A STUDY OF THE SOCIAL CONDITIONS ACTING AS THE VEHICLES OF DISEASES CAUSED BY INTESTINAL PARASITES

THESIS SUBMITTED FOR THE DEGREE OF Doctor of Philosophy IN SOCIOLOGY

BY

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ABSTRACT

TOPIC: "A STUDY OF THE SOCIAL CONDITIONS ACTING AS THE VEHICLES OF DISEASES CAUSED BY INTESTINAL PARASITES".

UNIVERSE: URBAN HEALTH AND TRAINING CENTRE, ZOHARBAGH AND RURAL HEALTH AND TRAINING CENTRE, JAWAN. DEPARTMENT OF COMMUNITY MEDICINE, J.N.MEDICAL COLLEGE, AMU., ALIGARH.

SAMPLE: 150 PATIENTS SUFFERING FROM INTESTINAL PARASITIC INFESTATION IN UHTC AND 150 PATIENTS FROM RHTC.
The diseases caused by intestinal parasites are given little importance due to indifference towards social conditions. Intestinal parasitic infestation is a global problem. On the average, an individual living in the tropics has a good chance of harbouring at least one species of intestinal parasites and some people may become host of five even. The human alimentary canal provides a home for many intestinal parasites which live in a dynamic relationship with their human host who must provide all the energy and nutrients required for both to survive. Parasitic disease develops when the equilibrium between the host and its intestinal intruders is upset, as parasite activity depletes host resources and causes physical and metabolic damage. The public health significance of any relationship between human and their intestinal parasites will not be assessed satisfactorily until thorough longitudinal studies are carried out. Intestinal parasitic studies now have become an interdisciplinary subject requiring contributions from anthropologists, clinicians, epidemiologists, and sociologists.

The present study conducted to reveal social, cultural, biofamilial and familial-environmental factors are responsible for the spread of these diseases.

It is fact that these diseases cannot be controlled only immunization, chemotherapy, anti-helminthic and vector control drugs, but along with these other measures relating to social, economic, cultural, behavioral, environmental
aspects are also necessary. These are equally important to control and check these diseases.

Now one has to look "beyond the germ theory" of disease into the total life situation of the patient and the community in search of multiple factors of diseases.

With this view the present study conducted in two different settings: rural and urban. Both have high rate of incidence of parasitic infection. For the present study 300 cases were taken for investigation. 150 cases from Rural Health and Training Centre, Jawan, and 150 cases from Urban Health and Training Centre, Zohrabagh. Both the centres are attached to the Department of Community Medicine, J.N. Medical College, A.M.U., Aligarh.

Study had been conducted to achieve the following objectives:

(1) To study the socio-demographic traits of rural and urban patients suffering from intestinal parasitic diseases.

(2) To study the social and environmental conditions in terms of:
   (a) Housing and locality
   (b) Water supply and drainage
   (c) Food and dietary habit
   (d) Personal hygiene.

where the patients of intestinal parasitic diseases live, and to comparatively analyse them in rural and urban settings.
To find out the relations, if any, of the social and environmental conditions with the parasitic disease and compare them in two different settings: rural and urban.

To study the cultural constraints that help to spread the intestinal diseases and comparatively analyze them in rural and urban communities.

To study the perception of rural and urban patients of the aforesaid disease and their outlook towards social conditions and to find out their relation, if any, with the disease.

In order to achieve these objectives, investigation was carried out on the basis of stool examination of the intestinal parasitic infected patients among the registered families of urban Health and Training Centre, Zohrabagh and Rural Health and Training Centre, Jawan. The study was conducted with the help of a structured interview schedule. The data thus collected were analyzed statistically and various relationships were found out with the help of percentages and the square tests. Personal observations were supplemented with the study to assess some other factors which prevailed in the localities and their social and cultural behaviors.

The study had been divided into eight chapters:

The first chapter describes the social, cultural and environmental aspects of disease, health and illness.
Social perspectives about the causation of diseases. The relation between medicine and society as well as between man and parasites, hazards of the intestinal parasites, and about the problem.

The second chapter deals the review of the concerned literature. The third chapter explains the methodology, objectives of the study hypothesis and statistical analysis of the study.

Fourth chapter deals with the independent variables, like age, sex, marital status, family status, education, occupation, income to expose the important features of the population under study.

In the fifth chapter it is attempted to present the findings about social and environmental conditions in terms of housing and locality, water supply and drainage, personal hygiene and dietary habits and their conduciveness in spreading the diseases.

The sixth chapter deals with the cultural constraints that help to spread the parasitic diseases.

In the seventh chapter, it was tried to know the patients perception and their reaction to the disease and their treatment.

The last chapter entitled as CONCLUSION summarises social and cultural factors that prevail in the area where
the intestinal parasitically infected patients dwell and with suitable suggestions to overcome this problem.

The present study confirms the established fact that incidence of intestinal parasitic diseases and their spell is high in pre-school children.

Morbidity pattern has also shown a close relationship with social and economic class, literary status, family size, occupation and income. The prevalence of intestinal parasitic infection is significantly high in inadequate social condition. It also reveals that there is much awareness about the health and parasitic diseases among the people in urban population. The rural people are comparatively less aware of the causation of diseases but they rely more on indigenous and traditional remedies for treatment. The deep rooted customs, beliefs associated with the causation and treatment of the disease are still important for rural people whereas the urban people are not so much traditional as the rural people are.

(Mohammad Javed Zulqarnain)
CERTIFICATE

Certified that Mr. Jawed Zulqarnain has worked under my supervision on the topic, "A Study of the Social Conditions Acting as the Vehicles of Diseases Caused by Intestinal Parasites". His work is original and suitable for submission for the award of the degree of Doctor of Philosophy in Sociology.

(DR. JAMIL FAROOQUI)
SUPERVISOR
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P R E F A C E

Social problems and physical physiological disorders had been of extraordinary importance for those students of Applied Sciences and Social Sciences who are interested in solving the problems of human beings. Medieval period Muslim physicians and the scholars of medicine had been so much interested in it that they developed a discipline of temperaments of the human beings as well as the edible items and medicines. This approach lost its significance slowly and gradually by strangeness in the research progress of the medieval medicines.

As the discipline of modern western medicine is the true inheritor of the medieval medicine system, it has, in its process of development, has again come round to the same social aspects of the science of medicine which had previously developed to the stage mentioned above.

However, the interest of modern medicine is more in the social aspects of the diseases and their care with reference to the patients, it has dropped out the obsolete approach of temperaments. This widening of the approach of the modern medicine has attracted the attention of the scholars and researchers of the disciplines having affinity with the medical science.
I have been interested in the medical science from the very beginning due to my early studies of natural sciences. When I completed my masters course in Sociology I was inspired by the idea of utilizing my previous background for the research pursuits in Sociology. This is how I come round to the point of studying certain ailments and their care influenced by social and sociological conditions. There had been a lot of studies of many diseases and their causes have already been traced into social settings. Amongst these diseases the diseases caused by parasites have attracted much attention. Due to which some social factors have also been enumerated. But no organized thorough research work has been done which could provide required confidence on the mention of the factors that have a social and sociological bearing.

After consulting the literature on all the types of parasites that germinate in the human body, I found that the most common and prevalent are the intestinal parasites which cripple the growing development of young children and shorten the life span of groups. Further, the intestinal parasites are commonly considered to be the very innocent inhabitants of the human digestive system. Hence a large population allows the coexistence of these parasites with the bearers. The diseases caused by such unwanted guests are not assigned to them but to some other things. The people prone to these parasites also don't bother about knowing the causes leading to the entrance of the eggs of these creatures inside the human body.
The scholars of the discipline of medicine do not have much opportunity of exposure to the social sciences, especially Sociology and medical Sociology. Hence, the interest in the social problems, factors and causes are limited to a certain extent beyond which a physician or medical scholar cannot go. I have the opportunity of having been the student of both the disciplines had the courage to take up this problem of intestinal parasites in their social contexts.

I have had studied the literature on my problem in the fields of medical science and sociology to my physical means and limiting within the human capabilities. The population which I studied was existing communities of rural and urban areas. It has been my opportunity to find out the patients bearing intestinal parasites through the two community health centres. I may mention over here that there were certain difficulties in tackling the respondents, still it was very interesting to contact them, take them in confidence and know their ailment problems. These respondents on the whole gave a vivid and very clear image of the poor Indian population existing in a wretched health condition and highly ignored ecological conditions. They need much done for them in this regard. May this modest research attempt be helpful in improving their lot. This is the sprit with which this thesis is being submitted for academic appreciation.
As far as the organization of the thesis and its chapterization is concerned, they are summarily described in the abstract of the present thesis.
CHAPTER ONE

INTRODUCTION
Down the ages, human response to illness and the conception of health and disease has varied from society to society and culture to culture. Human illness have been perceived as individual physiological disorder caused by a particular disease or some supernatural power who is responsible for such illness. The illness, it was believed that, is a wrath and anger of some supernatural power and the disease as an agent of that power which enter into human bodies makes suffering to the individual souls. In this perspective the steps were taken to cure the body by taking some medicine or by ritualizing some witchcrafts or animistic devices to minimise the influence or subside in anger of some supposed supernatural power. As society developed the perception of illness and disease also changed.

