	**1.59**	**0.32**	**0.53**	**0.11**	**8.05**

Source: Computed by the researcher from field data.

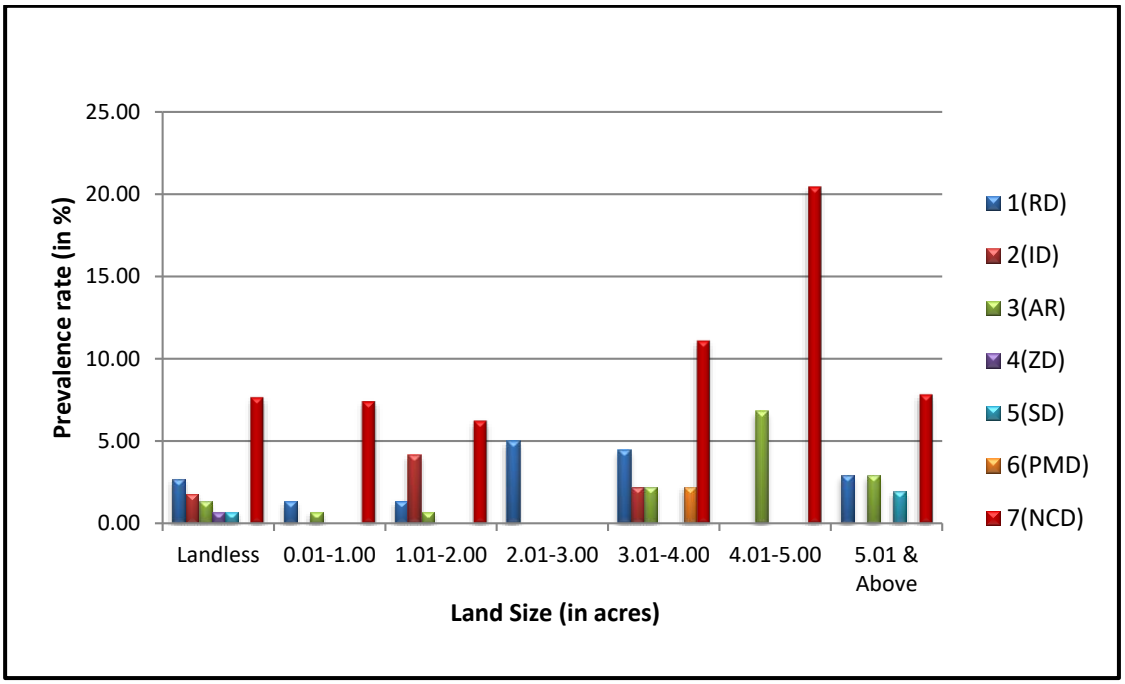
Table –8.1b : Prevalence Rate of Communicable and Non-Communicable Diseases by Land Size Category

Land Size (in acres)	Tribal Villages						
	1 (RD)	2 (ID)	3 (AR)	4 (ZD)	5 (SD)	6 (PMI)	7 (NCD)
Landless	6.45	1.94	1.94	0.65	0.00	1.94	7.42
0.01-1.00	8.88	1.40	5.61	0.00	1.87	0.00	14.95
1.01-2.00	7.81	2.34	10.16	0.00	0.78	0.00	4.69
2.01-3.00	16.00	0.00	2.67	0.00	0.00	0.00	14.67
3.01-4.00	14.29	5.36	0.00	0.00	0.00	1.79	8.93
4.01-5.00	9.30	2.33	11.63	0.00	0.00	0.00	16.28
5.01 & Above	9.73	0.00	0.00	0.00	1.77	0.00	13.27
Total	**9.37**	**1.49**	**4.05**	**0.21**	**0.75**	**0.75**	**10.54**

Source: Computed by the researcher from field data.

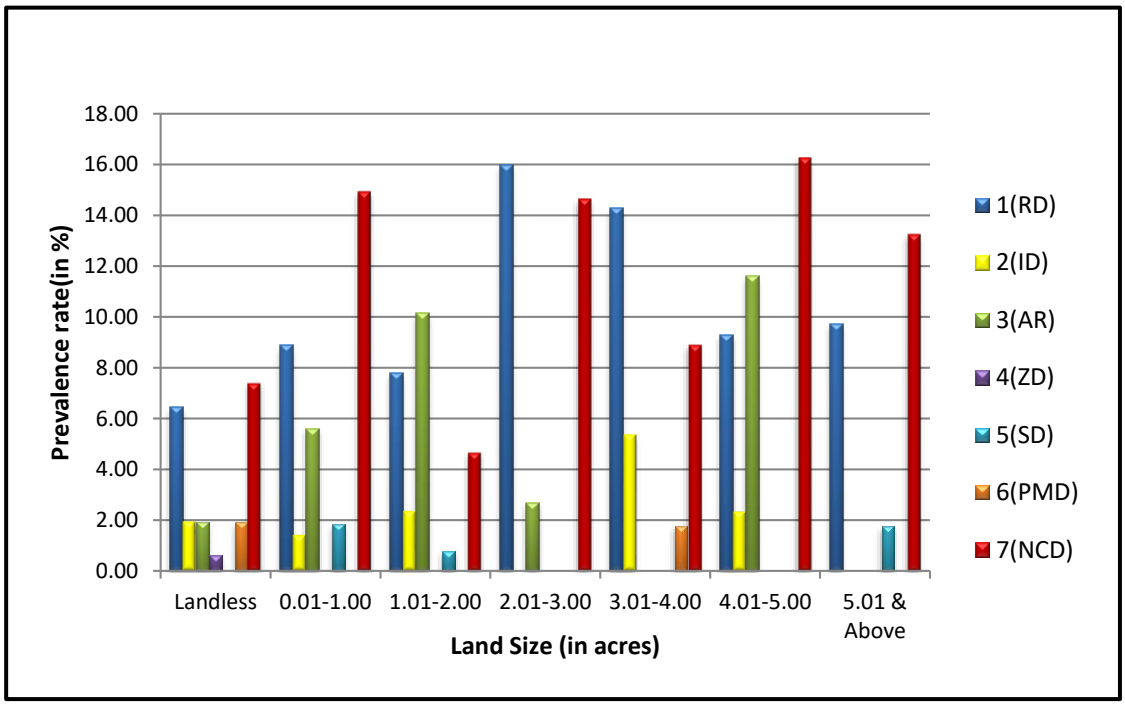
Note: **1. RD:** Respiratory Disease, **2. ID:** Intestinal Disease, **3. AR:** Arthropod-Borne Disease, **4. ZD:** Zoo noses Disease, **5. SD:** Surface Infection Diseases, **6. PMI:** Physical and Mental Impairment, **7. NCD:** Non-Communicable Disease.

Figure – 8.3 : Prevalence of Communicable and Non-Communicable Diseases by Land Size Category in Non-Tribal Villages



Source: Computed by the researcher from field data.

Figure – 8.4 : Prevalence of Communicable and Non-Communicable Diseases by Land Size Category in Tribal Villages



Source: Computed by the researcher from field data.

8.3 Correlates of Disease in the Micro Context

Analyses undertaken in the preceding chapter has enabled the comprehension of the spatial and structural characteristics of the sample area at grass root level. The sample households include a significant proportion of landless, marginal and small land owners. Significant proportion of these households in the non-tribal villages, belong to the SC community and Muslim religion. Such households are also having lower income and accommodate the maximum proportion of the BPL card holding households. Landlessness is relatively low in the tribal villages. However, poverty level is higher in the tribal villages, as indicated by the higher share of BPL card holding households. Population in the working age group is high in both types of villages. The share of aged segment of the population is also significant in both types of villages indicating longer life expectancy. Possession of material assets, particularly those helpful in dissemination of information and knowledge like, TV and mobile is very high with the households of both types of villages, although the households with larger size of land are at a better position in this respect. Possession of nutrition supplying livestock, particularly buffalo, is also very high with the sample households. Housing condition in the sample villages is not very satisfactory.

Majority of the households, particularly belonging to the landless, marginal and small land size categories live under poor housing conditions. With regard to ventilation and other aspects like, availability of toilet, availability of separate kitchen space, separate cattle shed and location of dwelling space etcetera, the households without land and with small holdings of land in the non-tribal villages display poorly, indicating adverse effect on health.

An attempt has been made in the following section to relate the prevalence of diseases in the sample villages with health related traditions and practices of the target population.

8.3.1 Action Taken to Prevent Mosquito Bite

Diseases caused due to arthropods, particularly mosquitoes are found to be common to both types of villages. Members of almost every category of land size holdings have reported arthropod based diseases, like malaria. The incidence of such diseases is quite probable in the polluted urban-industrial environment and areas with higher vegetative cover. People adopt several measures to prevent the incidence of arthropod based diseases. The study reveals that a good proportion of the population in the sample households of either type of villages is not very conscious of the problem and refrains from taking precaution towards it (Table 8.2a & 8.2b). On the whole, around half the population in the study area reported of not taking any step to protect themselves from diseases resulting from mosquito bite. Comparatively, a larger proportion (56.50%) of the households in the non-tribal villages is using any type of precaution, than the households in the tribal villages (43.50%). Majority of the households in the non-tribal villages depend on the most effective method of using mosquito net (59.21%), which is not so popular a method in the tribal villages (12.50%). Rather, a larger proportion of the households in the tribal villages use *neem* smoke (54.17%) and mosquito coil (25.00%). A substantial proportion (23.68%) of the households in the no-tribal villages also manages only with use of fans to avoid mosquito bite. Other methods include use of *neem* bati and racket. The latter method is used by some (28.57%) households of the largest size land owners of the tribal villages only. One does not notice any direct correspondence between land size holding and use of preventive methods against mosquito bite in either type of villages. The only exception to this is the higher proportion of the households of the two

largest land size categories (71.43 and 93.75% respectively) of the non-tribal villages using one or the other type of preventive method.

Table –8.2a : Action Taken to Prevent Mosquito Bite by Land Size Category

Land size (in acres)	Percentage of Households Taking Action	Non -Tribal Village						
		Type of Action Taken to Prevent Mosquito Bite						
		Net	Neem Smoke	Neem Bati	Racket	Fan	Coil	Total
Landless	51.82	75.47	7.55	1.89	0.00	13.21	1.89	100
0.01-1.00	51.85	0.00	50.00	0.00	0.00	25.00	25.00	100
1.01-2.00	66.67	21.43	0.00	0.00	0.00	71.43	7.14	100
2.01-3.00	20.00	100	0.00	0.00	0.00	0.00	0.00	100
3.01-4.00	45.45	0.00	100	0.00	0.00	0.00	0.00	100
4.01-5.00	71.43	100	0.00	0.00	0.00	0.00	0.00	100
5.01 & Above	93.75	0.00	0.00	0.00	0.00	0.00	100	100
Total	**56.50**	**59.21**	**9.21**	**1.32**	**0.00**	**23.68**	**6.58**	**100**

Source: Computed by the researcher from field data.

Table –8.2b : Action Taken to Prevent Mosquito Bite by Land Size Category-Tribal Villages

Land Size (in acres)	% of Households Taking Action	Type of Action Taken to Prevent Mosquito Bite					
		Net	*Neem* Smoke	*Neem* Bati	Racket	Coil	Total
Landless	50.00	15.38	30.77	7.69	0.00	46.15	100
0.01-1.00	38.78	0.00	91.67	0.00	0.00	8.33	100
1.01-2.00	25.93	0.00	100.00	0.00	0.00	0.00	100
2.01-3.00	56.25	20.00	80.00	0.00	0.00	0.00	100
3.01-4.00	54.55	33.33	0.00	0.00	0.00	66.67	100
4.01-5.00	22.22	50.00	0.00	0.00	0.00	50.00	100
5.01 & Above	50.00	14.29	14.29	14.29	28.57	28.57	100
Total	**43.50**	**12.50**	**54.17**	**4.17**	**4.17**	**25.00**	**100**

Source: Computed by the researcher from field data.

8.3.2 Health Consciousness

One of the most important ways of maintaining good health is to remain conscious about it. To assess the level of health consciousness in the sample population, an attempt was made to record the percentage of households taking three specific actions. The three actions are, availing the mid-day meal facility provided to children in the school, providing dietary supplement to children at home, and registration of expecting mothers under the Ma Yojana of the Government. As is clear from Table 8.3, in both types of villages around two-third of the households reported

of availing mid-day meal facility and providing dietary supplement, and only around one-fourth of the households have taken benefit of the Ma Yojana. With regard to these actions, minor difference is marked between the two types of villages. While the percentage of households availing mid-day meal facility (69.50%) and providing dietary supplement (62.50%) is higher in the tribal villages, a higher percentage (24.50%) of households of the non-tribal villages has taken advantage of the Ma Yojana. Any difference in these actions across land size categories of both types of villages is also not noticed (Table 8.3).

Table – 8.3 : Health Consciousness by Land Size Category

Land Size (in acres)	Percentage of Households					
	Non -Tribal Villages			Tribal Villages		
	Availing Mid-Day Meal Facility in the School	Providing Dietary Supplement at Home	Registered in Ma Yojana	Availing Mid - Day Meal Facility in the School	Providing Dietary Supplement at Home	Registered in Ma Yojana
Landless	64.29	51.02	17.35	60.61	53.03	25.76
0.01-1.00	74.19	61.29	22.58	77.55	67.35	22.45
1.01-2.00	82.76	58.62	41.38	74.07	74.07	18.52
2.01-3.00	100	100	60.00	87.50	87.50	12.50
3.01-4.00	60.00	33.33	33.33	72.73	45.45	18.18
4.01-5.00	66.67	100	22.22	88.89	66.67	11.11
5.01 & Above	33.33	68.42	26.32	50.00	54.55	11.76
Total	**66.50**	**58.00**	**24.50**	**69.50**	**62.50**	**20.00**

Source: Computed by the researcher from field data.

Plate - 8.3: Availing Mid-Day Meal Facility in School (Tribal area: Chhota Udaipur *taluka*)

Plate - 8.4: Availing Mid-Day Meal Facility in the School (Tribal area: Chhota Udaipur *taluka*)

8.3.3 Health Treatment

Health treatment is a basic requirement for maintaining good health. In terms of health system, India ranks 118 amongst 191 WHO member countries (Ramani et. al, 2005).