Human response to his surroundings and environment ultimately depends upon his conception of the universe and his place in that meaningful universe. In other words his entire psychological responses and physical activities depend upon his ultimate orientation his relationship with natural and supernatural realms. The entire socio-cultural values of a society rest on some such ultimate assumptions and individual by internalizing these values behave in the conformity of such value system. With the rise of scientific temper and secular attitude the entire human perception of illness and disease was bound to change and it changed by driving out the entire host of animistic power from the realm of human health. But till
before, 19th century the problem of 'health and 'disease' was seen in isolation it was assumed that it is an individual phenomenon. But slowly and gradually it was realized that since an individual does not live in isolation rather he lives in a society, the society in turn would be a determinant factor in dealing with the conception and problem of health. The particular life style, customary habits and cultural ethos can give rise to different responses to health and disease. In other words a disease is socially conditioned and cultural factors have an important role to play in this regard.

**Health and illness**

Man has always been keen for keeping his body sound and healthy. He persistently compensates certain deficiencies and develops certain potentialities for adopting various ways and means so as to maintain his physical equilibrium. Health is evaluated on certain criteria which are commonly accepted in all societies and nations. Hence, they are universal and global, consequently, accepted to be scientific in nature and global in character. However, the health problems always have a reference to the specific social and cultural conditions. If these conditions are scientifically determined the spread of certain diseases can be predicted well before time. Moreover, the knowledge about pattern and style of life as well as social norms and beliefs, facilitate to understand the health and
illness in its correct perspective. William Cockerham observes:

"Knowledge about norms, values, beliefs, social structure, and life style has provided insight not only about the social organization of human resources design to cope with health hazards, but also about the nature and causes of illness".¹

Health is now considered to be an important concept as well as a globally accepted social goal. It is also considered as a basic human right to be enjoyed by all people for the satisfaction of their needs and quality of their lives. The 30th World Health Assembly held in 1977 decided that the main social target of Governments and the WHO in the coming decade should be the attainment by all citizens of the world of a level of health, that will permit them to lead socially and economically productive life - a goal that is termed as "Health for all" by the year 2000 AD². By the motto "Health for all" is meant that every individual should have access to primary health care and through it all levels of a comprehensive health system, with the objective of continually improving the state of health of the total population.

Health, thus, emerges as a major instrument of overall social development as also a promising element in the creation of a new social order. Health, as Park perceives, is "man's natural condition, his birthright. It is the result of living in accordance to the natural laws, pertaining to the body, mind and environment. These laws relate to fresh air, sunlight, diet and life style."  

World Health Organization also takes the similar conditions into account and explains it "as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." However, this view of health has been criticised by many thinkers. Some of them are of the opinion that the term 'well-being' is vague as it has no acceptable and infallible measure or indicator. A serious criticism of the World Health Organization's view of health as social well-being is found in a renowned anthropologist, Firth's writings:-

According to him it is difficult to decide as a what it means by "social well-being" as it always has different connotation in different societies. It is an accepted fact that every social phenomenon differs both in time and space. As such, its impact on the health also becomes varied.

3. Park and Park. Text Book of Preventive and Social Medicine, M/s Banarsi Das, Jabalpur, 1963, PP. 12
According to Ruth normal behaviour has very wide range and is largely related to cultural environment. But, if we try to develop and exaggerated respect for taboos and cultural differences then probably all programmes of human welfare may have to be given up for ever. According to Hasan the term "social well-being means the absence of such evils from society as addiction to vices and all types of misconduct, delinquency and mental discord". This may include the absence of such customs and practices in the society which have adverse effects on the physical and mental health of the individual and the community and presence of such habits, customs and practices which may possibly help the maintenance and promotion of physical and mental well-being. He further explains that the concept of "positive health" provides an inspiring and stimulating philosophy as it stands for the increasing acceptance of the fact that physical, mental and social phenomenon are interrelated. The state of positive health implies the notion of "perfect functioning of the body and mind. It conceptualizes health biologically as a state in which every cell and every organ is functioning at optimum capacity and is in perfect harmony with the rest of the body; psychologically, as a state in which the individual feels a sense of perfect well-being and of mastery over his environment; and socially, as a state in which the

individual's capacities for participation in the social system are optimal.  

However, the definition as given by WHO cannot be said as realistic, it is rather idealistic in the sense that it is irrelevant to every-day demands as no body qualifies to be healthy, i.e. having perfect biological, psychological and social functioning. Furthermore, health cannot be defined as a state at all, rather it should be considered as a process of continuous adjustment to the changing demands of living and of the changing meanings that we give to his life itself. The ancient saying that "nothing stands still" is equally valid in the case of health. Another drawback is that health, like happiness, cannot be defined in exact measurable terms. Inspite of these limitations, the concept of health, as defined by WHO, is broad and positive in its implications, it sets out the standard of positive health as a GOAL or IDEAL for which people should strive.

Ideal health will, however, always remain a mirage because everything in our life is subject to change. Health in this context has been described as a potentiality the ability of an individual or a social group of modify himself or itself continually, in the face of changing conditions of life. In working for positive health, the doctors and the community health experts

face the same situation as the gardeners and farmers do with the insects, moulds and weeds; their work is never finished.

Health cannot be understood in isolation. It is the environment where man lives and the relation between man's environment and his state of health is described as the study of ecology of health. Ecology is defined as the science of mutual relationship between living organisms and their environment. The basic theme of ecology is that every thing is related to everything else. Human ecology is concerned with the broad setting of man in his environment. According to the ecological approach health has been defined as a state of dynamic equilibrium or adjustment between man and his environment. One can imagine it graphically as a balance scale with the pans representing the disease, agent and human host, and the fulcrum, the environment and health, as a state of equilibrium between the disease agent and human host. When this balance is disturbed for any reason, illhealth results. Another group of sociologists describe health as a relative rather than a positive concept. According to Ahmad and George "health is not an ideal state, but biologically a "normal" state, based on statistical average". For example, the average weight of a new born baby in India is 2.8 Kg. and considered to be healthy one while in developed countries the weight of a healthy baby is 3.8 Kg. Similarly, the other normal health standards

differ from country to country in many respects. What is normal in one country may not be normal in the other one. This very fact makes it evident that the health is a relative concept, as health standards vary according to culture, social classes and age groups. This implies that health in any society should be defined in terms of the prevailing ecological conditions. Biological perspective has traditionally been the most important aspect of medical sciences, and the major part of a physician's training is devoted to biological theories of bodily functioning and disease. But even biological factors must be understood in the light of their environments in which they operate. External environment generally makes particular demands from bodily functioning, and the body adapts to these demands in both physical and physiological sense. As it is evident that physical adaptation is based on the environment in which the man lives. According to Rene Dubos "environments are continuously changing, and man adapts to these changes not only in a social and psychological sense, but also in a biological sense". This view can be explained further in relation to the changing behaviour of the body and its ability to accommodate to new threats and challenges and thus, biological homeostasis. But these biological accommodations to changing environments may also be disruptive in the sense that they cause personal

discomfort and strain in the biological organism. Similarly, social adaptation to the new pattern of culture and new ways of living may pose serious threats to the body's homogenesis. Thus, although the body may accommodate environmental changes, these adaptations also cause problems of health and disease. Thus, the cultural approach to health involves the study of the relationship between cultural content and cultural life styles, and between definition of health and responses to illness. The culture of a group affects every aspect of growth and development, the acquisition of goals and aspirations, the risk factor to which one is exposed and modes of responses and adaptation. From conception to death, almost every major life experience is conditioned, to some extent, by cultural beliefs and orientations. It is a fact that the health of a person manifests his life style. Patterns of illness and disease in society are generally influenced by social values and their impact on the family set up and the individual's own occupation and recreation is manifested.

The social perspective, although it overlaps the cultural one to some extent, directs attention specifically to the requirement of family life, work and social activities generally. It also takes into account the norms involving sickness and response to sickness. The social context determines

the conditions under which one can claim illness and be released from usual obligations and responsibilities without stigma. Sociologists have treated the social view of illness in terms of the sick role, which has been conceptualized as an ideal type for the purpose of attempting to define the social properties of sickness definition, the condition under which a person can legitimately claim illness, and his responsibility in responding to illness. In our social analysis, we must not fail to recognise that health is a social value and is often judged as relative to other social values. As we place much emphasis on the individual and his uniqueness, in a popular way we tend to assume that health and preservation of life was not negotiable. To take a less extreme example, the cost of healthcare is usually weighed against other social and personal needs.\textsuperscript{16} In a report of the Health survey and Development committee health is defined a term which implies more than the absence of sickness in an individual rather indicates "a state of harmonious functioning of the body and mind in relation to his physical and social environment so as to enable him to enjoy life to the fullest possible extent and to reach his maximum level of productive capacity".\textsuperscript{17}

Concept of Illness and Illness behaviour

Physicians are so accustomed to think of illness in terms

\begin{itemize}
  \item \textsuperscript{16} Persons, Talcott, \textit{The Social System}, Free Press, New York.
  \item \textsuperscript{17} Bhore, Joseph, \textit{Report of Health Survey and Development Committee}, 1946, London.
\end{itemize}
of germs and viruses that they assume it as a biological concept, a pathological condition that is verified from Laboratory tests or other forms of clinical examination. From a cultural point of view, however, illness is quite a different thing; it is social recognition that a person is unable to fulfil his normal roles adequately, and that something must be done about the situation. In other words, we must distinguish between disease, a pathological concept, and illness, a cultural concept.

We speak, for example, of plant and animal diseases, quite divorced from culture. But man's diseases become socially significant only when they are identified as illness, a physiological malfunctioning that is seen to threaten the individual and his society. Another way to point out the distinction is to say that a medical doctor wishes to cure disease but he treats illness, for it is usually the impairment of function and not the presence of disease pathogens that causes us to seek aid. 18

Societies define illness in different fashions, and according to different symptoms that are accepted as evidence of illness by the society. They may be ignored by other societies. Definitions within the same society may also change according to time. It can further be observed that each society's definition of illness becomes institutionalised within its cultural pattern. The measure of social development is a culture's

conception of illness. In primitive societies illness was defined as an autonomous force or "being," such as an evil spirit, which attacked people and settled within their bodies in order to cause them pain or death. During the Middle Ages illness was defined as a punishment for sin, and care of sick was regarded as religious charity. Today illness is defined as a state or condition of suffering as the result of a disease or sickness. This definition is based upon the modern scientific view that an illness is an abnormal biological affiliation or mental disorder with a cause, a characteristics train of symptoms, and a method of treatment.

Contrasted with disease, which is a concept of biology more specifically of pathology, illness is a phenomenon which is apparent to the individual in terms of an altered state of his perception himself. He feels sick and hence, may act in ways which are different from those who might normally be expected of him. Because it is commonly the case that some kind of physical disorder about which a medical scientist can think and act in terms of his concept of disease is associated with the feelings of sickness.

Not only does the concept of illness differ from that of disease, but we must also distinguish between illness as a personal event and as a social phenomenon. Illness is a personal event to the extent that each of us attempts first to evaluate the meaning of any symptom of which we become aware. Quite
naturally, this evaluation would be conditioned by our knowledge of an experience with these symptoms. So it can be said that as long as what we feel is not communicated to others or what we do is not observed by others. Illness, this remains a personal event.

Illness becomes a social phenomenon when it becomes visible to others and when this leads to modification of the social interaction patterns between sick man and those around him. The awareness by others that a man is ill usually occurs through one or both of two routes. First, it may be a result of their direct observation of the sick man's action. Secondly, their observations would be supplemented by the sick man's communication of his feelings to others.

Medical view of illness is that of deviance from a biological norm of health and feelings of well-being. This view involves the presence of a pathogenic mechanism within the body that can be objectively documented. Theagnosis of a disease, for example, results from correlation of observable symptoms with knowledge about the physiological functioning of the human being. Ideally a person is defined as ill when his or her symptoms, complaints, or the result of a physical examination and/or laboratory tests indicate abnormality.

In medical sociology, illness may be viewed as a deviant social state brought about by disruption of normal behaviour through disease (a biological state). An illness can be regarded
by sociologist, as a social entity definable in terms of social functioning.19

Sociological view of illness as a deviance was initially formulated by Talcott Parsons20 in his concept of sick role. Parsons saw being sick as a disturbance in the "normal" condition of the human being, both biologically and socially. The basis for describing illness as a form of deviant behaviour lies in the sociological definition of deviance as any act or behaviour that violates the social norms within a given system.

Sociologists have viewed illness as a social event. According to them it can be found outside of biology and medicine by including illness within the general category of deviant behaviour. The early casual theories of deviance in sociology were essentially biological models that defined the sources of deviance as something inherent in certain individuals. Undesirable behaviour was thought to be caused by the genetic inheritance of combination.21

But the functionalist approach sees deviance as a stable and objective state, not within an individual but within a dynamic social system. So according to functionalist theory, illness is dys-functional because it threatens to interfere with the stability of social system.

19. Edward A. Suchman, "Stages of Illness and Medical Care" Journal of Health and Human Behaviour, 6 (Fall, 1965) pp. 114-128
20. Op. cit, p. 95
21. Op. cit,
Talcott Parsons' concept of sick role represents the most consistent approach to explaining the behavior-characteristic of sick persons. It is based on the assumption that being sick is not a deliberate and knowing choice of the sick person, though illness may occur as a result of motivated exposure to infection or injury. Thus, criminal is thought to violate social norms because he "wants to", the sick person is considered deviant only because he "can not help it". The specific aspects of Parsons' concept of sick role can be described in four basic categories:

1. The sick person is exempt from normal social roles.
2. The sick person is not responsible for his or her condition.
3. The sick person should try to get well.
4. The sick person should seek technically competent help and cooperate with the physician.

As stated above, the sick role is a social role, and, as such, it imposes certain obligations on the sick person. These obligations are designed to bring the sickman back to a taste of health as rapidly as possible and at the same time minimally limit the disruption of group processes from non-performance of roles. The normal state of being well means that being ill is undesirable and, therefore, one is obliged

to get well as quickly as possible. Related to this is the obligation to seek competent technical help and cooperate in the process of getting well.

Parsons' concept of the sick role is a useful sociological approach to illness because it views the patient-physician relationship within a framework of social roles, attitudes and activities that both parties bring to the situation. The sick role evokes a set of patterned expectation that define the norms and values appropriate to being sick, both for individuals and for others who interact with the person. Neither party can define his role independent of his partner's role. The physician's role is, as Parsons tells us, to return the sick person to his normal state of functioning.

The basic distinction between disease and illness is that by disease we mean an objective phenomenon characterized by altered functioning of the body as a biological organism. However, apparent their manifestations, diseases are hidden processes which can only be understood as their observable signs are related to a body of knowledge about the way in which the human organism works. By illness we mean a subjective phenomenon in which individuals perceive themselves as not feeling well and, therefore, may tend to modify their normal behaviour.

DISEASES:

Disease is a universal phenomenon and, therefore, affects all people everywhere but not always with the same degree or in the same way. With the progress of civilization from the primitive to modern man, the concept of disease also evolved by stages from supernatural and deistic origin to the natural and multicausal causation. Diseases, as treated in modern medicine, are a specific kind of biological reaction to some kind of injury or change affecting the internal environment of the body. As such, they can be understood and dealt with only after they have been brought to the attention of men skilled in biological sciences. The usual way in which it originates, is the fact that someone feels sick and, in an attempt to do something about it, he consults a physician or some one else considered to be a wise man for its remedy or cure.

The concept of disease usually refers to some deviation from normal functioning that has undesirable consequences because it produces personal discomfort or adversely affects the individual's future health status. On the practical everyday basis, it is possible to identify and deal with disease processes, as people often complain about pain and discomfort. These complaints can then be investigated as to whether they fit to a recognizable clinical pattern of disease.