About 60 per cent (58.95%) of the households in the non-tribal villages avail the facilities of the Government PHCs, sub centers and hospitals, which is higher in comparison to the tribal villages (49.9%). Households visiting private doctors for health check-up are 24.56 and 38.53 per cent in the non-tribal and the tribal villages respectively. The practice of visiting the witch doctor or *bhua* for treatment during illness still survives among the sample population and around one-tenth of the households of both the non-tribal (12.56%) and tribal (10.48%) villages reported of following it. Dependence on traditional medicines administered at home is very insignificant in both types of villages, although the proportion of households adopting the practice is higher in the non-tribal (3.51%) villages in comparison to the tribal villages (1.98%).

Perusal of the table (Table 8.4) also reveals lack of any significant difference across land size categories in the percentage of households using the Government health centers. However, one can clearly mark that visiting the private doctor is proportionally the highest among the households belonging to the largest land size categories. On the other hand, visiting the *bhua* or using home remedies is either absent or very low in case of the largest land size categories of both types of villages.

Treating patients at home with traditional medicines is mostly confined to the households belonging to the landless and the smallest size land holdings, particularly of the non-tribal villages.

Plate - 8.5: Tejgadh Primary Health Centre (Tribal area: Chhota Udaipur *taluka*)

Plate - 8.6; Tundav Primary Health Centre (Non-Tribal area: Savli *taluka)*

Plate - 8.7: Vadu Primary health Centre (Non-Tribal area: Padra *taluka)*

Table – 8.4 : Health Treatment by Land Size Category

Land Size (in acres)	Percentage of Households by Type of Treatment									
	Non -Tribal Villages					Tribal Villages				
	Govt.	Pvt. Doctor	*Bhua*	Tradit-ional	Total	Govt.	Pvt. Doctor	*Bhua*	Tradit-ional	Total
Landless	62.22	19.26	12.59	5.93	100	49.06	38.68	11.32	0.94	100
0.01-1.00	57.78	26.67	13.33	2.22	100	52.27	29.55	17.05	1.14	100
1.01-2.00	52.27	36.36	9.09	2.27	100	55.81	34.88	4.65	4.65	100
2.01-3.00	60.00	0.00	40.00	0.00	100	30.00	58.00	8.00	4.00	100
3.01-4.00	61.54	7.69	30.77	0.00	100	47.06	41.18	11.76	0.00	100
4.01-5.00	52.94	29.41	17.65	0.00	100	42.86	35.71	14.29	7.14	100
5.01 & Above	57.69	38.46	3.85	0.00	100	44.12	55.88	0.00	0.00	100
Total	**58.95**	**24.56**	**12.98**	**3.51**	**100**	**49.01**	**38.53**	**10.48**	**1.98**	**100**

Source: Computed by the researcher from field data

Plate - 8.8: Patients waiting for treatment at PHC
(Kelanpur village, Non-tribal area: Vadodara *taluka*).

8.3.4 Health Scheme and Immunization

There are several Government sponsored health schemes like Rashtriya Swasthya Bima Yojana, Pradhan Mantri Jeevan Jyoti Bima Yojana, Janani Suraksha Yojana etcetera. Different types of immunizations schemes like Universal Immunization Programme, Pulse Polio, Integrated Child Development Services, are also provided by the Government as well as private agencies. An attempt was made to record the percentage of households availing these facilities and the findings have been documented in Table 8.5. The table indicates that the percentage of households taking advantage of the ongoing health schemes is highly insignificant; more so in the tribal villages (12%). However, almost the entire sample population is immunized against different diseases. The proportion of households that have got their members immunized is by and large same in both types of villages. Most of the households got the immunizations done by the Government agencies, excepting a few from among the landless and the largest land owning households of both types of villages. A few (3.45%) households in the non-tribal villages belonging to the marginal (1.01 to 2.00 acres) land size holdings have also got the immunization done by private agencies. Most of the households in both types of villages not joining any health scheme may be due to lack of awareness. Such a probability seems higher from the fact that larger proportion of the households in the large size land holdings, particularly of the non-tribal villages, has reported joining any health scheme.

Table –8.5 : Health Scheme and Immunization by Land Size Category

Land Size (in acres)	Percentage of Households									
	Non -Tribal Villages					Tribal Villages				
	Health Scheme/ Institution	Immuni zation	Source			Health Schem/ Institution	Immuni zation	Source		
			Govt.	Pvt.	Total			Govt.	Pvt.	Total
Landless	6.12	94.90	97.96	2.04	100	15.15	98.48	96.97	3.03	100
0.01-1.00	19.35	93.55	100.	0.00	100	12.24	100	100	0.00	100
1.01-2.00	17.24	100	96.55	3.45	100	7.41	96.30	100	0.00	100
2.01-3.00	60.00	100	100	0.00	100	12.50	100	100	0.00	100
3.01-4.00	22.22	100	100	0.00	100	9.09	100	100	0.00	100
4.01-5.00	44.44	100	100	0.00	100	0.00	100	100	0.00	100
5.01 & Above	31.58	94.74	94.74	5.26	100	13.64	95.45	72.73	27.27	100
Total	**16.00**	**96.00**	**98.00**	**2.00**	**100**	**12.00**	**98.50**	**96.00**	**4.00**	**100**

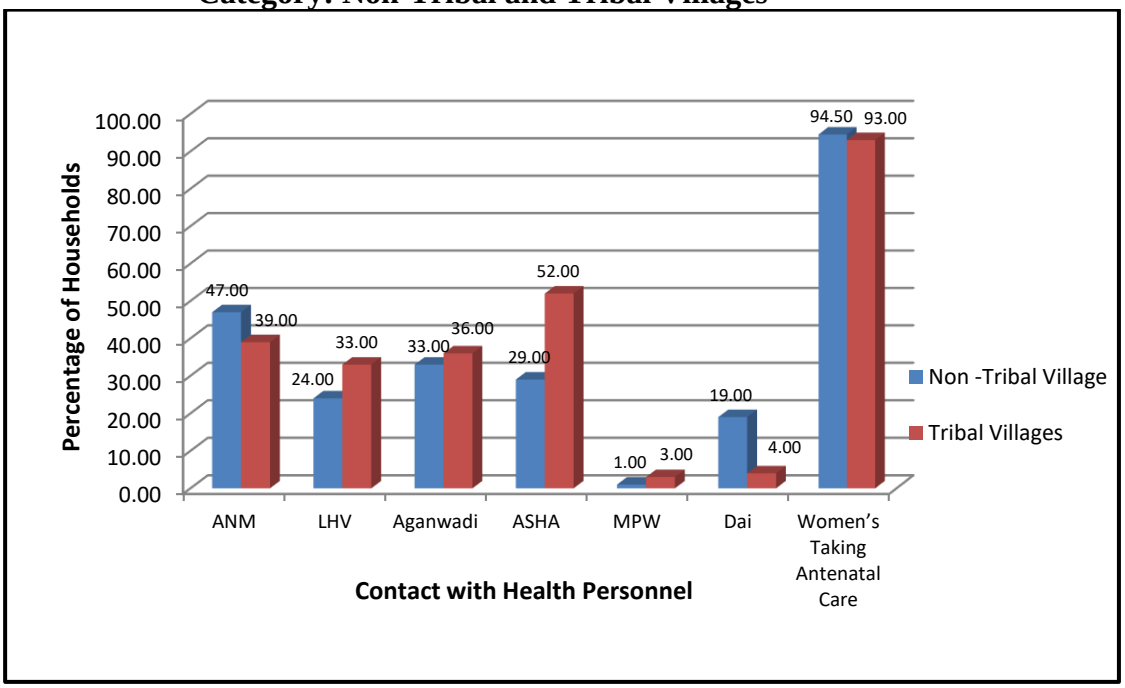
Source: Computed by the researcher from field data.

8.3.5 Contact with Health Personnel

Contact with the various health personnel is important for treatment for disease. The health personnel available for contact in the villages include the Auxiliary Nurse Midwife (ANM), Lady Health Visitor(LHV), Integrated Child Development Worker *(Anganwadi*/ICDS), Accredited Social Health Activist (ASHA), Multipurpose Workers (MPW), and Traditional Birth Attendant (Dai/TBA). Another area of contact pertains to the expecting mothers, for whom antenatal care facility is available. As is clear from Fig. 8.5, and Tables - 8.6a and 8.6b, the overall contact with health personnel is low to moderate in both types of villages.

Among all the health personnel, the maximum percentage of households (47%) in the non-tribal villages contacts the ANM. The LHV (24%), the *anganwadi* (33%) and the ASHA (29 %) workers are contacted by around a third of the households of these villages. The *dai/*TBA (19 %) worker is contacted by about a fifth of the households, while the MPW (1%) health personnel seem to have very less significance in the non-tribal villages. Between the non-tribal and tribal villages, there is minor difference with respect to contacts with the ANM (39%), LHV (33%), *anganwadi* (36%) and MPW (3%) and personnel. However, a much greater proportion of the households are in touch with the ASHA (52%) personnel and a much lower proportion of the households are in touch with the *dai/*TBA (4%) personnel in the tribal villages. Contact with ANM *anganwadi* and ASHA workers in both the types of villages are higher in comparison to other health workers. A higher percentage household contacting the *dai*/TBA in the non-tribal villages in comparison to the tribal villages signifies that the people in the tribal villages are more health conscious. Majority of the tribal households are contacting the trained health personnel like the ANM, ASHA workers instead of the untrained *dai*/TBA worker. Most of the expecting mothers in the non-tribal (94.50%) tribal (93.00%) villages have availed the antenatal care facility, which is a good sign of development in the health sector of Gujarat state.

Figure – 8.5 : Contact with Health Personnel Availing the Services by Land Size Category: Non-Tribal and Tribal Villages



Source: Computed by the researcher from field data

Plate - 8.9: *Anganwadi* at Tundav village (Non-Tribal area: Savali *taluka*)

Table – 8.6a : Contact with Health Personnel Availing the Services by Land Size Category: Non-Tribal Villages

Land Size (in acres)	Contact with Health Personnel						
	ANM	LHV	*Anganwadi*	ASHA	MPW	Dai	Women's Taking Antenatal Care
Landless	49.00	17.00	32.00	27.00	1.00	28.00	92.86
0.01-1.00	52.00	32.00	45.00	23.00	0.00	16.00	93.75
1.-01-2.00	31.00	24.00	45.00	41.00	0.00	17.00	96.43
2.01-3.00	20.00	20.00	20.00	80.00	0.00	00.00	100
3.01-4.00	33.00	33.00	0.00	33.00	0.00	11.00	100
4.01-5.01	78.00	22.00	11.00	22.00	0.00	0.00	100
5.01 & Above	53.00	42.00	32.00	21.00	0.00	0.00	94.74
Total	**47.00**	**24.00**	**33.00**	**29.00**	**1.00**	**19.00**	**94.50**

Source: Computed by the researcher from field data.

Table –8.6b : Contact with Health Personnel Availing the Services by Land Size Category: Tribal Villages

Land Size (in acres)	Contact with Health Personnel						
	ANM	LHV	*Anganwadi*	ASHA	MPW	Dai	Women's Taking Antenatal Care
Landless	38.00	27.00	35.00	52.00	02.00	03.00	78.21
0.01-1.00	33.00	35.00	49.00	61.00	00.00	02.00	75.00
1.01-2.00	37.00	48.00	37.00	37.00	00.00	07.00	96.30
2.01-3.00	56.00	25.00	25.00	63.00	0.00	0.00	93.75
3.01-4.00	45.00	27.00	27.00	73.00	0.00	18.00	100
4.01-5.01	11.00	44.00	22.00	44.00	22.00	0.00	100
5.01 & Above	50.00	32.00	23.00	32.00	05.00	0.00	100
Total	**39.00**	**33.00**	**36.00**	**52.00**	**03.00**	**04.00**	**93.00**

Source: Computed by the researcher from field data

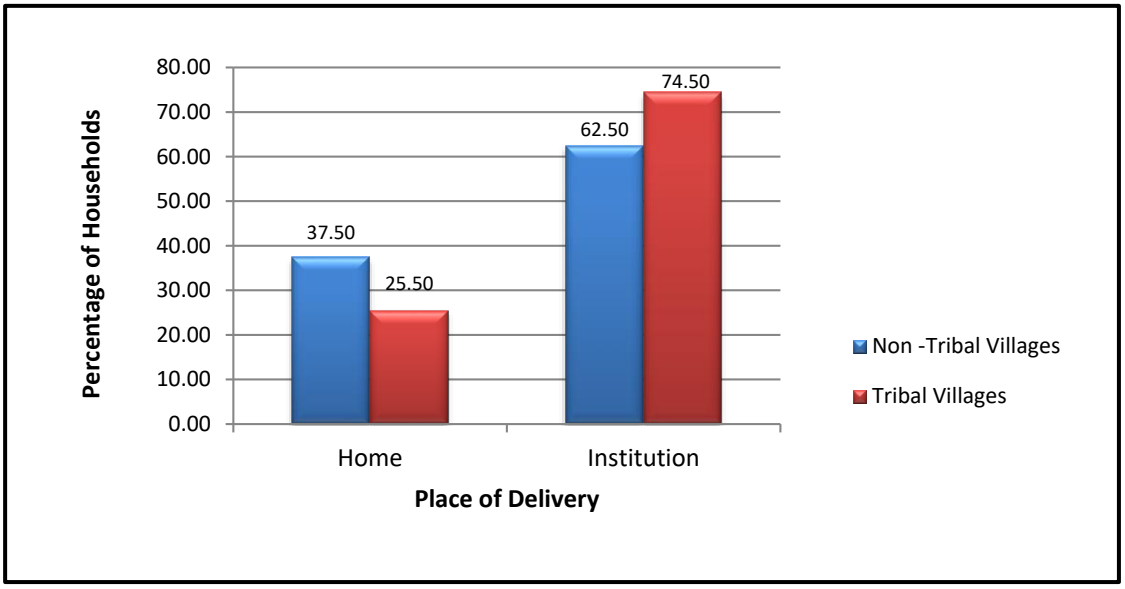
Note: **ANM:** Auxiliary Nurse Midwife; **LHV:** Lady Health Visitor; ***Anganwadi* / ICDS:** Integrated Child Development Worker; **ASHA:** Accredited Social Health Activist; **MPW:** Multipurpose Workers; **Dai/TBA:** Traditional Birth Attendant.

8.3.6 Place of Child Delivery

Chances of death or morbidity of the baby as well as the mother at the time of child birth increase in the absence of qualified health personnel and/or when delivery is conducted outside equipped health center. Delivering the baby under the supervision of trained medical staff at properly equipped health centers, keeps both the mother and the child safe from infections and the resultant repercussions including death. It is surprising to note that a significant proportion of the households in both types of villages perform the child delivery at home, which is not considered safe.

Proportion of such households is relatively higher in the non-tribal villages, where only 62.50 per cent of the households make use of any type of hospital facility for the delivery of the baby. The situation in the tribal villages is rather better, where almost three fourth (74.50%) of the households prefer delivery of the child in some equipped medical centre. Across the land size categories, one fails to notice any pattern in the use of any medical centre for child delivery, particularly in the non-tribal villages. However, in the tribal villages, relatively less percentage of the households belonging to the landless (66.67%) and the smallest land holding category (69.39%) avail the facility of the medical centre for child delivery.

Figure – 8.6 : Place of Child Delivery



Source: Computed by the researcher from field data.

Table –8.7 : Place of Child Delivery by Land Size Category

Land Size (in acres)	Percentage of Households					
	Non -Tribal Villages			Tribal Villages		
	Home	Medical Centre	Total	Home	Medical Centre	Total
Landless	38.38	61.62	100	33.33	66.67	100
0.01-1.00	38.71	61.29	100	30.61	69.39	100
1.01-2.00	21.43	78.57	100	18.52	81.48	100
2.01-3.00	80.00	20.00	100	31.25	68.75	100
3.01-4.00	66.67	33.33	100	18.18	81.82	100
4.01-5.00	33.33	66.67	100	22.22	77.78	100
5.01 & Above	31.58	68.42	100	0.00	100	100
Total	**37.50**	**62.50**	**100**	**25.50**	**74.50**	**100**

Source: Computed by the researcher from field data.

8.3.7 Knowledge about Family Planning

Knowledge about family planning to control child birth and maintain family size is very important. Awareness about family planning measures seems to be very high in the sample population. Less than ten per cent of the households in the non-tribal (9.92%) and the tribal (8.24%) villages reported ignorance about any family planning measure. In other words, around 90 per cent of the households are aware of the family planning measures in both types of villages. However, it is in the tribal villages where almost all (87.06%) those who are aware, are making use of the knowledge. Compared to this, the proportion of households using any family planning method is much small (56.49%) in the non-tribal villages. It is interesting to note that the segment that is unaware belongs to the landless category only of the non-tribal (19.47%) villages, and the landless (15.38%) and the smallest land holding households (15.79%) in the tribal villages. The proportion of households aware but not using the methods is also higher among the landless and small and marginal land holding categories of the non-tribal villages and the small and marginal land holding categories of the tribal villages. The proportion of households using family planning measures is also very high in case of the large land owning households of both types of villages. Thus, one finds a direct relationship between awareness and use of family planning measures with land holding size (Table 8.8).

Table – 8.8 : Knowledge about Family Planning Measures by Land Size Category

Land Size (in acres)	Percentage of Households							
	Non -Tribal Villages				Tribal Villages			
	Not Aware	Aware but never Used	Used	Total	Not Aware	Aware but never Used	Used	Total
Landless	19.40	44.78	35.82	100	15.38	0.00	84.62	100
0.01-1.00	0.00	18.75	81.25	100	15.79	10.53	73.68	100
1.01-2.00	0.00	43.75	56.25	100	0.00	14.29	85.71	100
2.01-3.00	0.00	0.00	100.00	100	0.00	0.00	100	100
3.01-4.00	0.00	25.00	75.00	100	0.00	0.00	100	100
4.01-5.00	0.00	12.50	87.50	100	0.00	0.00	100	100
5.01 & Above	0.00	9.09	90.91	100	0.00	0.00	100	100
Total	**9.92**	**33.59**	**56.49**	**100**	**8.24**	**4.71**	**87.06**	**100**

Source: Computed by the researcher from field data

8.3.8 Perception on the Attitude and Behaviour of Health Staff

Availability of health care facility is of no use without the staff that is qualified, passionate and well behaved. The health problem of the population that is served by the health care facility is mitigated to a very great extent due to these qualities in the staff attached to it. An attempt was made in this study to evaluate the attitude and behavior of the health staff on the basis of peoples' perception. The perceptions were documented under a five point ordinal scale of very poor, poor, average, good and very good (Table 8.9). On an average around 95 per cent of the respondents of the two types of villages reported the quality of staff as average and above average. The remaining respondents accounting for around five per cent of all respondents seem to have had bad experience with the staff. Across the land size categories of the both types of villages, the above mentioned pattern of responses does not differ much. On the whole, it would not be wrong to presume that the staff in the Government health centers in the study area is performing the assigned duties to the satisfaction of the target population.

Table – 8.9 : Perception on Attitude and Behaviourof Health Staff of Government Health Centers by Land Size Category

Land Size (in acres)	Percentage of Households by Category of Perception											
	Non -Tribal Villages						Tribal Villages					
	Very Poor	Poor	Average	Good	Very Good	Total	Very Poor	Poor	Average	Good	Very Good	Total
Landless	1.02	2.04	20.41	56.12	20.41	100	0.00	7.58	37.88	45.45	9.09	100
0.01-1.00	0.00	6.45	29.03	51.61	12.90	100	2.04	2.04	36.73	40.82	20.41	100
1.01-2.00	0.00	3.45	24.14	58.62	13.79	100	3.70	0.00	3.70	48.15	44.44	100
2.01-3.00	0.00	0.00	20.00	20.00	60.00	100	0.00	6.25	25.00	37.50	31.25	100
3.01-4.00	0.00	0.00	22.22	55.56	22.22	100	0.00	0.00	27.27	18.18	54.55	100
4.01-5.00	0.00	11.11	33.33	11.11	44.44	100	0.00	11.11	0.00	55.56	33.33	100
5.01 & Above	5.26	5.26	5.26	47.37	36.84	100	4.55	4.55	4.55	36.36	50.00	100
Total	**1.00**	**3.50**	**21.50**	**52.00**	**22.00**	**100**	**1.50**	**4.50**	**26.00**	**42.00**	**26.50**	**100**

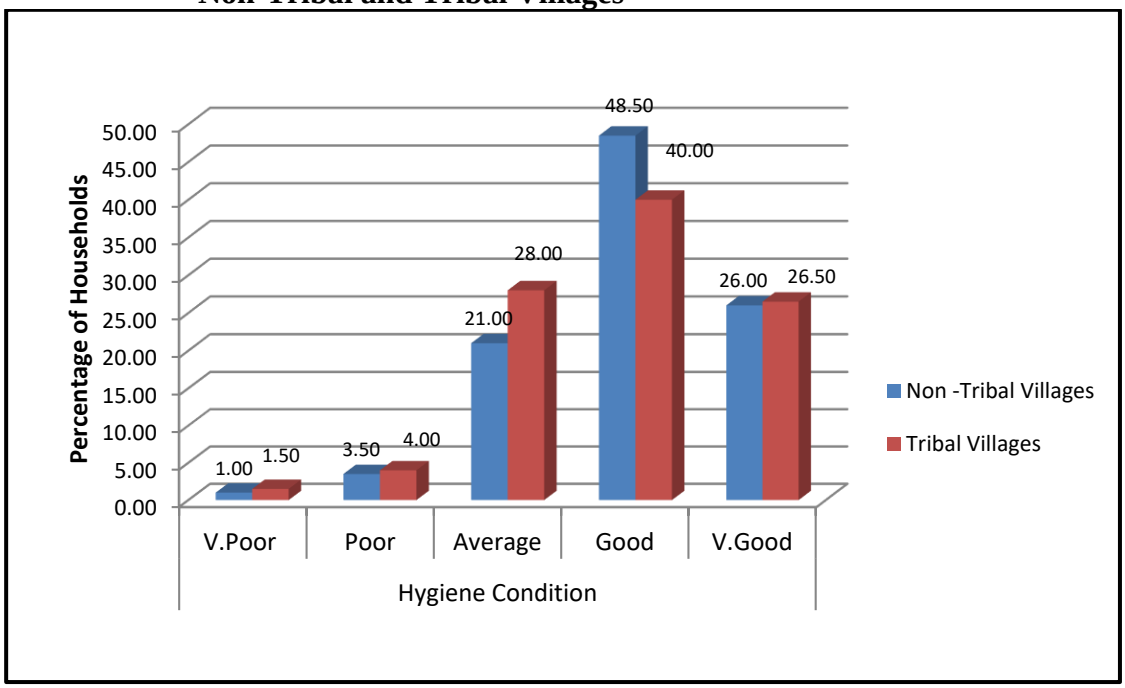
Source: Computed by the researcher from field data.

8.3.9 Hygienic Condition in the Government Health Centers

Maintenance of hygiene at the health units is another important aspect. Besides personally observing the condition of hygiene at different health centers in the study area, the respondents were asked about their impression on the same at the Government health unit of their village. The perceptions of the respondents were

documented under a five point ordinal scale of very poor, poor, average, good and very good (Table 8.10).

Figure – 8.7 : Perception on Hygienic Condition in Government Health Centers: Non-Tribal and Tribal Villages



Source: Computed by the researcher from field data.

Similar to the impression on attitude and behavior of the health unit staff, most respondents consider that hygienic condition is average or above average in the health units in their village. In fact, around three-fourth of the respondents expressed satisfaction (good and very good taken together) about the maintenance of hygienic condition in the respective health units (Figure 8.7). Across the land size categories of the both types of villages, the above mentioned pattern of responses does not differ much. On the whole, it would not be wrong to say on the basis of users' impression that hygienic condition at the Government health centers in the study area is highly satisfactory.

Table – 8.10 : Perception on Hygienic Condition in Government Health Centers by Land Size Category

Land Size (in acres)	Percentage of Households											
	Non -Tribal Villages						Tribal Villages					
	Very Poor	Poor	Average	Good	Very Good	Total	Very Poor	Poor	Average	Good	Very Good	Total
Landless	1.02	2.04	20.41	51.02	25.51	100	0.00	7.58	37.88	45.45	9.09	100
0.01-1.00	0.00	6.45	29.03	51.61	12.90	100	2.00	2.00	38.00	38.00	20.00	100
1.01-2.00	0.00	3.45	24.14	58.62	13.79	100	3.70	0.00	11.11	37.04	48.15	100
2.01-3.00	0.00	0.00	20.00	20.00	60.00	100	0.00	6.25	25.00	43.75	25.00	100
3.01-4.00	0.00	0.00	22.22	44.44	33.33	100	0.00	0.00	27.27	18.18	54.55	100
4.01-5.00	0.00	11.11	33.33	11.11	44.44	100	0.00	11.11	0.00	55.56	33.33	100
5.01 & Above	5.26	5.26	0.00	42.11	47.37	100	4.76	0.00	9.52	33.33	52.38	100
Total	**1.00**	**3.50**	**21.00**	**48.50**	**26.00**	**100**	**1.50**	**4.00**	**28.00**	**40.00**	**26.50**	**100**

Source: Computed by the researcher from field data.

8.3.10 Constraints in Utilizing Health Infrastructure

There are many problems faced by villagers in utilizing health facilities of the Government hospitals. This is one of the reasons why people find it difficult to make use of the facilities available at the Government hospitals and feel compelled to go to private doctors. Lack of equipments, poor performance and distance emerged as the most common constraints for the people in using the Government health infrastructure. A small proportion of the households in the non-tribal (3.90%) and tribal (6.77%) villages identified distance as the reason for which they prefer going to the private doctor instead of Government health center. Around 20 (18.18%) per cent households in the non-tribal and 30 (31.58%) per cent households in the tribal villages reported poor performance by doctors and health staff as the reason for which they feel discouraged to go there. This problem seems to be higher in the tribal villages in comparison to the non-tribal villages. Most widely reported constraint in both non-tribal (77.92%) and tribal (61.65%) villages is lack of equipments in the Government health units. Fifty to hundred per cent households of every category of land size of both non-tribal and tribal villages raised the issue of insufficient equipment in the Government health units (Table 8.11). This may be one of the reasons why more than a quarter of the households of both types of villages prefer child delivery at home (Table 8.7).

On the basis of personal observation and discussion with doctors and staff of the PHCs, the researcher too found the constraints identified by the respondents of the sample villages valid. Not all the PHCs in the study were found to be well equipped with instruments and staff, for example Kelanpur PHC (non-tribal village). Some of the PHCs were under construction, for example in Vadu village (non-tribal village).