24. Wiley Forbus, Reaction to Injury, Baltimore, Williams and Wilkins 1952
The etymological meaning of disease, according to Webster, is "a discomfort; a condition in which bodily health is seriously attacked; deranged or impaired, a departure from a state of health; an alternation of the human body interrupting the performance of vital functions". It is also meant as a "condition of body or some part or organ of the body in which the functions are disturbed or deranged." Further, it is defined in Butter Worth, Medical Dictionary. A disease is the sum of total of the reactions, physical and mental, made by a person to a noxious agent entering his body from without or arising within (such as a microorganism or a poison), an injury, a congenital or hereditary defect, a metabolic disorder, a food deficiency or a degenerative process. These causes pathological changes in organs or tissues which are revealed by characteristic signs and symptoms. These explanations do not indicate when and how a disease-state begins. Different scientists have made various attempts to explain the disease. Accordingly, the ecologists explain it as "a maladjustment of the human organism to the environment". Sociologists treat it as a "Social phenomenon". They try to explain it in sociological perspective and concentrate on how disease affects human groups and the ways in which groups react to disease. Disease, is common to all societies and is defined

25. Webster Dictionary.
and treated in terms of the specific cultural forces prevalent in them.29

Sociologist, generally analyse diseases in four dimensions.30 At the first place, diseases are neither uniform nor random in their occurrence rather they are usually observed to be more or less common among various social groupings. The study of these differential distribution of illness in terms of our knowledge of social structure and the differing lifestyles imposed on people, frequently provide clues about the nature and causes of diseases. Secondly, people tend to view the events of disease from the perspective of their particular culture, and, based in part on these perspective, they tend to respond to the disease in pre-dictable ways. Thirdly, they develop an array of institutions to treat systematically the diseases which appear in their groups. These institutions may be relatively simple, such as the role of medicineman, or they may be very complex, such as modern hospital medical centre. Fourthly, we may suggest that the treatment of disease involves more than the mere application of medical knowledge through medical institution.31 In sociological perspective the important issue is to study the impact of disease on group life rather than a particular disease. Disease like some other human enemies, constitute a threat to group unity and survival whether the size of the group is family or a society. It can disrupt

communication between group members, incapacitate leadership (or followership), reduces the ability of group members to carry out assigned or ascribed social roles and tasks, and alter the ways in which group members perceive and respond to one another. It is, therefore, important for the continued existence of a society that it enacts defenses against disease. In this sense, describing diseases in terms of defense measures taken by human group reflects the history and development of public health, particularly the attitudes of society toward the sick person. Diagnosis of a disease is made by correlating the observable signs or symptoms of a disease with knowledge about the functioning of the human organism. Thus, understanding of disease depends on the observation of altered abnormal states of human organism. These signs may be objectively observed and even measurable, such as elevated body temperature or skin rash, or they may be subjective symptoms, such as pain in back. Disease and Environment

Environment is a reservoir of forces which support or threaten life and which have, among other powers, mutagenic properties over the genotype of all living things. Ill-health or disease represents ecological disequilibrium or lack of

harmony within the environment. The physical, chemical, biological and socio-cultural hazards (Stimuli) of the environment place man's health in jeopardy and promote disease.

Man is inherently bound to the physical, biological and socio-cultural environment of which he forms an organic part. The actual state of human organism, whether healthy or showing pathological traits, depends on the interaction of the internal milieu of the human being (the maintenance of homeostasis) the hazards of the external environment, and the complex inter-relationships of the two. Diseases or health problems are the environmental problems.

Both 'health and disease' are concepts; they are expressions of the degree of harmony or conflict between man and his environmental support systems and environmental challenges, as he endeavours to cope with them in order to survive. Health represents harmony between man and his environment (ecological equilibrium); ill health or disease is lack of harmony in the environment (ecological disequilibrium).

The environment is a matrix of physical, biological and socio-cultural circumstances which surround man and affect his physical, mental and social well-being. It is the milieu in which he has lived during many hundred thousands years of his biological evolution. It is the sum total of his habitat, economy and society, and as such, embraces not only his life-support system (air, water, food, shelter), but also the multiplicity of
provocative forces which bear down on him and affect his general well-being. The environment is, in effect, a reservoir of physical, chemical and biological forces which support and threaten, and which have, among other powers, mutagenic properties over the genotype of all living things.

The hazards or provocative factors of the environment which endanger man's health and promote disease may be grouped as physical, biological and socio-cultural ones. These all factors, however, are all interrelated and interdependent. When they become a hazard to human health they are called to be the stimuli. They disturb the homeostasis of the human organism and act contrary to the normal workings.

Physical Environment

The physico-chemical stimuli of the environment cover a wide range. They are related to the atmosphere, water and soil. For example, if the humidity is high, the atmosphere will not absorb the moisture which the body wishes to dispose of, and the internal temperatures of the body will rise, resulting in heat stress, heat stroke and prickly heat.

Human organism is made up of 62% water, hence, it cannot survive without and intake of water. Yet water can poison or deprive the body by an excess of deficiency of organic and inorganic constituents, some of which are in the form of solution, some in suspension or emulsion and some floating on the surface of free swing.
**Biological Environment**

Human organism is so accommodative that several parasites permanently live in it without causing any structural change or functional disturbance. They are in a state of mutual tolerance or commensalism. On the other hand, in the atmosphere, in water and in the soil there are virulent microbes (bacteria, viruses and other microscubic form of life) which are responsible for many human diseases. In susceptible hosts, water-borne pathogens cause such diseases as gastro-enteritis, dysentry, typhoid, cholera etc. In the atmosphere, either independent, or else on or within vectors, are the pathogens responsible for the common 'Cold' or influenza.

The germ theory of disease, or the concept of specific etiology, is not as simple as its earlier proponents imagined. There are many situations in which the microbe though a constant and ubiquitous component of the environment cause disease only when there is some weakening of the patient by another factor (malnutrition, over work, psycho-social disturbance) which allows infection to proceed unrestrained, at least temporarily. The presence of a disease microbe is a necessary but not a sufficient cause of communicable disease. Relationship between man and microbe are rarely simple and static; usually they are exceedingly complex and in a state of flux.

**Socio-cultural Environment**

Health risks, associated with the human and socio-cultural environment, are numerous; They are essentially man-made or self
imposed and relate to, or are the consequences of the distribution density and morbidity of population, of occupation, housing, diet socio-economic status and deviant life style habits.

**Epidemiological concept of disease**

Natural history of disease is a key term in epidemiology. It signifies the way in which a disease evolves in the absence of intervention. Epidemiology is one of the most important investigative perspectives in the study of health and disease. As Hollingshead has written, "The triumph ... has been its utility in helping researchers trace out, step interdependencies between the life ways of individuals and the appearance and non-appearance of disease in population." The epidemiologists attempt to determine as to who, in a particular population, on a specific occasion, and under finite influences, develops a disease. Typically, the epidemiological approach is used in attempting to gain increased understanding of a disease whose causes are unknown. Epidemiological method can be used for other purposes as well, such as to explore specific hypothesis involving not only gross social characteristics like race, sex, and social class, but also those involving expectation systems, social attitudes and other characteristics of persons and groups.


Epidemiological description of disease in human populations has two major aspects: the study of incidence and the study of prevalence. Epidemiology can, thus, be defined as "measurements of the circumstances when diseases occur, where disease tend to flourish, and where they do not." An epidemiologist or a sociologist as an epidemiologist is, therefore, concerned with exploring human ecology as it relates to the health of human beings and their environment. Epidemiological Studies carries out using groups rather than individuals as the significant unit. In such studies one set of characteristics of a population is correlated with another set of characteristics in order to account for variations among population. The use of such correlation—usually referred to as ecological correlation is common in public health work.

The natural history of disease comprises two phases; prepathogenesis and pathogenesis. This refers to the period preliminary to the onset of disease. To understand it fully, the stages of epidemiological research is illustrated in shows's investigation, it may be helpful to point out the major elements about which information is collected in contemporary investigations, namely, disease agents, the environments, and the human host.

(a) Disease agent includes, (1) biological agent, such as insects, fungi, bacteria, viruses, protozoa, helminths


37. Leavel op, cit.

38. John Snow, on the mode of communication of cholera, London, 1958
(2) Nutrient agent, such as fats, carbohydrates, proteins, vitamins, minerals and water. (3) Chemical agent such as gases, dust, and solid particles in the air (4) physical agents, such as radiation, temperature and humidity, pressure and radiation, and

(b) **Environment agent:**

The environment is defined as the aggregate of all external conditions and influences affecting the life and development of an organism, human behaviour and society. It includes (i) physical environment, such as weather, climate, water, air, housing soil, heat, radiation and noise (ii) biological environment includes virus, insects, rodents animals, plants and man himself. (iii) Social and economic environment reffers to socio-economic status and type of occupation. It also includes cultural values, customs, habits, beliefs, attitudes, morals, religion, education, standard of living, community life, health services and social and political organisation.

(c) **The Human host:**

It is a consideration of demographic factors such as age, sex, race, genetic factor, marital status, nutrition, occupation, immunity, social class, human mobility as well as physical condition or constitution, habit and customs and life style. These three elements of diseases are interrelated with each other. Their interrelation is
explained in the following diagram

**DISEASE AGENT**

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**HUMAN HOST**  **PREVENTIVE MEDICINE**  **ENVIRONMENT**

It is evident from the above elaborations that disease is not an outcome of one or two factors. It is caused by multiple factors. The diagram depicts the relationship of these elements. A clinical investigator would concentrate his efforts on the relationship between the disease agent and human host. Preventive medicine, on the other hand, focuses its activities mainly on removing the changing aspects of the environment which are deleterious to human health, such as by sanitation or by manipulating the human host in such a way as to prevent harmful aspects of the environment from taking effect, e.g., by immunization programmes which permit the disease agent to survive in it. 39

When we use the term social environment in epidemiological research, we are referring to actual living conditions, such as poverty or crowding and the norms, values, and attitudes that reflect a particular social and cultural context. Societies have

39. (Coe) op. cit.
Epidemiology has contributed significantly to our present day understanding of multifactorial causation of disease. Medieval men are looking "beyond the germ theory" of disease into the total life situation of the patient and the community in search of multiple factors of disease. Some epidemiologists have used the term "web causation" for the multifactorial causation.