Plate - 8.10: Ambulance facility in Vadu PHC (Non-Tribal area: Padra *taluka*)

Plate - 8.11: Availability of Medicine in Vadu PHC (Non-Tribal area: Padra *taluka*)

Table –8.11 : Constraints in Utilizing Health Infrastructure by Land Size Category

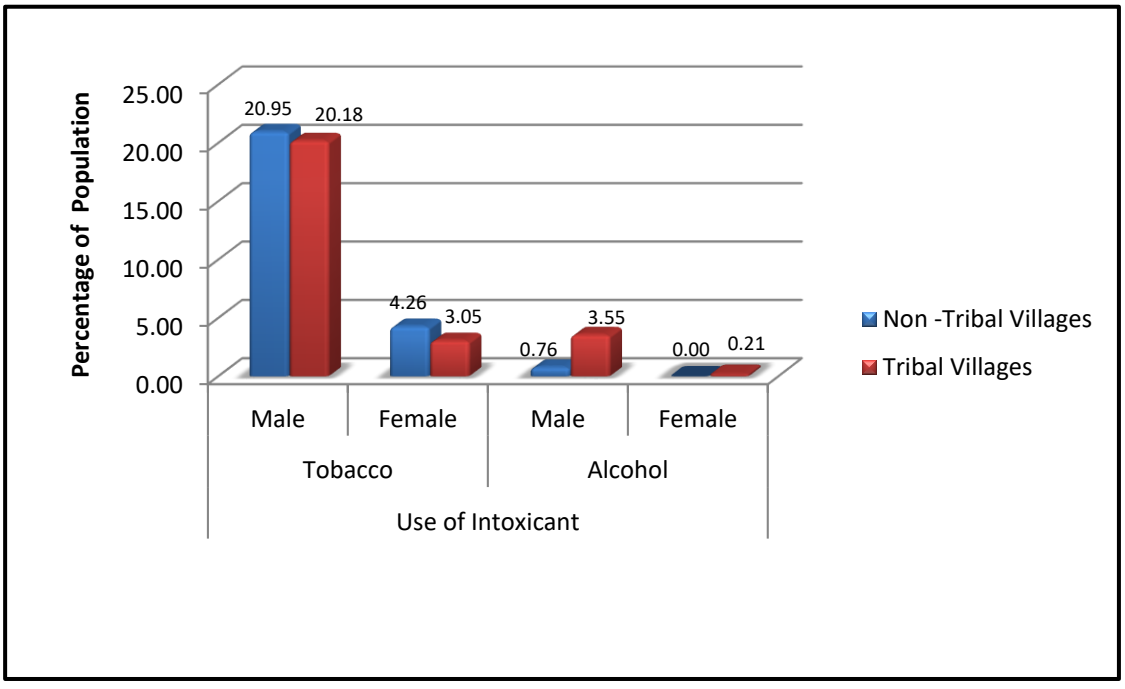
Land Size (in acres)	Percentage of Households by Constraints Encountered							
	Non -Tribal Villages				Tribal Villages			
	Distance	Poor Performance	Lack of Equipment	Total	Distance	Poor Performance	Lack of Equipment	Total
Landless	7.41	11.11	81.48	100	10.53	42.11	47.37	100
0.01-1.00	0.00	40.00	60.00	100	7.69	42.31	50.00	100
1.01-2.00	0.00	36.36	63.64	100	4.17	25.00	70.83	100
2.01-3.00	25.00	25.00	50.00	100	7.14	35.71	57.14	100
3.01-4.00	0.00	0.00	100	100	0.00	33.33	66.67	100
4.01-5.00	0.00	0.00	100	100	14.29	0.00	85.71	100
5.01 & Above	0.00	18.18	81.82	100	0.00	6.67	93.33	100
Total	**3.90**	**18.18**	**77.92**	**100**	**6.77**	**31.58**	**61.65**	**100**

Source: Computed by the researcher from field data

8.3.11 Consumption of Intoxicants

Many of the modifiable lifestyles also affect the human health in which, consumption of tobacco and alcohol is prominent. Consumption of any intoxicant is injurious to health and is associated with the cardiovascular diseases and different forms of cancers. It is evident from Fig. 8.8 and Table –8.12, that 20.95 per cent of male and 4.25 per cent of female in non-tribal villages and 20.18 per cent male and 3.05 per cent female in tribal villages consume tobacco. Consumption of tobacco among the males is more popular than among the females in both types of villages. Tobacco is consumed in different forms like *gutka, paan masala, mava, bidi*, cigarette etcetera. Land size wise it is seen that tobacco consumption is high in all land size categories, but more among males than among females. Tobacco consumption is the highest among the members of the landless, marginal and small land size holding households of both types of villages. Females of all categories of land size holdings excepting the largest one of the tribal villages, consume tobacco in varying proportion.

Figure – 8.8 : Consumption of Intoxicants: Non-Tribal and Tribal Villages



Source: Computed by the researcher from field data.

Alcohol consumption in males is 0.76 per cent and is mostly restricted to the landless (1.61 %) categories only in the non-tribal villages and alcohol consumption in female is almost absent. In tribal villages alcohol consumption in males is 3.55 per

cent and is seen in most of the land size categories and among females it is 0.22 per cent and is limited to the landless category only.

Table – 8.12 : Consumption of Intoxicants by Land Size Category

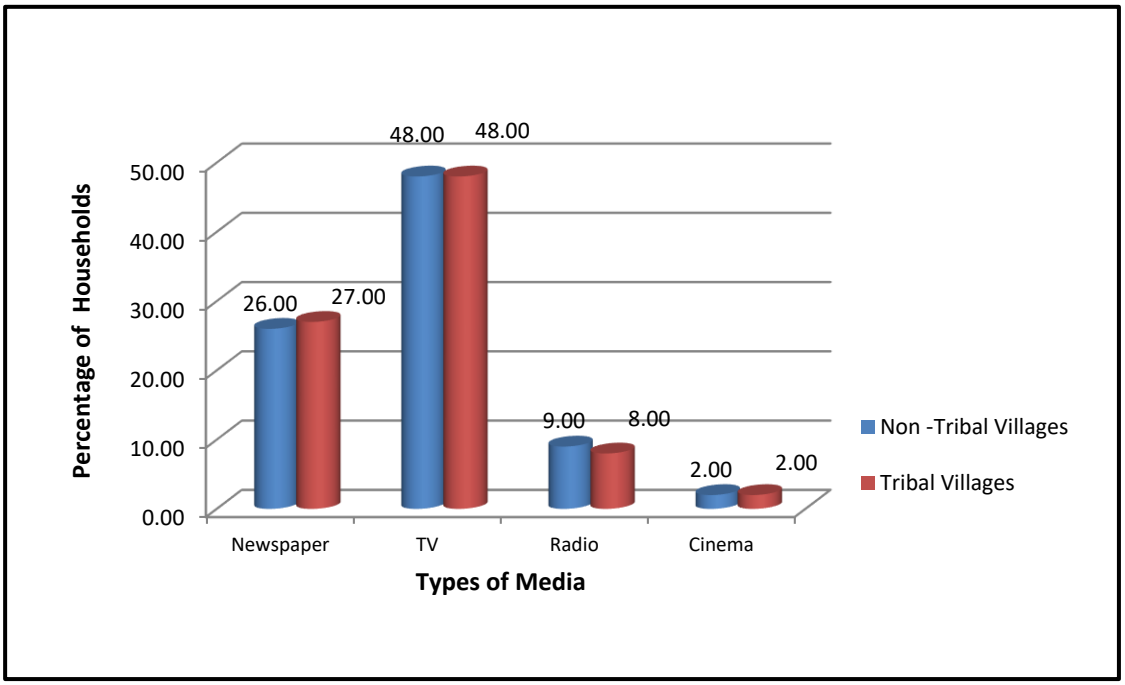
Land Size (in acres)	Percentage of Population Consuming Intoxicant							
	Non-Tribal Villages				Tribal Villages			
	Tobacco		Alcohol		Tobacco		Alcohol	
	Male	Female	Male	Female	Male	Female	Male	Female
Landless	23.39	9.57	1.61	0.00	18.96	2.91	2.29	0.72
0.01-1.00	31.34	0.00	0.00	0.00	21.31	0.84	5.73	0.00
1.01-2.00	17.64	1.62	0.00	0.00	23.75	3.75	5.00	0.00
2.01-3.00	7.69	0.00	0.00	0.00	15.9	2.27	0.00	0.00
3.01-4.00	36.00	5.00	0.00	0.00	30	11.11	3.33	0.00
4.01-5.01	4.54	0.00	0.00	0.00	47.61	8.69	0.00	0.00
5.01 &Above	8.92	0.00	0.00	0.00	6.25	0.00	4.68	0.00
Total	**20.95**	**4.26**	**0.76**	**0.00**	**20.18**	**3.05**	**3.55**	**0.21**

Source: Computed by the researcher from field data

8.3.12 Exposure to Media

Exposure to media is considered important as it indicates the level of awareness among the people. Information regarding different development programmes and schemes designed by Government and non-government agencies, including those concerning education and health, reach the public through media. Besides, news about a variety of aspects and incidences from all over the World, enlighten as well as guide the general public. It is however disheartening to note that less than two-thirds of the households of the sample villages reported of having exposure to any type of media. The level of exposure is marginally higher in the non-tribal villages (60.50%) in comparison to the tribal villages (56.50%). From among the different forms of media, television is most common in the households of both types of villages. Almost around half (48%) of the sample households reported having television at home. Reading the newspaper is popular among about a third of the households of the two types of villages. Exposure to the outside world through radio is less popular in the sample population as only around ten per cent of the households in the two types of villages reported its use. Visiting film halls to watch movies is the least popular in the study villages. Although there are variations in the percentage of households exposed to different types of media across land size categories, it is difficult to bring out any pattern in them (Table 8.13).

Figure – 8.9 : Exposure to Media: Non-Tribal & Tribal Villages



Source: Computed by the researcher from field data

Table – 8.13 : Exposure to Media by Land Size Category

Land size (in acres)	Percentage of Households									
	Non -Tribal Villages					Tribal Villages				
	All Media	Type of Media				All Media	Type of Media			
		Print	TV	Radio	Cinema		Print	TV	Radio	Cinema
Landless	51.02	16.00	42.00	04.00	01.00	51.52	24.00	39.00	15.00	02.00
0.01-1.00	58.06	23.00	39.00	10.00	00.00	42.86	16.00	41.00	02.00	00.00
1.01-2.00	65.52	24.00	55.00	07.00	00.00	70.37	30.00	52.00	00.00	00.00
2.01-3.00	60.00	20.00	20.00	40.00	00.00	68.75	25.00	50.00	25.00	00.00
3.01-4.00	55.56	11.00	33.00	11.00	00.00	54.55	36.00	55.00	00.00	00.00
4.01-5.01	77.78	67.00	78.00	11.00	00.00	55.56	22.00	56.00	11.00	00.00
5.01 & Above	100	74.00	84.00	26.00	11.00	77.27	50.00	77.00	00.00	18.00
Total	**60.50**	**26.00**	**48.00**	**09.00**	**02.00**	**56.50**	**27.00**	**48.00**	**08.00**	**02.00**

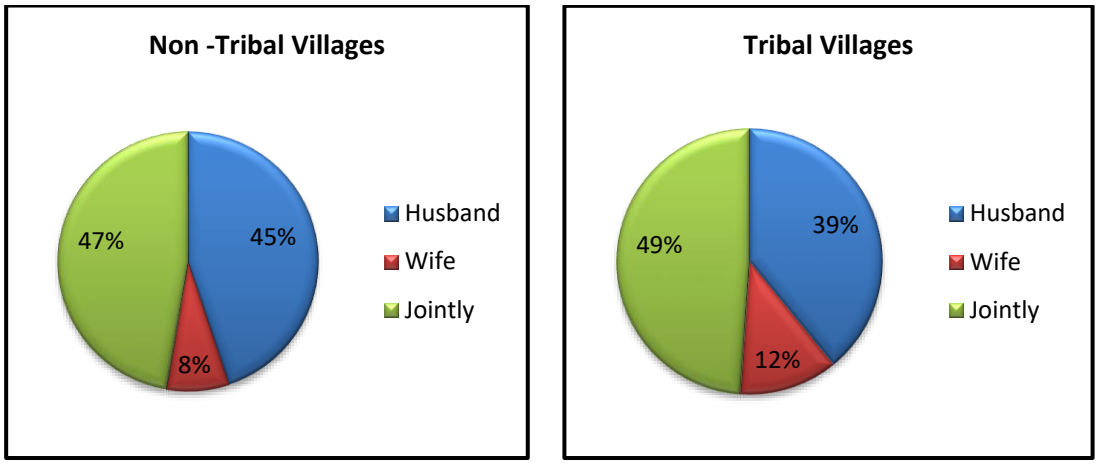
Source: Computed by the researcher from field data

8.3.13 Women Autonomy

Autonomy of the female members in a family is considered to empower women in many ways and at many levels. At household level, autonomy of women is generally judged by investigating the decision making power available to them in the family. Role of the lady members of the family in taking decisions related to health issues of the family members, matters related to children's education, purchases of major household items including property, matters related to marriages, and visit to her parents/relatives etcetera, helps in assessing the level of autonomy of women in the family in particular and the society in general.

Plate - 8.12: Women's in Palasani village (Tribal area: Nasvadi *taluka)*

Figure -8.10 : Autonomy of Women: Non-Tribal and Tribal Villages



Source: Computed by the researcher from field data.

An attempt was made in the present research to estimate the percentage of households in the sample households permitting independent decision making power to their female family members (Fig. 8.10). The female members of the family are completely ignored while any decision is taken in about two-fifth of the sample households. Women in the non-tribal villages seem to be more deprived as in almost 45 (44.88%) per cent households the decision of the husband becomes binding. The share of such households in the tribal villages is relatively less (39.11%). The implication is, women in tribal villages enjoy higher autonomy in comparison to their counterparts in the non-tribal villages. This becomes further established by in around double percentage of households (12.00%) women enjoying full freedom to take decision in the tribal villages than in the non-tribal villages (7.80%). Even the

percentage of households where decisions are taken jointly, giving equal importance to both partners, is higher in the tribal villages (48.89%), although marginally. This may be due the traditional character of the tribal societies, where gender biasness is uncommon (Ahmed, 1999, 115-117). Land size category wise too, one fails to find any pattern in this respect in the tribal villages. On the other hand, a discernible pattern is visible in case of the non-tribal villages, where autonomy of women seems to increase in terms of decision making power in family matters with increase in the size of land holding. The decisions are taken solely by the husband in higher proportion of landless and small and marginal land holding households. Greater proportions of households among the large size land owing households give equal importance to both the members and take decisions jointly (Table 8.14).

Table – 8.14 : Autonomy of Women by Land Size Category

Land Size (in acres)	Percentage of Households							
	Non -Tribal Villages - Decisions taken by				Tribal Villages - Decisions taken by			
	Husband	Wife	Jointly	Total	Husband	Wife	Jointly	Total
Landless	52.00	9.00	39.00	100	44.93	8.70	46.38	100
0.01-1.00	58.06	9.68	32.26	100	17.24	13.79	68.97	100
1.01-2.00	41.38	6.90	51.72	100	52.94	17.65	29.41	100
2.01-3.00	33.33	16.67	50.00	100	38.89	11.11	50.00	100
3.01-4.00	30.00	10.00	60.00	100	53.85	15.38	30.77	100
4.01-5.00	0.00	0.00	100.00	100	55.56	22.22	22.22	100
5.01 & Above	26.32	0.00	73.68	100	41.67	4.17	54.17	100
Total	**44.88**	**7.80**	**47.32**	**100**	**39.11**	**12.00**	**48.89**	**100**

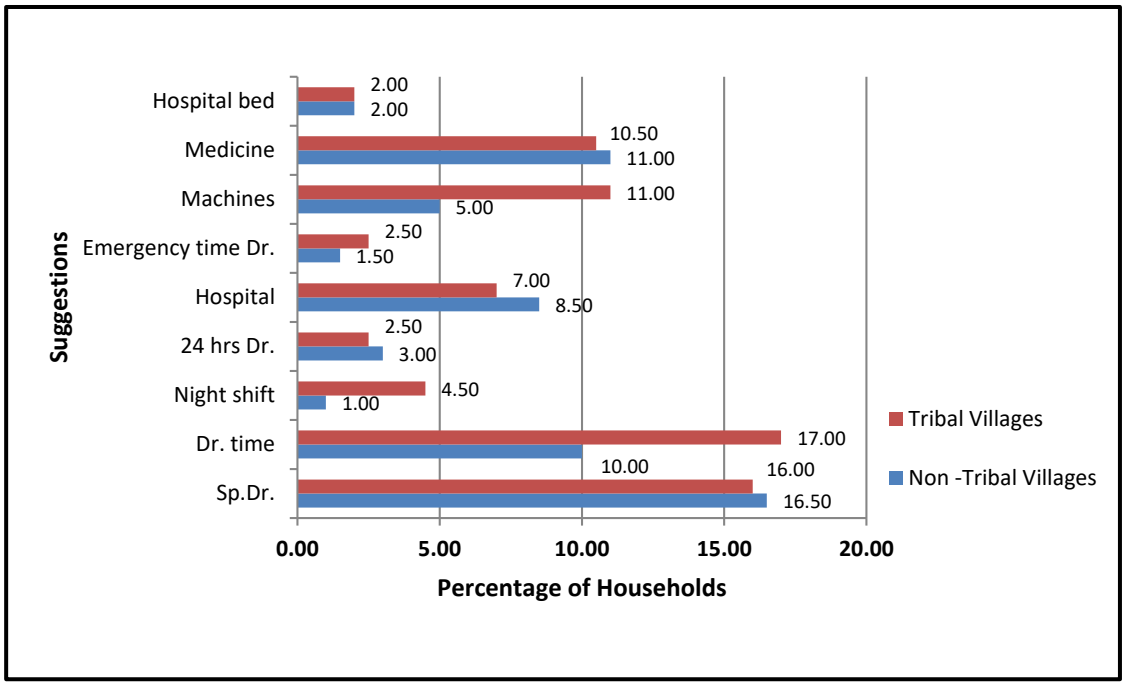
Source: Computed by the researcher from field data

8.3.14 Suggestions of Villagers

An attempt was made to gather suggestions of the villagers on the present health facilities in the Government health units. The largest proportion of the respondents (around 16%) in both types of villages expressed the desire to have specialized doctors. However, the issue of the timing of availability of the doctor at the health center is also considered important by a substantial proportion (17%) of the respondents in the tribal villages. With regard to non-availability of medicines (11% and 10.50 % households in non-tribal and tribal villages respectively) and operating machines (5% and 10% households in non-tribal and tribal villages respectively) some of the respondents expressed their dissatisfaction and urged on their improvement. Suggestion for hospitals (8% and 7 % household in non-tribal and tribal

villages respectively) in the area was also mentioned by a good proportion of the respondents.

Figure – 8.11 : Suggestions of Villagers: Non-Tribal and Tribal Villages.



Source: Computed by the researcher from field data.

Interest in having round the clock availability of doctor (3% and 2.50% households in non-tribal and tribal villages respectively), night shift of doctor (1% and 4.50% households in non-tribal and tribal villages respectively), availability of doctor during emergency (1.50% and 2.50% households in non-tribal and tribal villages respectively) and hospital beds (2% households in non-tribal and tribal villages respectively) was shown by small proportions of the households (Fig. 8.11).

Across the two types of villages, land size category wise differences in the suggestions are not uncommon. However, households of almost all land size categories of the two types of villages suggested for the provision of specialized doctors in varying proportions. The landless and marginal land owning households of both non-tribal and tribal villages stressed on the problems associated with the availability time of the doctor, wherein the provision of availability of doctor during night hours, round the clock and during emergency appear to be important. Large proportions of the households belonging to the small as well as the large land owners feel the necessity of improvement in the provision of operational machines, supply of medicines and establishment of hospital in the vicinity.

It can be concluded that the major problems faced by the households in the non-tribal villages are of specialized doctors, availability time of the doctor, medicines and medical equipments. Problems faced by the households in the tribal villages pertain mostly to timing and absence doctors, followed by specialized doctors, medicines and equipments.

Table – 8.15a : Suggestions of Villagers by Land Size Category: Non - Tribal Villages

Land Size (in acres)	Suggestions								
	Sp. Dr.	Dr. time	Night shift	24 hrs Dr.	Hospital	Emergency time Dr.	Mach ines	Medi cine	Hospital bed
Landless	13.27	3.06	2.04	3.06	9.18	1.02	3.06	7.14	1.02
0.01-1.00	32.26	19.35	0.00	6.45	0.00	3.23	3.23	9.68	3.23
1.01-2.00	3.45	17.24	0.00	0.00	10.34	3.45	10.34	24.14	0.00
2.01-3.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.01-4.00	33.33	11.11	0.00	0.00	11.11	0.00	11.11	22.22	11.11
4.01-5.01	22.22	11.11	0.00	11.11	11.11	0.00	0.00	0.00	0.00
5.01 & Above	5.26	21.05	0.00	0.00	15.79	0.00	10.53	15.79	5.26
Total	**16.50**	**10.00**	**1.00**	**3.00**	**8.50**	**1.50**	**5.00**	**11.00**	**2.00**

Source: Computed by the researcher from field data.

Table – 8.15b : Suggestions of Villagers by Land Size Category - Tribal Villages

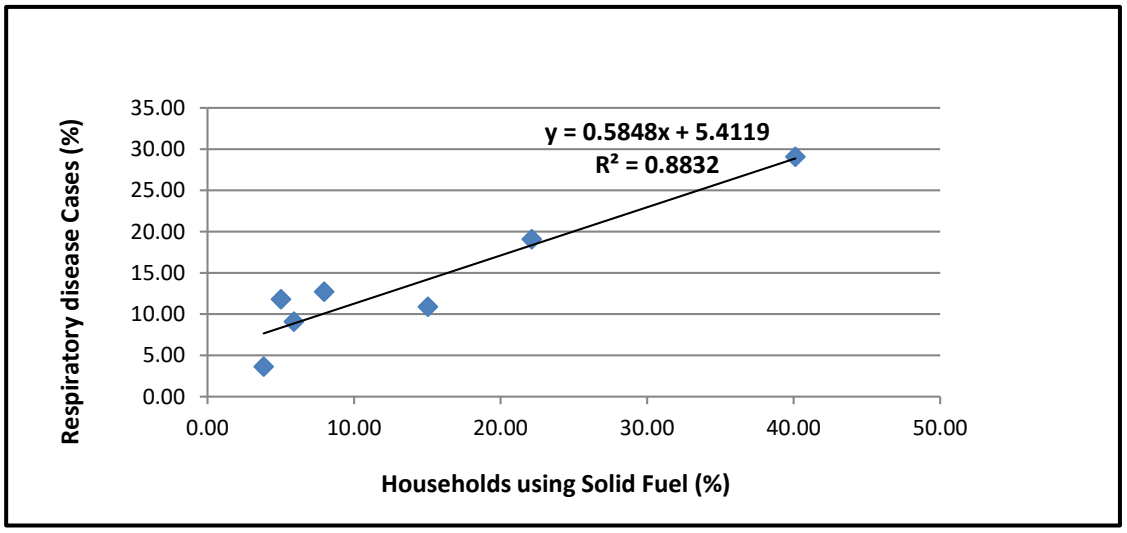
Land size (in acres)	Suggestions								
	Sp. Dr.	Dr. time	Night shift	24 hrs Dr.	Hospital	Emergency time Dr.	Machines	Medicine	Hospital bed
Landless	18.18	22.73	3.03	4.55	12.12	4.55	12.12	12.12	3.03
0.01-1.00	24.49	10.20	6.12	0.00	4.08	2.04	6.12	4.08	0.00
1.01-2.00	7.41	22.22	3.70	3.70	7.41	0.00	11.11	22.22	0.00
2.01-3.00	12.50	18.75	6.25	6.25	6.25	0.00	18.75	12.50	6.25
3.01-4.00	18.18	18.18	0.00	0.00	0.00	0.00	18.18	18.18	0.00
4.01-5.01	0.00	11.11	0.00	0.00	0.00	0.00	22.22	0.00	0.00
5.01 & Above	9.09	9.09	9.09	0.00	4.55	4.55	4.55	4.55	4.55
Total	**16.00**	**17.00**	**4.50**	**2.50**	**7.00**	**2.50**	**11.00**	**10.50**	**2.00**

Source: Computed by the researcher from field data.

8.4. Correlates of Diseases

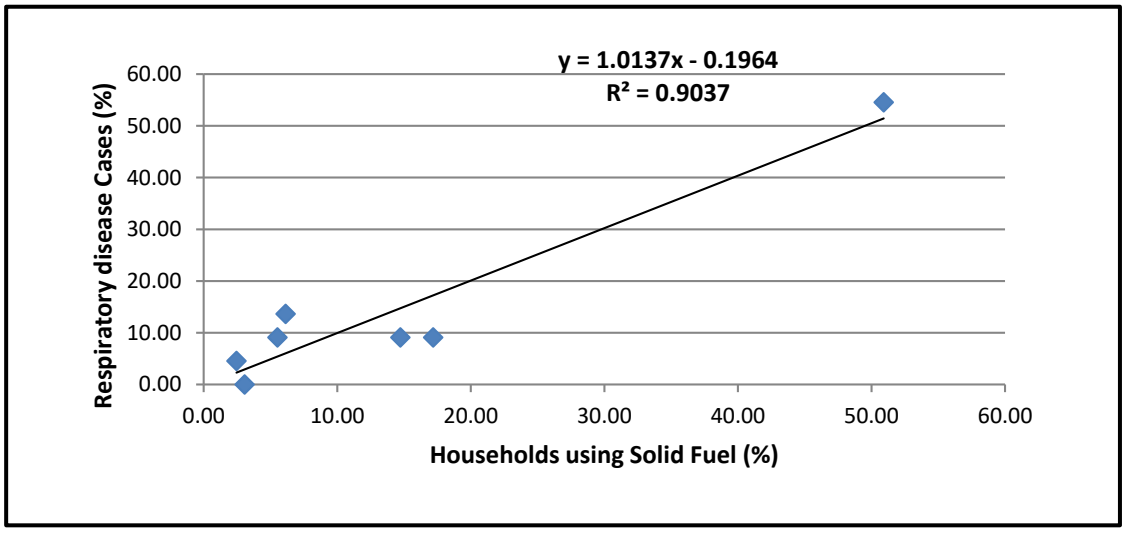
Data collected through primary investigation have been used to calculate prevalence rate of diseases. An attempt has been made in this section to establish statistical association between the prevalence rates of some groups of diseases and their probable socio-spatial causes with the help of Karl Pearson's Coefficient of Correlation. The selected groups of diseases are respiratory diseases, intestinal diseases and arthropod borne diseases and non-communicable diseases. The results of the exercise have been interpreted with the help of the correlation coefficient and the scatter plot/graph.

Figure-8.12 : Use of Solid Fuel and Respiratory Diseases: Sample Villages



The possibility of getting affected by respiratory diseases by the smoke emitted from solid fuel generally remains high. The prevalence of respiratory diseases in the sample villages and their association with the use of solid fuel is found positive. Figure 8.12 clearly displays this positive linear relationship between the two variables, wherein the Pearson's correlation coefficient is very high (r =0.94). Thus, the association of respiratory disease cases and use of solid fuel is established in case of the sample villages. The implication is the respiratory disease cases increase with the increase in the use of solid fuel like wood, dung cake etcetera.

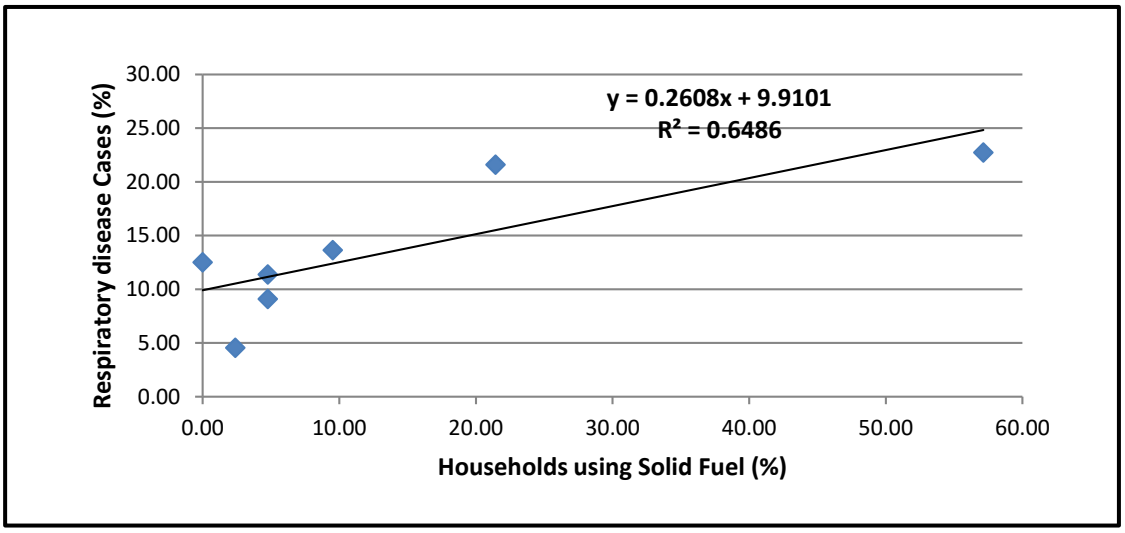
Figure - 8.13 : Use of Solid Fuel and Respiratory Diseases: Sample Non-Tribal Villages



The prevalence of respiratory diseases in the sample non-tribal villages and their association with the use of solid fuel is similarly found equally positive (Fig, 8.13). Here again the Pearson's correlation coefficient is very high (r = 0.94),

indicating a strong positive linear relationship between the two variables of respiratory diseases and the use of solid fuel.