In summary, epidemiology is a useful descriptive and analytical discipline. Most frequently it is used for the purpose of generating clues for better controlled clinical and experimental investigation, for estimating the need for health services, and for describing the workings of health care system.

**Medicine and Society:**

Medicine has at times been called a social science, but of course it is not that any more than it is a physical science. Medicine is a synthesis of many disciplines; it is essentially the practice of knowledge and skills and attitudes helpful for the sick.\(^{43}\)

The idea that "medicine is a social science" was propagated by the Germans during 1847. Earlier, various French investigators studied the influence of poverty, occupation, nutrition, housing, and other factors affecting the health. German medical men were also concerned with similar matters.

\(^{43}\) INC, N. Jersy - 1963. 
socially prescribed patterns of living arrangements, as well as standards pertaining to the use of water, food and food handling, and house hold and personal hygiene. Therefore, the social environment provides information that can be used not only to assist in ascertaining the most effective means of treatment and prevention within that particular environment.  

In making an investigation, the epidemiologist attempts to answer several questions with respect to some disease. For example, he would like to know the source of infection, the means by which the disease was transmitted to a particular case under study. Some characteristics of infected cases and the persons to whom the infection may have been passed on and what preventive action can be taken to stop the spread of disease. The concept that disease is due to multiple factors, is not a new one. Pettencofer of Munich was an early proponent of this concept. The birth of "germ theory proponent of disease" or "single cause idea " in the late nineteenth century overshadowed the multiple cause idea" was an over simplification and that there are other factors in the etiology of diseases - social, economic, cultural, genetic and psychological which are equally important. For example, tuberculosis is not merely due to tuberole bacilli, Factors such as poverty, over-crowding and malnutrition also contribute to its occurance. In the patho-genesis of chronic disease, many of multiple factors are still unknown.  

40. op. cit.
42. Quated by Park and Park op. cit.
Prominent among them were Solomon Neumann, Rudolf Virchow, and Rudolf Leubuscher. These men were keenly aware of the role of social factors in health problems. Neumann considered the medical science as "intrinsically and essentially a social science, and as long as this is not recognised in practice we shall not be able to enjoy its benefits and shall have to be satisfied with any empty shell and a sham".44.

Similar was the opinion of Virchow who said "Medicine is a social science and politics nothing but medicine on grand scale".

The first of these principles is that the health of the people is a matter of direct societal concern, and that society has an obligation to protect and ensure the health of its member. It can be further elaborated as medicine is a social institution. An institution is defined as a cluster of social usages.45 It connotes a way of thought or action of some prevalence and performance which is embodied in the habits of a group or the customs of a people ....... Our culture is a synthesis or at least an aggregation of institutions, each of which has its own domain and its distinctive office. The function of each is to set a pattern of behaviour and to fix zone of tolerance for an activity or a complement of activities.... As early as 1924

45. Encyclopaedia of Social Sciences volume VII and VII p. 84.
46. Ibid.
W.H.R. Rivers wrote: "Medicine ... is a term for a set of social practices by which man seeks to direct and control a specific groups of natural phenomena - viz., those especially affecting man himself, which so influence his behaviour as to unfit him for normal accomplishment of his physical and social functions phenomena which lower his vitality and tend towards death". 47

The conception of medicine was not clear among the primitive people. They were closer to animals in that they, too, relied upon their instincts to stay healthy. They were not aware about cause and effect relationship between doing certain things and alleviating symptoms of a disease or improving the condition of a wound.

Since there was so much that primitive humans did not understand about the functioning of the body, magic became an integral component of the beliefs about the causes and cares of health disorder. Actually, an uncritically acceptance of magic and the supernatural pervaded practically every aspect of primitive life. So it was not surprising that people generally thought that illness was caused by evil spirits. Primitive medicine from vegetables or animals were invariably used in combination with some form of ritual to expel the harmful spirit from a diseased body. Mora reported that during the Neolithic age, some 4000 to 5000 years ago, people living in North Africa

were known to have even engaged in a surgical procedure called "trepanation" or trephining which consists of a hole being bored in the skull in order to liberate the evil spirit supposedly contained in a person's head. Sometimes more than one hole in some skulls. Anthropologists suggest that the operation was not always fatal.\textsuperscript{48}

Therefore, as Dubos explains, medicines have dual nature from its very inception. It includes knowledge about definite medical procedures and a belief in some magic or religious power involving forces beyond human comprehension.\textsuperscript{49} This dual nature of medicine is still with us today, as a patient's family and friends will attempt to supplement the modern physician's skill and experience with prayer. The prevailing structure of medical science, regardless of a society's level of medical knowledge and technology, still functions within the context of the values, attitudes, and beliefs of the people who comprise that society.

Likewise David Mechanics views the function of medicine not only as using illness and alleviating distances and disabi-


applied to individuals in the population, as in determinations of legal responsibility, disability comprehension, justified sick leave and many others.\textsuperscript{50}

As medicine is moving towards the twenty-first century, it is increasingly called upon to return to the health problems of the whole person, which extend well beyond singular causes of disease. Contemporary physicians are often required to deal with health disorders more aptly described as "problems in living" dysfunctions that involves multiple factors of causation not all of them biological in nature. The evidence is now quite striking that the manner in which people respond to social, psychological and cultural influences has much to do with their sickness as well as with the form, duration and intensity of their symptoms and disabilities. Thus, it has become clear that modern medicine must develop insight into the behaviour characteristics of the people it treats.

It is evident from the above discussions that medicine is both art and science. Because in primitive societies the practice of medicine was associated with religion, magic and astrology. The basis of modern medicine is provided by the biological sciences, and in recent years, the scientific content of medicine has increased. There is an increasing recognition that successful application of medicine to individuals and groups

\textsuperscript{50} Mechanics op. cit. p. 18
does involve more than the scientific or biological knowledge. It involves an understanding of the behaviour of individuals and groups who live together and also share certain values of life. Man is no longer viewed as merely a biological entity but also a social being.

Park and Park observe that "the patient is no longer considered as one who is under strict laboratory control, but an individual with personal idiosyncrasies, erratic habits, customs, and beliefs reacting upon his body and mind". Thus, there has been a shift from the earlier concept of visualising disease in terms of specific germ or disease in a certain organ of human body, to the involvement of "multiple factors" in the occurrence of disease.

As a result of this new outlook, concepts of sociology are increasingly being used in the study of the disease processes. The social scientist who until recently, were preoccupied with studies of human society, structure and functions are now stepping into the field of health as well as health behaviour. **Social Perspectives**

The study of health problems and their solution is related to society. As such the students of medical sciences as well as behavioural sciences should take help from each others disciplines to study diseases as well as to find out adequate measures to prevent and cure them.

Health phenomenon, in one or the other way, is related to social factors, as well as social conditions. Man has always been interested in understanding socio-medical problems and tried to find out their solutions. Medical Sociology itself is an outcome of such endeavour. Social scientist from time to time made valuable observations to link social and cultural factors or situations with the health of the members of a given community. During 17th and 18th centuries and the renaissance the relation between social factors and health were given much more importance because people felt that adequate medical care was markedly related with social situations. Hence, in the early 18th century the social scientists laid much stress on the concept of social medicine. They generally showed their interest in the following:

1. The need to study the relationship between health of a given population and the living condition determine its social condition.

2. The noxious factors that act in a particular way or with special intensity in the group because of its social position; the elements that exert a deleterious influence on health and which impede improvement of general well-being.52

These elements were related to the scheme or policy of organization. The aim of which was to play social and economic life in the service of the power and politics of the state. The system was known mercantilism in general and "cameralism" in special in Germany.

According to them the problem of health and disease was related to the idea of Polizei. The theory and practice of public administration came to be known as Polizeiwissenschaft (Police science) and the branch of this discipline dealing with health administration was known Medizinalpolizei (medical police).

Later, particularly in the second half of the 18th century, health was to be a matter of public policy. In this context the name Johann Peter Frank is important who made valuable contribution to the concept of medical police and regarded it a pioneer in public health and social medicine.\(^53\) In 1776 he presented a plan for the measures to be taken by the Govt. for the protection of individual group and health. The concept of medical police was, in fact, a systematic problem of health and community life. It promoted the study of social relation of health and disease.