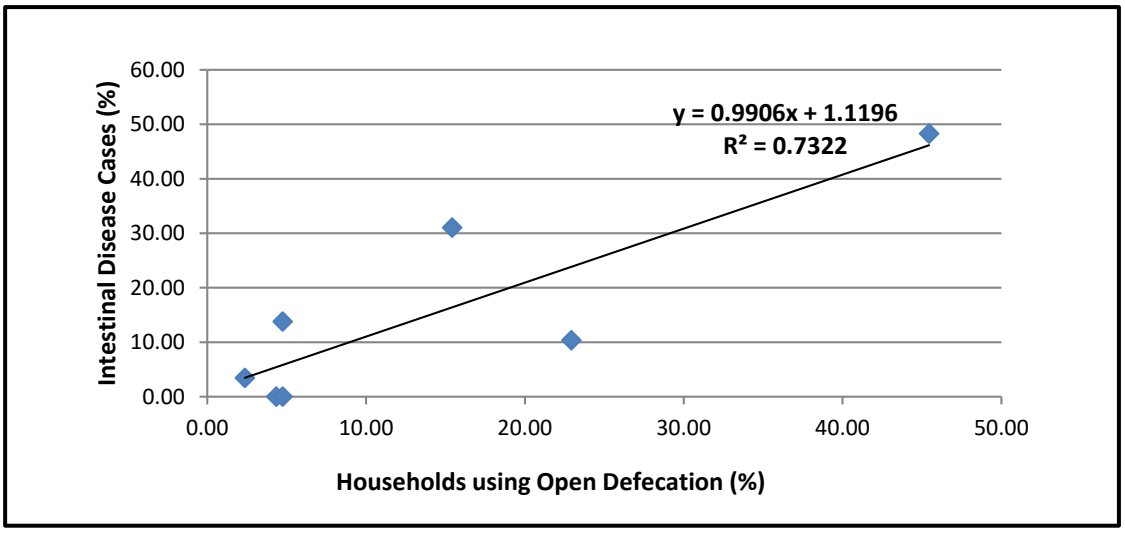
Figure- 8.14 : Use of Solid Fuel and Respiratory Diseases: Sample Tribal Villages



The prevalence of respiratory diseases in the sample tribal villages and their association with the use of solid fuel is also found highly positive (Fig, 8.14). The Pearson's correlation coefficient in case of tribal villages, although slightly lower than the non-tribal sample villages, is still very high (r = 0.80).

It would therefore, not be wrong to suggest that wherever the use of solid fuel for cooking purposes is higher, there the incidence of respiratory diseases remains higher.

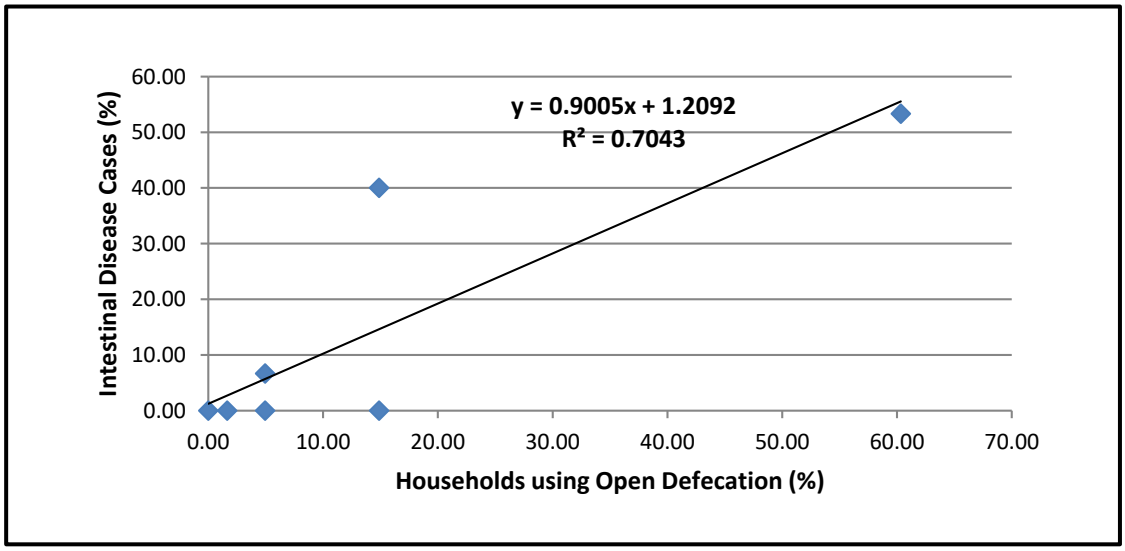
Figure-8.15 : Open Defecation and Intestinal Diseases: Sample Villages



The second group of diseases prevalent in the study area, for which Pearson's correlation coefficient was worked out, is intestinal diseases. With the assumption that

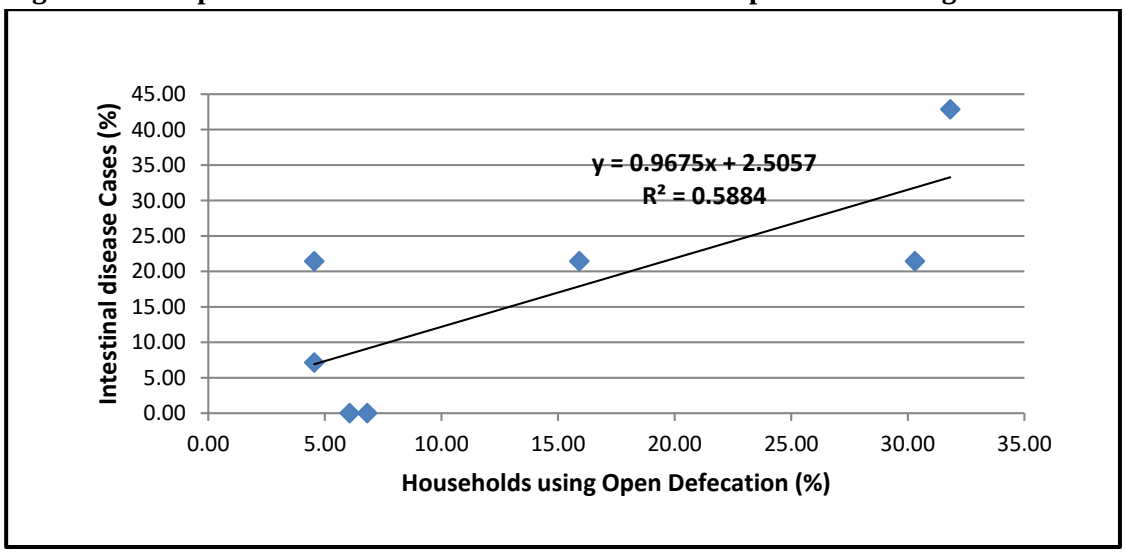
intestinal diseases tend to be higher in the population going for open defection, the scatter plot (Fig. 8.15) was drawn and the correlation coefficient was calculated. The result indicates a strong positive relationship(r=0.86) between the two variables when households of all the sample villages are considered.

Figure-8.16 : Open Defecation and Intestinal Diseases: Sample Non-Tribal Villages



Similar association between the two variables is also noticed in case of the non-tribal villages, where the correlation coefficient (r = 0.84) indicates a very high positive relationship (Fig. 8.16).

Figure-8.17 : Open Defecation and Intestinal Diseases: Sample Tribal Villages

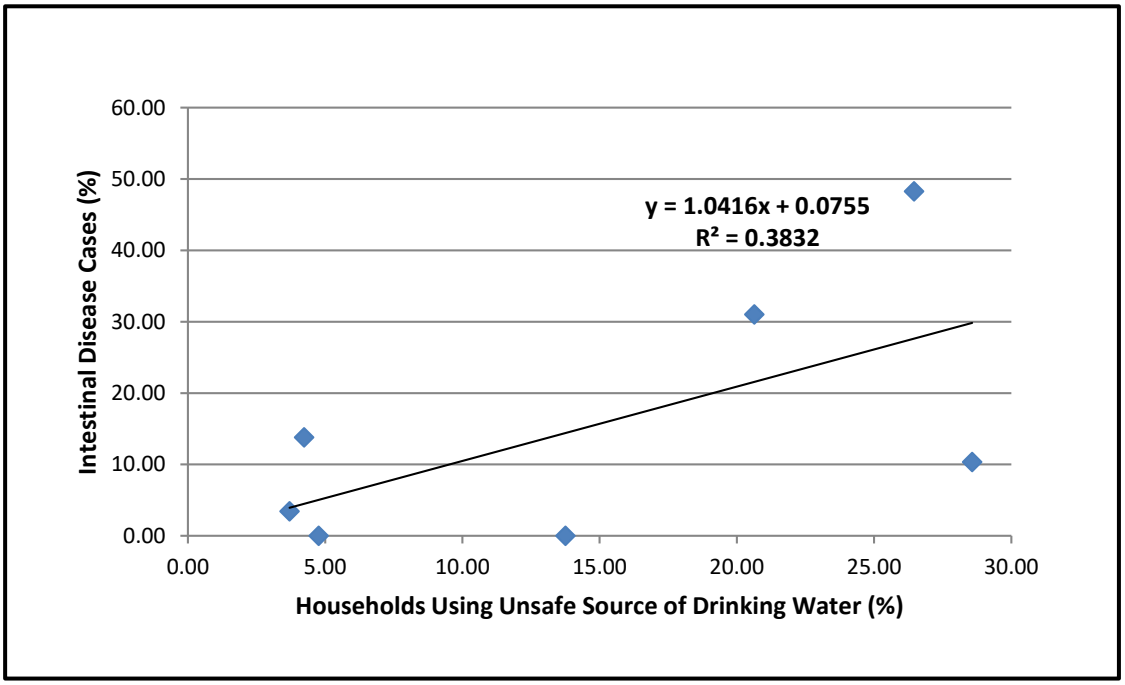


The association between the two variables in case of the tribal villages (Fig. 8.17) is relatively less. Nevertheless, the coefficient (r = 0.77) reveals a reasonably high positive correlation between open defection and incidence of intestinal diseases.

Thus, it can be concluded that the intestinal diseases or diseases caused by contamination like cholera and acute diarrhea are strongly correlated with the open defecation in both types of sample villages.

Intestinal diseases are also caused by unsafe drinking water. It was decided to obtain the statistical relationship between the percentages of households using unsafe sources of drinking water and the prevalence rate of intestinal diseases. Here again the correlation for all the sample villages taken together, displays a moderately positive coefficient (r = 0.62) and the scatter graph further clarifies the relationship (Fig. 8.18).

Figure-8.18 : Use of Unsafe Source of Drinking Water and Intestinal Diseases: Sample Villages



The relationship between use of unsafe sources of drinking water and intestinal diseases in the non-tribal villages (Fig. 8.19) is expressed by a high positive coefficient (r = 0.89). However, the situation in the tribal villages (Fig. 8.20) is different. The association between the two variables in the tribal villages (Fig. 8.21), although positive, but is weak (r = 0.28). On the whole, it can be said that use of unsafe sources of drinking water in the both types of sample villages, particularly in the non-tribal sample villages, has positive association with intestinal diseases.

Figure-8.19 : Use of Unsafe Source of Drinking Water and Intestinal Diseases: Sample Non-Tribal Villages

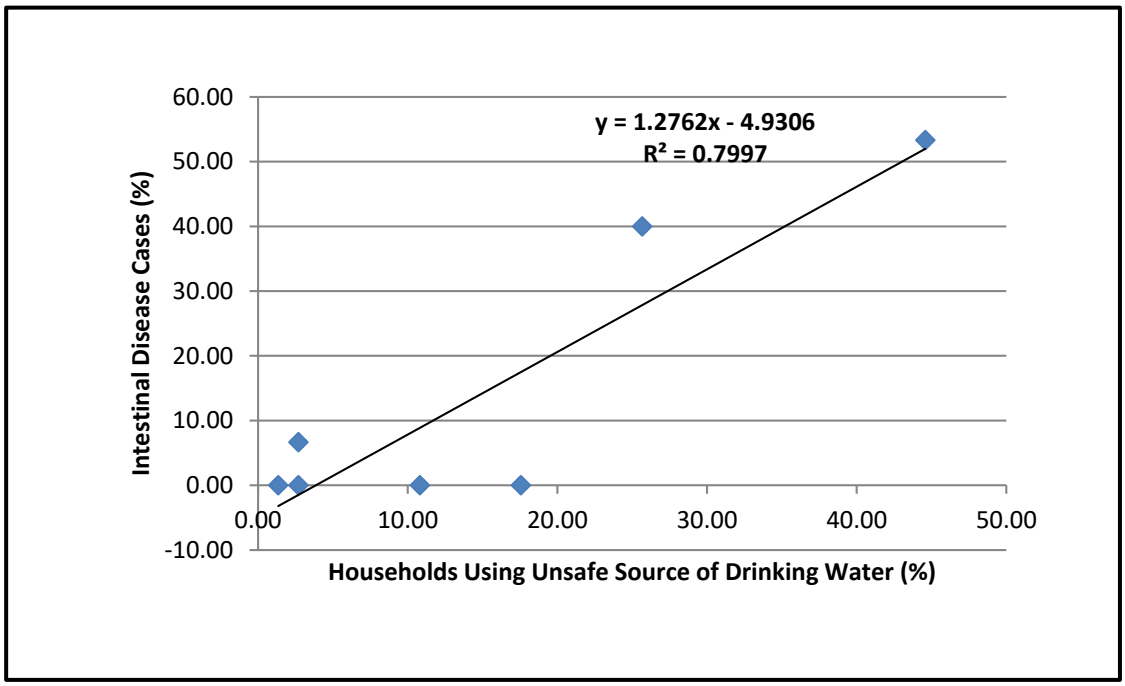
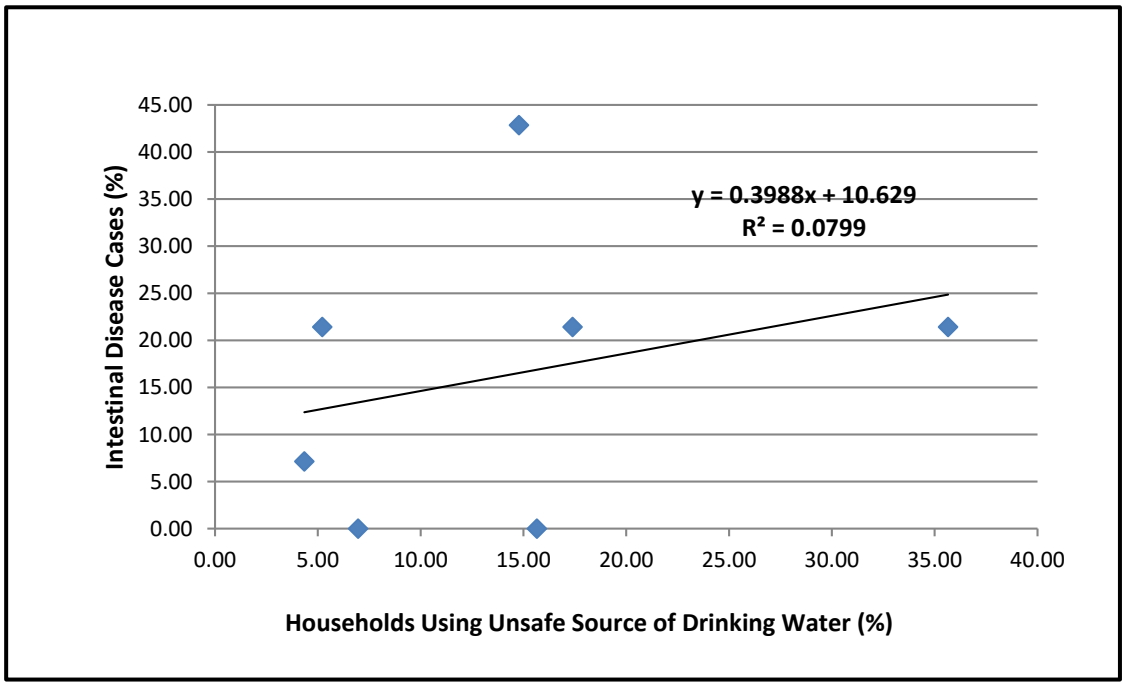
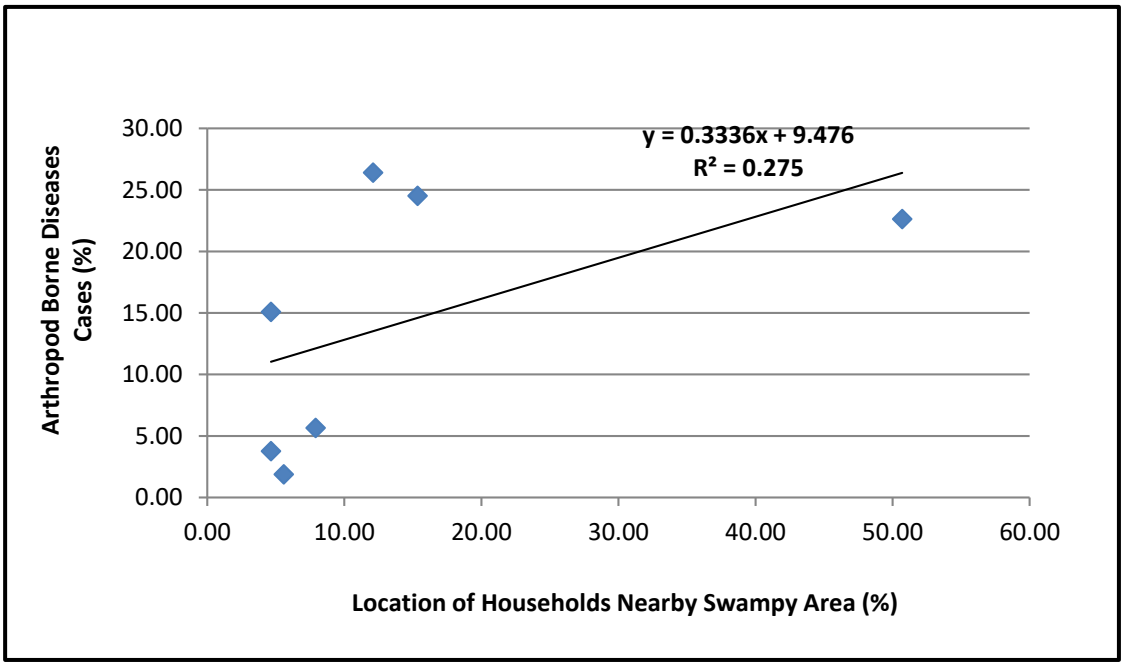