The term medical police was not widely accepted by the French scholars, except by a few of them, viz, Rodere and C.C. Mere. But most of them felt that the social aspects of health and disease be pursued as independent course. As such, they studied the relation of social and political conditions to health in a different frame work. After the revolution the French society faced some social crises. The consequences of factory work and of the industrial shrines, attracted the attention of physicians and public officials towards health problem and they began to study the new perspective. As a matter of fact physician and hygienists had carried

out surveys and statistical studies of living condition among workers in urban communities and the circumstances under which they work in shops and factory. Such studies got further momentum during the 19th century. France to plead in social and political theories and produce eminent social scientist like Fourier, Saint Simon, Comte, Proudhon, and Pecquet who made the valuable contribution to the study of relation to health problem and social condition. In 1844 the physician Faurcault used the term social hygiene. He was interested in providing adequate health to children who had to work and for adults who work in unhealthy conditions. Further, Jules Guerin introduced the adjective "Social" and developed the concept of social medicine. He divided it into four parts, i.e., social physiology, social pathology, social hygiene and social therapy. In this way, the concept of medicine was associated with social conditions and later on the social thinkers made conceptual foundation and laid down certain principles on which a programme of action could be initiated. They are as follows:

1. Health of the people is a matter of direct societal concern and the society has an obligation to protect and assure the health of all its members.
2. Social and economic conditions have an important and crucial impact on health and disease.
3. The steps taken to promote health and to combat disease must be social as well as medical.

In Germany Alfred Grotjahn felt the need of systematically investigating medical problems in the light of social science, in order to develop a theory of social pathology and social hygiene. He thought that it is the knowledge would be helpful to determine how life and health particularly of the poor classes are dependent on social condition and environment.  

The important thing here is to note that Grotjahn advanced and formulated a number of principles that are helpful and fundamental to a systematic study of human diseases in social perspective.

1. The significance of a disease from a social point of view is determined in the first place by frequency with which it occurs.

2. It is necessary to know the form as well as the frequency with which the particular disease occurs.

3. The etiological relationship between social condition and disease may be expressed in four ways: Social conditions may: (a) create or favour a pre-disposition for a disease; (b) may cause disease directly; (c) may transmit the cause of disease; and (d) influence the course of disease.

4. Not only are the origin and causes of diseases determined by social factors, but these diseases may also exert an influence on social conditions particularly through their outcome.

5. In the case of a disease which is important from social viewpoint, it must be established whether medical treatment can exert an appreciable influence on its prevalence or such therapeutic success be achieved from a social point of view.

6. Preventing disease or influencing their course by social measure require attention to the social and economic environment of the patient.

Similarly, in G. Britain and United States the scholars have recognized the importance of social factors in health and disease. Various attempts have been made to study social aspects of health and disease. G.C.M. GONIGLE and Kirby's elaborated book Food Health and Income and R.M. Titmuss's pioneering study Poverty and Population are helpful to understand the role of social factors in health. In 1926 Peckhan Health Centre in London was established by G. Scott Williamson and Innes H. Pearse to conduct study relating to health problem and disease in social perspectives. In this institute scholars made fruitful effort to study health as a positive social value on the basis of a fundamental social unit i.e., the family.

56. Ibid. p. 35.
Parasites and the present study

It is evident from the above description that social factors are very important as they help a disease to spread in different manners. Disease cannot be studied in isolation as merely a physiological phenomenon, rather, there is a close relationship between health and social conditions. In fact illness is related with cultural and ethical factors. Keeping these factors in view it is proposed to study the social perspective of certain infectious diseases. The relationship between disease and social conditions is important and as such it becomes necessary to study the beliefs, taboos, taboos and other social customs because they help to spread the diseases.

Parasites:— The diseases caused by intestinal parasites, are given little importance due to indifference towards social conditions. They spread unnoticeably by inflicting on the general health of the people in a society. The human organism is the residue of large number of such living bodies which survive by getting their nourishment from the human body itself. These bodies are known as "parasites", which lack the necessary organs for assimilating raw food materials and depend on their host i.e. human organism, for the predigested food. The parasites exist in all such organic systems which can provide their required predigested food, temperature, moisture, and other conditions for survival and procreation. Intestines are the most appreciated residue for a large number of parasites. Because they contain much of refuse and raw excretimmary matters in them which prove to be highly relished food material and
comfortable for different species and their types of parasites. They suck out the best nourishing material from human body at the first stage itself and create insufficiency of various chemical and biological nutrants which are necessary for the normal development and maintenance of human organism. The interesting feature of parasites is that they take birth out-side then enter into the human host to complete their life cycle. They live widely in peaceful coexistence with its human host, but occasionally it turns into the aggressive pathogen. Medical scientists generally try to find out the physical environmental factors in dealing with the intestinal parasitic infections. They use this treatment to mild the disease with several drugs. Despite the fact that the excellent curative drugs are available, the intestinal infection still remains extremely common. But they do not emphasize much on the other features like socio-cultural factors, beliefs and ethical problems and ritual practices which also share the same responsibility as the environmental factors for creating the intestinal parasitic diseases. Being a student of sociology I tried to find out the relation socio-cultural factors with the environmental and other physical factors. The study will help to reveal how bio-familial and familial-environmental factors are responsible for the spread of these diseases. The intestinal infections are usually caused by protozoan organisms such as Entamoeba, histolytica, the Giardia intestinalis, the nematodes, Ankylestoma duodenale or the cubiquitoces large round-worm, Ascasis Lumbricodes.
The whipworm trichera trichuris and a large number of different species of tape worm.

In an in-depth series of estimates of prevalence of human helminthic infectious, stoll calculated that there were 72 million cestode or tape worm infections, 148 millions fluke infections, 148 millions fluke infectious and over 2,000 million nematodes or round worm infections in the human population which then stood at 2,170 millions. Why should this be so? The answer is complex and the reason lies in various fields of ecology, socio-economic human behaviour and sanitation. On an average an individual living in the tropics has an easy chance of harbouring at least one species of intestinal parasite, and some may play host to five. The human alimentry canal provides a home for different parasites. These parasites live in dynamic relationship with their human host who must provide all the energy and nutrients required for both to survive. Parasitic diseases develop when the equilibrium between the host and its intestinal intruders is upset, as the parasitic activity depletes host resources and causes physical and metabolic damage. In fact whether disease develops in an individual host or not depends on many factors and especially on the parasite burden per host. Intestinal worms are rarely distributed evenly or at random against their hosts and usually a few "wormy" people in an infected community harbour most of the worms. These wormy individuals are the one who are most likely to suffer from disease and to be responsible for exposing others to the risk of parasitic infection. Of course a "few" may be a relatively large number.
when over a billion people are infected, as is thought to be the case with ascariasis.

The public health significance of any relationship between humans and their intestinal parasites well not be assessed satisfactorily until through longitudinal studies carried out. Human parasitology has left the Zoological arena and has become an interdisciplinary subject now requiring contributions from anthropologists, clinicians, epidemiologists, immunologists and sociologists, among others.

**Modes of infection**

Mode of infection gives an idea that how man becomes victim of these parasites. This will suggest that what precaution should be made to avoid the infection, and which society and social conditions are more helpful for its infection.

**Sources of infection and Portal of Entry:** Infective stage of parasites may reach the human body in the following ways,

1. **By Contamination of food or drink**

   The pathogenic species under this group gain entrance into the digestive tract. Some of the examples are:

   (a) Cysts of *E. histolytica* and eggs of *A. lumbricoides* which conteminate food or drink.

   (b) The infective forms may remain in the flesh of some intermediate host which are taken as food.
2. By contamination of skin and mucous membrane. The eggs sometimes may hatch on moist mucous surface of the upper passage and thus the larva may directly penetrate the blood stream.

3. By the agency of the infected host.

4. Through human faeces. Sometimes human excreta are used to fertilize vegetable gardens. People pollute the soil by defecting where they please. As a result parasites in their faeces accumulate where the children usually play near dwelling provided a source of infection for others.

5. Through soil. If the faeces are deposited in soil, the eggs will develop further inside the egg shells into effective larvae. These eggs may remain viable upto two years or more in soil. Children and adult in contact with contaminated soil may ingest the infecting ingest the infecting eggs particularly if they eat without washing their hands.


8. Through cow, dog, pig, arthropodes, eat fresh water & fish.

There are many parasites living and infecting the alimentary tract or intestinal region but only few which are most common in Aligarh are selected for the present study. The distribution of various types of infections as found by the stool examination in Aligarh both urban and rural communities will be discussed in the next chapter. Seven species of intestinal parasites were found to be prevalent in Aligarh.
Parasites listed below are commonly found in the alimentary tract of human body. Environmental factors, social customs, and habits, climatic conditions greatly influence the distribution of parasites and accordingly each parasite has got a specific distribution.