Figure-8.20 : Use of Unsafe Source of Drinking Water and Intestinal Diseases: Sample Tribal Villages



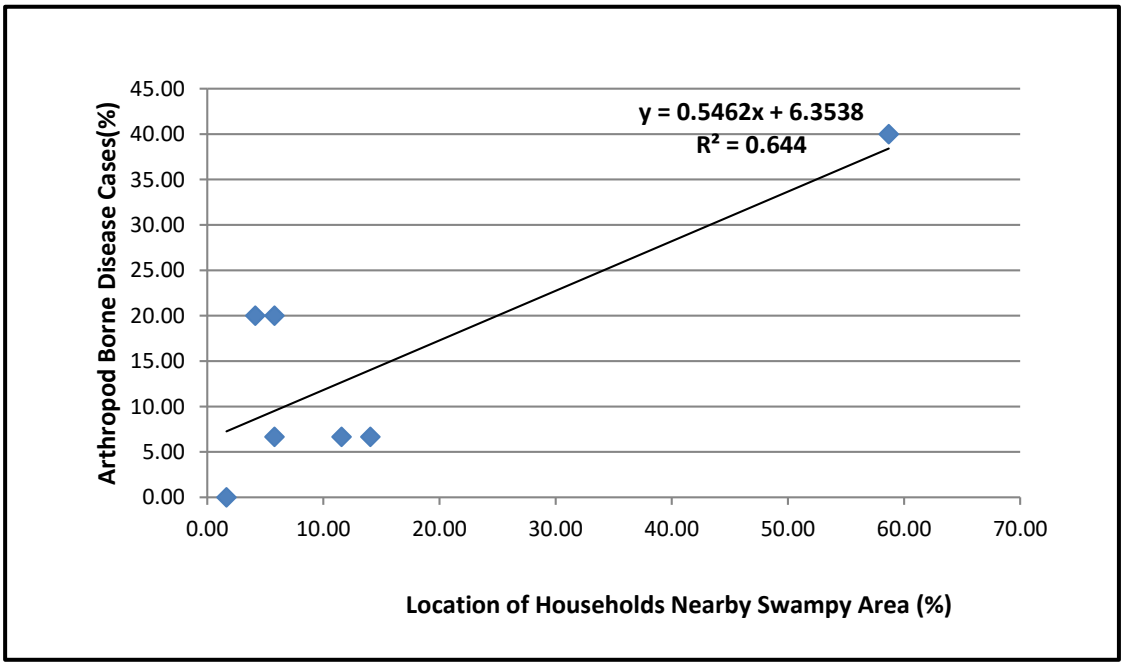
Chances of getting affected by arthropod borne diseases like, malaria, dengue and chikungunya is expected to be higher in the population living near marshy areas, garbage dumping areas and industrially polluted areas. Such areas provide favourable sites for the breeding of mosquitoes, the carrier of such diseases.

Figure-8.21 : Dwelling Area and Arthropod Borne Diseases: Sample Villages



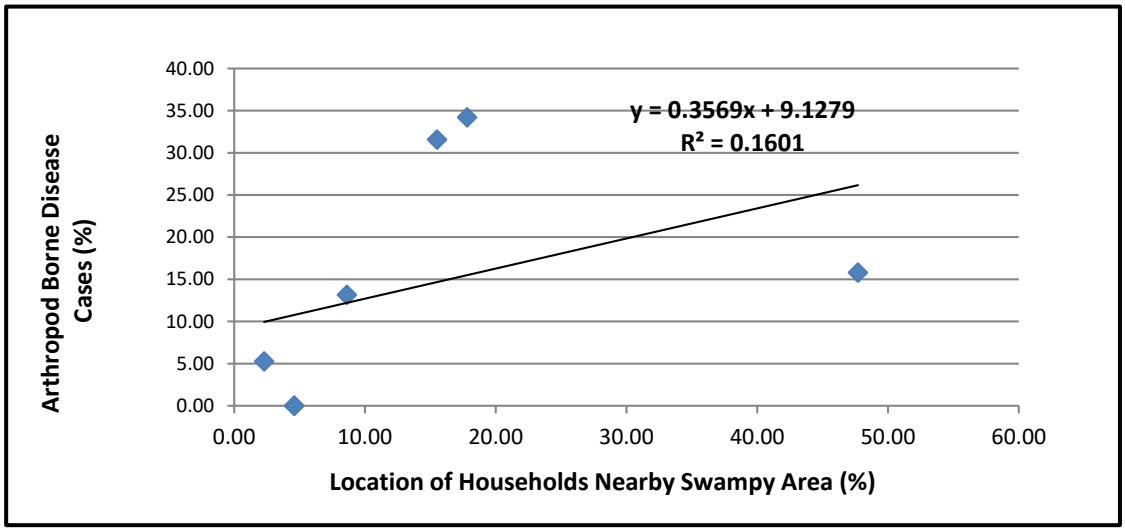
An attempt was made to statistically examine the association between the percentage of population affected by such diseases and the percentage of households living nearby marshy areas. The result shows a moderate positive relationship (r = 0.52) between the two variables (Fig. 8.21). This means that in the sample villages, there is moderate association between arthropod diseases (e.g. malaria, dengue and chikungunya) and dwelling area.

Figure-8.22 : Dwelling Area and Arthropod Borne Diseases: Sample Non-Tribal Villages



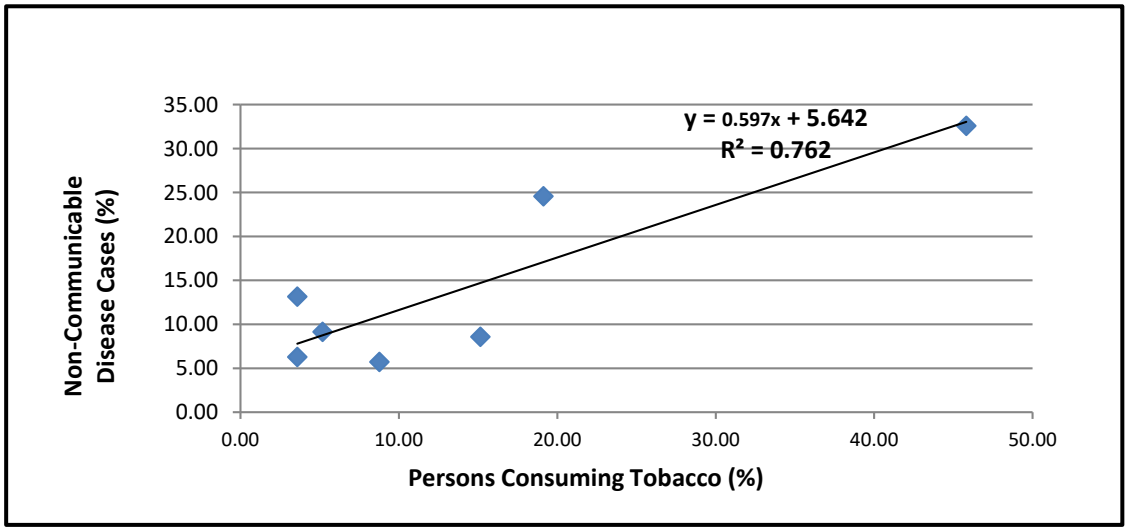
However, in case of the non-tribal villages, the association in this context is a strong positive relationship (r = 0.80). The scatterplot (Fig. 8.22) for the non-tribal villages also substantiates the finding. Perhaps the plain topography where the non-tribal villages are generally located, provide much more favourable marshy conditions for the breeding of mosquitoes.

Figure-8.23 : Dwelling Area and Arthropod Borne Diseases: Sample Tribal Villages



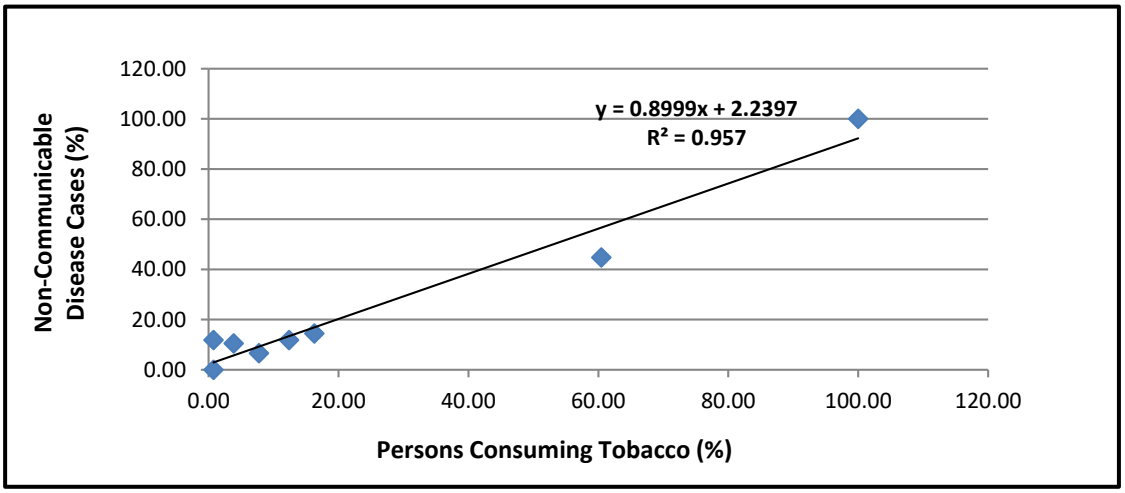
On the other hand, the tribal villages, where the undulating terrain provides less favourable conditions for the formation of marshy lands suitable for breeding of mosquitoes, display a weak positive relationship (r = 0.40) between the two variables. The scatter plot (Fig. 8.23) for the tribal villages also substantiates the finding.

Figure-8.24 : Tobacco Consumption and Non-Communicable Diseases: Sample Villages



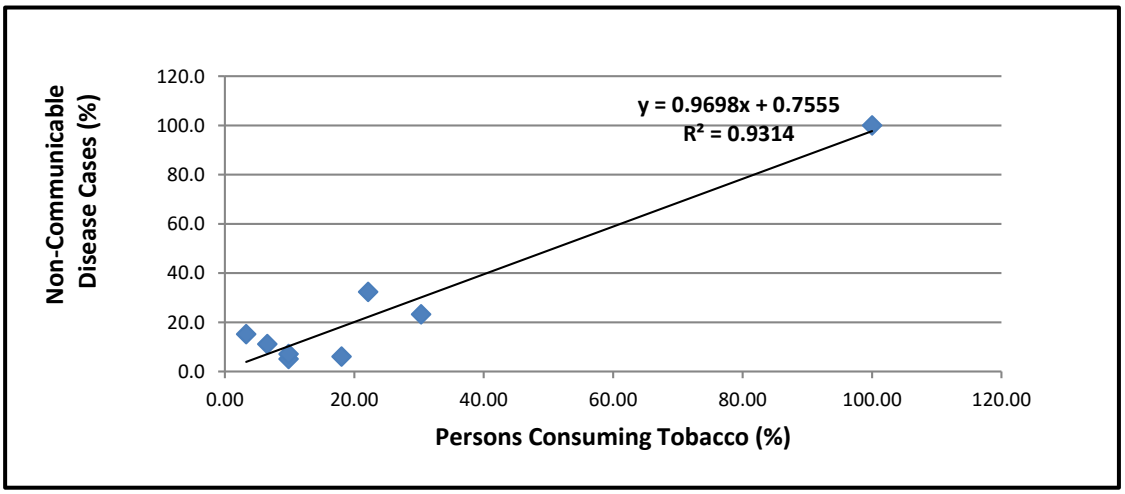
Consumption of tobacco is one of the main causes of non-communicable diseases such as cancer and cardio vascular diseases. The correlation coefficient between percentage of population consuming tobacco and percentage of persons affected by non-communicable disease in the sample villages also vindicates the same with a very strong positive coefficient (r = 0.87). The relationship is also clearly evident in the scatter graph (Fig. 8.24).