**STATEMENT OF THE PROBLEM**

Parasites are a common evils for the human organism and a hazard for his health. As we have mentioned above, there are various types of parasites which dwell in different organs of the body. Their number and multiplicity is so great and large that it is beyond one person's scope to study all of them from medico-social point of view. Hence, it was proposed to limit the present study to the most common and the most prevalent parasites inhabiting in a generously hosting organ. Also, it was under consideration that the access and growth of these parasites in the human body should have a social facilitation.

We consult the medico-social literature in this perspective and found that intestine were the density parasite populated organ of the human body. In them there are, approximately 30 types, of parasites as they have the best nutrition, predigested food and the roughage for the survival, growth, and development of all these parasites. As, again, it is not possible to study all these Parasites socio-medically, it was proposed to sortout the major and very common parasites developing in the Indian social environment.
Hence, only eight parasites, viz, sorted out and picked up for the present study. They are very commonly found in the families living in rural as well as urban localities. For this study there was one more consideration that the study could be done comparatively for revealing certain new and interesting results.

These eight parasites are not confined to any region or locality of the Indian states; rather they are equally pampered in all the parts and socio-economic groups of the country. Hence, the study was planned to be confined to some representative part of the country. For carrying out the survey and study of the problem certain variables were kept in mind to give a direction to the results and their conclusions. These variables are socio-demographic factors, (age, sex, education, income, occupation, social conditions, cultural constraints, patients perception and doctor patient relationship. The present study was propose to carryout at Aligarh, because there is representation of different class and cast groups in this city and its surrounding areas due to the job availability to lower class and education facilities to the middle class families of our society.

The Aligarh Muslim University having a medical college has extensive medical facilities for the rural and urban communities. Hence, the cases of intestinal parasites hosting patients are easily available at rural and urban primary health centre as well as the out patient depart. Having this facility it was found that
Prevalence of various Common Intestinal Parasites in Aligarh: Rural Health and Training Centre Jawan, Urban Health and Training Centre, Zohra Bagh, Aligarh.

1. ASCARIS LUBRICOIDES
2. E. HISTOLYTICA
3. GIARDIA INTESTINALIS
4. ANKYLOSTOMA DUODENALE
5. H. NANA
6. E. COLI
7. T. TRICHURIS
8. ENTEROBIUS VERMICULARIS
Aligarh Muslim University would be an ideal university for the present problem, it was decided to exploit the opportunity to the greatest extent.

For making the results objective and definite the subility of empirical study was given preference. The analysis of the data was planned to be done quantitatively and statistically.

The present research had many aspiration for the study at hand but in the course of his persuance he had to surrender many of his ambitions and confine himself only to his human limitations. The study is no doubt highlighting many of the facts. But it gives authentic information through its results for depending upon.
CHAPTER TWO

REVIEW OF THE LITERATURE
Intestinal helmenthic infection all over the world is a big challenge to the humankind as well as to those who are engaged in social and public health work. In India various studies on prevalence have shown very high rate of infection. This may be due to faulty conditions of environment viz., housing, drinking water, disposal of house refuse, lack of laterine facilities and unfavourable soil and weather conditions. This could even be due to bad personal habit, cultural constraints, social environment, and low standard of living of the population. In India no detailed study is available in which all these factors have been studied except a few which were directed mainly to find out the prevalence in relation to some of the environmental sanitation and socio-economic factors. However, there are many studies on the prevalence and pattern of prevalence of intestinal parasites in rural and urban communities.

Prevalence

A survey of literature on the issue concerned reveals that various nature and types of studies have been conducted in this respect. They may be placed in three categories. First type of study relates to the prevalence of intestinal parasitic infestation. Most of the studies in this respect were conducted by physicians who were mainly concerned to find out the prevalence of parasitic infection in different segments of population. These studies do not reveal the causes of prevalence but they show which type of parasitic infection is
prevalent in which sort of population and to what extent. They are valuable as they provide basic and fundamental statistics about intestinal parasitic infestation. The second types of study deals with relation of parasitic infestation with age and sex. The important feature of these studies is what they show which age group of people is more affected by intestinal parasitic infection in rural and urban areas. Similarly they also indicate which sex group is more affected by these parasites. In third type of study an attempt was made to find out the relation between intestinal infection to environmental condition, social condition and socio-economic status.

1. Prevalence Statistics

The relative proportion of different parasitic prevalence in the infected individual was reported by J.B. Srivastava. According to him E. histolytica was 20.1 per cent, Giardia 11.5 per cent, Hookworm 12.2 per cent, Tapeworm 2.9 per cent and Ascaris L. 22.4 per cent. In another study on factory workers in Bombay on examining the cases he found that there were 35.6 per cent cases of E. histolytica 21.5 per cent Giardial, 20.2 per cent Ascaris. Lumbricoid.

Ghuliani and Sharma conducted a study to know about the prevalence of parasitic infection among fresh army recruits.

from different urban areas of India and found that Ascaris L. was present to the extent of 22 per cent, Hookworm 12.2 per cent T. Trichuris 16.2 per cent, Giardia L 44.0 per cent where as E. histolytica was upto 20.1 per cent.

Anita and others\(^3\) found that in urban healthy community of Bombay the percentage of A. cumbricoid was the highest i.e. 26.6 followed by T. Trichura 15 per cent, Hookworm 13.2 per cent and other parasites were in very low percentage.

Sen\(^4\) conducted a study in healthy slum community of Calcutta and observed that Ascaris L. was present to the extent of 23.8 per cent, followed by Giardia Lomblia 21.3 per cent E. histolytica 14.2 per cent and Hookworm 2.5 per cent.

Another study by Chaudhry\(^5\) in the healthy community of West Bengal near Calcutta reveals that there were 78.1 per cent of E. histolytica, 11.4 per cent of E. Coli 9.9 per cent of G. Lamblia, 1.9 per cent of Ascaris L, 2.3 per cent E. histolytica.


Rao, Krishna Swamy, and Biswas\textsuperscript{6} in their investigation in the selected villages of Mahasu Dist. H.P. reported that 67.9 per cent of the population were excreting at least one intestinal parasites. The important disease producing parasites identified and their prevalence were as follows:

Ascaris Lumbaricoid 33.3 per cent Hookworm 13.5 per cent, E. histolytica 7.4 per cent and G. Lamblia 7.4 per cent.

Agarwal, Gulati and Bhujwala\textsuperscript{7} in the study of the infestation of parasites among urban and Semi-urban primary schools in Delhi found that 20.06 per cent and 83.84 per cent positive cases respectively. The most common parasites were H. Nana 13.2 per cent and 15.2 per cent, Hookworm 2.4 per cent and 10.7 per cent Ascaris 0.6 per cent and 2.0 per cent in urban and semi urban areas.

Rao\textsuperscript{8} in another study in rural community of Orissa observed the percentage of prevalence as such: Ascaris 58 per cent, Hookworm 47.7 per cent, E. histolytica 5.8 per cent, Giardia L. 8.2 per cent, E. Coli 38.2 per cent.


Mathur and Kaur\(^9\) conducted a fruitful study in Haryana Govt. Public Health Laboratory Karnal. It revealed that overall prevalence of \(E.\) Histolytica\(^1\) was 5.3 per cent whereas \(G.\) Lamblia was highest in the age group of 0–4 years; its overall prevalence was 12.2 per cent, \(E.\) Coli was 30.99, \(I.\) Omibaba 24.3 per cent. Endomeoba 59.1 per cent and chilomostix 2.0 per cent. The prevalence of Hookworm was 15.1 per cent and \(H.\) Nana was 7.1 per cent. The prevalence of Oxyurus V., \(A.\) Lumbricoid, \(T.\) Trichura and \(T.\) Solium was very low.

Rao and Rao\(^10\) studied the infestation rate in an urban area Kakinda Town (A.P.). According to them 54.6 per cent cases were found to be positive for one or other intestinal parasitic infection. More common among them was Roundworm (34.2 per cent). Amoebic was 22.8 per cent. Whipworm 14.0 per cent, \(E.\) Coli 7.8 per cent and Hookworm 4.4 per cent. They further observed that 54.6 per cent of the people were positive for one or the other type of infection, 31.2 per cent with single infestation 16.1 per cent with double and 7.3 per cent with multiple infection.


Sengupta and Bhattacharya\textsuperscript{11} in their study, reported that there were 25.2 per cent Ascaris L., 27.3 per cent Entamoeba histolytica, 22.2 per cent Hookworm and 16.2 per cent Giardia intestinalis.

Yunus, Zaheer, Sinha\textsuperscript{12} conducted a study in Jawan, Rural Health and Training Centre, Department of Community Medicine, A.M.U., Aligarh and observed that over all parasitic infestation rate was 42.2 per cent. They found 2.7 per cent Ascaris, 3.3 per cent Ankylestoma, 14.1 per cent, Entrobiosis V. 13.7 Giardias 9.0 Enta. Histolytica.