Figure-8.25 : Tobacco Consumption and Non-Communicable Diseases: Sample Non-Tribal Villages



The association depicted between the two variables (r = 0.96) in the non-tribal villages is even much stronger (Fig. 8.25). The tribal villages, however, display a moderate positive linear relationship (r = 0.58) between the two variables (Fig. 8.26). On the whole, it would not wrong to conclude that with higher consumption of tobacco, the incidence of non-communicable diseases tends to increase.

Figure-8.26 : Tobacco Consumption and Non-Communicable Diseases: Sample Tribal Villages



Based on the statistical relationship between the diseases and the probable causes, the following conclusions can be derived. The prevalence of respiratory diseases in the sample villages and their association with the use of solid fuel is found positive. The prevalence of respiratory diseases in the sample non-tribal as well as the tribal villages and their association with the use of solid fuel is similarly found equally positive. Thus, the association of respiratory disease cases and use of solid fuel is established in case of both types of sample villages. The implication is the respiratory disease cases increase with the increase in the use of solid fuel like wood, dung cake etcetera.

With reference to intestinal diseases, the results indicate strong positive relationship with open defecation when households of all the sample villages are considered. Considering the two types of villages, one fails to find any substantial difference in the results as the coefficient of correlation obtained for either type of villages are more or less similar. Thus, it can be concluded that the intestinal diseases or diseases caused by contamination like cholera and acute diarrhea are strongly correlated with the open defecation in both types of sample villages.

The statistical relationship between use of unsafe sources of drinking water and intestinal diseases was also found to be positive in the sample of villages, particularly in case of the non-tribal villages. Thus, it can be said that use of unsafe sources of drinking water in the both types of sample villages, particularly in the non-tribal sample villages, has positive association with intestinal diseases.

An attempt was made to statistically examine the association between the percentage of population affected by arthropod borne diseases like, malaria, dengue and chikungunya and the percentage of households living nearby marshy areas. The result shows a moderate positive relationship between the two variables. This means that in the sample villages, there is moderate association between arthropod borne diseases and dwelling area. However, in case of the non-tribal villages, the association in this context is a strong positive relationship. Perhaps the plain topography where the non-tribal villages are generally located, provide much more favourable marshy conditions for the breeding of mosquitoes. On the other hand, the tribal villages, where the undulating terrain provides less favourable conditions for the formation of marshy lands suitable for breeding of mosquitoes, display a weak positive relationship between the two variables.

Consumption of tobacco is one of the main causes of non-communicable diseases such as cancer and cardio vascular diseases. The correlation coefficient between percentage of population consuming tobacco and percentage of persons affected by non-communicable disease in the sample villages also vindicates the same with a very strong positive coefficient. The association depicted between the two variables in the non-tribal villages is much stronger in comparison the tribal villages. On the whole, it would not be wrong to conclude that with higher consumption of tobacco, the incidence of non-communicable diseases tends to increase. This proves the first hypothesis which states that 'distinct physical and social characteristics tend to display different patterns of diseases'.

8.5 Conclusion

Data generated through primary investigation has been used to calculate the prevalence of a few diseases in the study area. Prevalence of non-communicable diseases is found to be higher in the tribal villages than in the non-tribal villages. Similarly, prevalence of respiratory diseases is also much higher in the tribal villages in comparison to the non-tribal villages. On the whole, higher proportion of the population in the tribal villages is affected by all types of diseases excepting for intestinal and zoo nose diseases. There is of course only a marginal difference between the two types of villages with respect to the latter two categories of diseases.

Unlike in the non-tribal villages, in the tribal villages no clear association between the prevalence of diseases and land size category is discernible. However, in case of the diseases that have affected the population of every category of land size holdings, such as respiratory, arthropod borne and intestinal diseases, the population of the medium sized land holdings have registered the maximum number of affected persons. The population of the largest size of land holding (5.00 acres & above) have relatively less number of persons affected by non-communicable, respiratory and surface infection diseases. Besides, this population is absolutely free from other types of diseases found in the population of other land size categories. On the whole, non-communicable diseases which include diabetes, cancer, paralysis and joint pain etcetera, are very common and relatively highly prevalent in the tribal villages. From among the communicable diseases, respiratory diseases, arthropod borne diseases and intestinal diseases are more prominent in the population of the tribal villages. The first hypothesis that, 'distinct physical and social characteristics tend to display different

patterns of diseases' get validated again by this finding. Malaria is common to both types of sample villages and water logging and dense forest respectively emerge as the major causes of malaria in the non-tribal and tribal villages.

The study reveals that a good proportion of the population in the sample households of either type of villages is not very conscious of the problem of malaria and refrains from taking precaution towards it. On the whole, around half the population in the study area reported of not taking any step to protect themselves from diseases resulting from mosquito bite. Larger proportions of the households in the tribal villages use *neem* smoke and mosquito coil. A substantial proportion of the households in the non-tribal villages also manage only with use of fans to avoid mosquito bite.

To assess the level of health consciousness in the sample population, an attempt was made to record the percentage of households taking three specific actions. The three actions are, availing the mid-day meal facility provided to children in the school, providing dietary supplement to children at home, and registration of expecting mothers under the Ma Yojana of the Government. With regard to these actions, minor difference is marked between the two types of villages. While the percentage of households availing mid-day meal facility and providing dietary supplement is higher in the tribal villages, a higher percentage of households of the non-tribal villages has taken advantage of the Ma Yojana. Any difference in these actions across land size categories of both types of villages is also not noticed.

About 60 per cent of the households in the non-tribal villages avail the facilities of the Government PHCs, sub-centers and hospitals, which is higher in comparison to the tribal villages. Reverse is the situation in tribal villages with respect to visits to private doctors for health check. While almost two-fifth of the households in the tribal villages depends on the private doctors, this proportion is slightly less than one-fourth in the non-tribal villages. However, one can clearly mark that visiting the private doctor is proportionally the highest among the households belonging to the largest land size categories. Lesser utilization of Government health care services by the tribal households may be related to the problems of inappropriate timing, absence of doctors, and lack of other infrastructural facilities, like medicines and machines at the health units. The practice of visiting the witch doctor or *bhua* for treatment during illness still survives among the sample population and around one-tenth of the households of both types of villages reported of following it. Dependence on

traditional medicines administered at home is very insignificant in both types of villages, although the proportion of households adopting the practice is higher in the non-tribal villages in comparison to the tribal villages. Visiting the *bhua* or using home remedies is either absent or very low in case of the largest land size categories of both types of villages. Treating patients at home with traditional medicines is mostly confined to the households belonging to the landless and the smallest size land holdings, particularly of the non-tribal villages. The percentage of households taking advantage of the ongoing health schemes is highly insignificant; more so in the tribal villages. However, almost the entire sample population is immunized against different diseases. The proportion of households that have got their members immunized is by and large same in both types of villages.

The uses of public health care system by the households' remains relatively lower (42.8%) in Gujarat, which is lower than the National average (44.9%). From the micro level study too, it was found that, use of public health care system in the sample tribal villages is lower than the sample non-tribal villages. As mentioned earlier, higher proportion of the population in the tribal villages is affected by all types of diseases excepting for a few such as intestinal and zoo nose diseases. There is of course only a marginal difference between the two types of villages with respect to the latter two categories of diseases. Thus, as hypothesized at the outset of the research, it is established that 'the level of availability and utilization of health care facilities determine the morbidity rates to a great extent'.

Among all the health personnel, the maximum percentage of households in the non-tribal villages contacts the ANM. The LHV, the *anganwadi* and the ASHA workers are contacted by around a third of the households of these villages. The *dai*/TBA worker is contacted by about a fifth of the households, while the MPW health personnel seem to have very less significance in the non-tribal villages. Between the non-tribal and tribal villages, there is minor difference with respect to contacts with the ANM, LHV, *anganwadi* and MPW and personnel.

However, a much greater proportion of the households are in touch with the ASHA personnel and a much lower proportion of the households are in touch with the *dai*/TBA personnel in the tribal villages. Contact with ANM *anganwadi* and ASHA workers in both the types of villages are higher in comparison to other health workers. A higher percentage household contacting the *dai*/TBA in the non-tribal villages in comparison to the tribal villages signifies that the people in the tribal villages are

more health conscious. Majority of the tribal households are contacting the trained health personnel like the ANM and ASHA workers instead of the untrained *dai*/TBA worker. More than 90 per cent of the expecting mothers in the two types of villages have availed the antenatal care facility, which is a good sign of development in the health sector of Gujarat state.

It is surprising to note that a significant proportion of the households in both types of villages perform the child delivery at home, which is not considered safe. Proportion of such households is relatively higher in the non-tribal villages, where only 62.50 per cent of the households make use of any type of hospital facility for the delivery of the baby. The situation in the tribal villages is rather better, where almost three fourth of the households prefer delivery of the child in some equipped medical centre.

Awareness about family planning measures seems to be very high in the sample population. Less than ten per cent of the households in both types of villages reported ignorance about any family planning measure. In other words, around 90 per cent of the households are aware of the family planning measures in both types of villages. However, it is in the tribal villages where almost all those who are aware, are making use of the knowledge. Compared to this, the proportion of households using any family planning method is much smaller in the non-tribal villages. It is interesting to note that the segment that is unaware belongs to the landless category only of the non-tribal villages, and the landless and the smallest land holding households in the tribal villages.

It is established that greater awareness about basic vaccination in children, family planning measures, and contact with the health personnel, such as ANM, LHV, *anganwadi*, *Dai/*TBA and the ASHA workers, and use of antenatal care from the skilled personal has helped in maintaining low morbidity and mortality rates in the State as well as in the sample villages. Thus, the fourth hypothesis which states, 'people's perception and their level of awareness play a definite role in the disease pattern' stands validated.

The health problem of the population that is served by the Government sponsored health care facilities is mitigated to a very great extent due to the qualities in the staff attached to it. On an average around 95 per cent of the respondents of the two types of villages reported the quality of staff as average and above average. The remaining respondents accounting for around five per cent of all respondents seem to

have had bad experiences with the staff. Similar to the impression on attitude and behavior of the health unit staff, most respondents consider that hygienic condition is average or above average in the health units in their village.

There are many problems faced by villagers in utilizing health facilities of the Government health units. Lack of equipments, poor performance and distance emerged as the most common constraints for the people in using the Government health infrastructure. A small proportion of the households in the non-tribal and tribal villages identified distance as the reason for which they prefer going to the private doctor instead of Government health center.

Around a fifth of the males reported consumption of tobacco in both types of villages. Among the females tobacco consumption seems to be not very common in either type of villages. Alcohol consumption in males of the non-tribal villages is mostly restricted to a very small proportion of population among the landless only. Alcohol consumption in females is almost absent. Alcohol consumption in the tribal villages is more among males, and a small segment of the females of the landless households are also addicted to it.

An attempt was made in the present research to examine the percentage of households in the sample households permitting independent decision making power to their women family members. The female members in about two-fifth of the sample households are completely ignored while taking any decision. Women in the non-tribal villages seem to be more deprived as the decision of the husband becomes binding on them. The share of such households in the tribal villages is relatively less. The implication is, women in tribal villages enjoy higher autonomy in comparison to their counterparts in the non-tribal villages. This becomes further established by the almost double percentage of households in the tribal villages than in the non-tribal villages, where women enjoy full freedom to take decision. Even the percentage of households where decisions are taken jointly, is higher in the tribal villages, although marginally. This may be due the traditional character of the tribal societies, where gender biasness is uncommon. Land size category wise too, one fails to find any pattern in this respect in the tribal villages. On the other hand, a discernible pattern is visible in case of the non-tribal villages, where autonomy of women seems to increase in terms of decision making power in family matters, with increase in the size of land holding. The decisions are taken solely by the husband in higher proportion of landless and small and marginal land holding households. Greater proportions of

households among the large size land owing households give equal importance to both the members and take decisions jointly.

Analysis of the perceptions and suggestions of the population on the Government health care services of their area reveals that there is scarcity of specialized doctors, machines and medicines in the non-tribal villages. Respondents also reported about inappropriate timing of the doctor in these villages. The respondents of the tribal villages also expressed similar opinions on specialized doctors, medicines and machines. Over and above these, the issue of absentee doctors was reported from the tribal villages.

It is found that there is strong positive relationship of respiratory diseases with use of solid kitchen fuel use in the sample villages. Most of the respiratory diseases are caused by indoor pollution by burning solid fuel, particularly wood. Tuberculosis, whooping cough and chicken pox are the main respiratory diseases in the sample villages.

In the final conclusion it can be said that in both types of sample villages, communicable and non-communicable diseases are prevalent in the population. From among the communicable diseases, respiratory diseases, intestinal diseases and arthropod-borne diseases are more prominent which includes tuberculosis, whooping cough, acute respiratory infection, smallpox and chicken pox etcetera in the population of the sample villages. It is seen that in the sample villages, communicable diseases, particularly tuberculosis and whooping cough are more prevalent and strong relationship was found with the use of solid kitchen fuel (indoor pollution). Other common intestinal diseases include, acute diarrhea, cholera and typhoid fever and positive association of these diseases was found with open defecation and unimproved sources of drinking water. Arthropod borne diseases were found to positively associated with characteristics of the dwelling area. It is established with higher the proportion of houses located in the marshy areas, the prevalence rate of arthropod borne diseases remains higher. Non-communicable diseases, which include body pain, cardio vascular diseases, strokes, hypertension, diabetes, obesity, paralysis and cancer etcetera, have been found to be closely related to the consumption of tobacco.