Chugh, Singh and Mehrotara\textsuperscript{13} presented their report on prevalence of intestinal parasitism in Hospital patients in Rohtak and observed that out of 504 cases 303 (70.11 per cent) were passing one or more parasites. The remaining 201 (39.89 per cent) were not passing any parasites. E.histolytica was the commonest parasite, the prevalence of which was as high as 31.95 per cent. The next common pathogen was G. Intestinales in 65 cases. The percentage was 12.89. Helminthic infection was observed in 24 cases (4.76 per cent).


Aruna Pariher and Nana in their study in Rajasthan found infestation with five species of protozoans and species of helminthic. The overall infestation percentage was 30.66. Among them Ascaris L. was 7.66 per cent followed by E. Vermicularis 7.0 per cent, T. Trichuris 2.0 per cent, H. Nanan 7.67 per cent, E. histolytica 6.67 per cent and G. Lambilia 4.0 per cent.

In National Institute of Communicable Diseases Delhi, a study was carried out by Das and Joshi in Jamnagar and Okha Towns of Gujrat in 1981. They studied the prevalence of parasitic infestation and observed that out of 106 and 62 samples from Okha and Jamnagar respectively one or more parasite were detected in 75 (70.8 per cent) and 41 (66.1 per cent) specimen. Ascaris prevalence rate in Jamnagar was significantly higher (22.6 per cent) than at Okha i.e. 7.5 per cent whereas H. Nana was 3.8 per cent and 9.7 per cent respectively.

Das and Rao conducted a study in single stool specimens of randomly selected families of seven villages of West Godawri dist. and found the prevalence as such: A. Lumbricoides 3.8 per cent; Hookworm 27.1 per cent, E. histolytica 9.0 per cent and G. Lambilia 10.1 per cent.

Another study was conducted in National Institute of Communicable Diseases Paul and John revealed that the ratio of infestation among 861 positive cases population of Arunachal Pradesh under study there were 74.0 per cent of positive for more than one parasites.

The percentage of Ascaris L. and Hookworm were 45 per cent and 40.9 per cent respectively. Among the protozoal infection, E. Coli was found in highest number i.e. 28.3 per cent. It is followed by G. Lamblia 15.9 per cent.

Singh, Kumar and Srivastava observed that the prevalence of intestinal parasitic infestation was 86.2 per cent. While infection prevalence was as high as 106.9 per cent, Hookworm was communest parasite 39.9 per cent followed by A. Lumbricoid 36.0 per cent E. histolytia was 11.3 per cent and G. Lamblia 4.7 per cent. Out of 388 persons having parasitic infection, 304 (67.6 per cent) had one parasite; 75 (16.7) were harbouring two parasites and 9(2.0 per cent) had multiple parasitic infestation. A. Lumbricoides was the most frequent parasite in mixed group.


Koleh, Mishra, Gupta and Singh\textsuperscript{19} of the Department of Social and Preventive Medicine L.L.R.M. Medical College Meerut carried out a study on prevalence of intestinal Helminthic infestation in relation to environmental conditions, personal habit and socio-economic status in Meerut. They observed Ascarisses as commonest infestation 14.27 per cent followed by H. Nana 6.69 per cent; A dodante 3.29 per cent, Threadworm 1.23 per cent, and T. Selium 0.29 per cent.

In the age group of 15 and above the prevalence was 65.62 per cent among males and 34.37 per cent among females.

(ii) Incidence of intestinal parasitic infection with the relation of Age and Sex:

Rao, Gupta and Raghwan\textsuperscript{20} observed that the prevalence of infection was 58.51 per cent in males and 41 per cent in females in 0-14 years of age group. This shows that males were more praise to parasitic infestation as high percentage of prevalence was found among them in comparision of females.

Agrawal and Bhujwala, in their study carried out in urban and semi urban primary\textsuperscript{21} schools in Delhi, reported that the ratio of males and females were 42.06 per cent and 57.50 per cent respectively. Females were 15 per cent more infected than males.


\textsuperscript{20} Op.cit.

\textsuperscript{21} Op.cit.
Sengupta and Bhattacharya\textsuperscript{22} indicated the percentage of males and females as 52.30 per cent and 47.69 per cent respectively. In their investigation they revealed that Ascaris infestation has been found to occur more in females than in males. The interesting feature was that Ascaris infestation was maximum in males (47.2 per cent) in the age group of 4 months to 10 years, whereas in females it tops in the age group of (26-45 years i.e. 37.4 per cent). E.histolytica infestation was maximum in both males and females in the age group of 26-45 years i.e. 49.9 per cent and 43.0 per cent respectively. The incidence of infestation was low in both sexes below the age of 10 years. Infestation by Giardia was maximum in 1st age group in both males (38.31 per cent) and females (37.8 per cent) and then declines gradually. Infestation by Hookworm was maximum in 3rd age group in both males (43.1 per cent) and female (49.0 per cent).

Chugh and Mehrotra\textsuperscript{23} reported a different ratio of prevalence of positive infestation i.e. 62.5 per cent in males and 37.5 per cent in females. They also confirm that early age group was non affected than elders.

Das and Rao\textsuperscript{24}, in their study conducted in rural population of West Godavari Dist. Andhra Pradesh observed that the G. Lamblia was significantly higher in children while

\textsuperscript{22} Op.cit.
\textsuperscript{23} Op.cit.
\textsuperscript{24} Op.cit.
hookworm in adults. They found that 37.7 per cent were less than 14 years of age while 62.3% more than 14 years of age. 51.2% females were found infected against 48.8% males were infected.

Aruna Parihar and Nama\textsuperscript{25} found the ratio of prevalence in males and females as 27.84 per cent and 34.68 per cent respectively. He further reported that there was decline in rate of infection with the advance in age with all the parasites.

Paul and Rao\textsuperscript{26} in their investigation observed that children were found to be infected more with G. Lamblia (20.2 per cent in children against 12.4 per cent in adults). A. Lumbriloides was found more in among children (57.1 per cent) in comparison to adults (34.8 per cent). Adults were infected more with hookworm (84 per cent) than children (31.9 per cent).

In another study Sen\textsuperscript{27} reported that the parasitic infestation rate was found to be more common among children (37.3 per cent) than among adults (29.6 per cent). Similarly it was more common among females (36.3 per cent) than males (31.0 per cent).

\textsuperscript{25} Op. cit.
\textsuperscript{26} Op. cit.
\textsuperscript{27} Op. cit.
Singh & Kumar\textsuperscript{28} observed that sex ratio among the population under study in a rural area of Varanasi was 948:1000 (F:M). Highest infestation prevalence (125.2 per cent) and person prevalence (94.3 per cent) was observed in school going children. It further indicated that in the age group of 1-4, 11.3 per cent was male and 15.1 per cent was female. In the age group of the male and female ratio was 27.3 per cent and 27.4 per cent respectively; The age group of 15-35 comprise 29.0 per cent males and 26.0 per cent females. In the age group of 36-55, 24.7 per cent was males and 23.3 per cent was females and in the age group of 5-6, 9 per cent was male and 5.9 per cent female.

The studies discussed above indicates that the infestation is much more in early age groups. Schools going and pre-school children are much affected by the parasites. It is also interesting that females are more victim than males in hosting the diseases.

(iii) Relation between socio-economic status and prevalence of parasitic infection.

The parasitic infestation is very much related with the socio-economic status. It is generally believed that people of lower socio-economic strata are much susceptible or harbouring the parasites than those who are living in high economic class. Many studies have shown very much significance in their relation.

\textsuperscript{28} Op. cit.
Agarwal, Gulathi and Bhujwala\textsuperscript{29} in their study on 'Intestinal Helminthic Infection in Relation to Environmental Sanitation, Personal Habits and Socio-Economic status in New Delhi' observed that income group, inadequately hygenic condition, Kultha or mixed housing structure, indiscriminate disposal of excreta and refuse, open air defecation. Unhygenic water supply, low educational status were the main cases for the intestinal infestation in that region.

To find out the role of socio-economic groups in the incidence of parasitic infection, Younus, Zaheer and Sinha\textsuperscript{30} conducted a study at Jawan where Rural Health and Training Centre is situated under the Department of Social and Preventive Medicine, J.N. Medical College, AMU, Aligarh. The study reveals that the incidence of parasitic infection was 42.2 per cent. The maximum rate of infection 57.7 per cent was among very poor 5th social class (according to Prasad's classification). In 4th social poor class it was 56.9 per cent; in 3rd social class (lower middle class) 23.8 per cent; in 2nd social class (upper middle class) 22.7 per cent and in 1st social class (rich class) it was 25.6 per cent. This study clearly indicate that lower economic class was more victim of intestinal parasites in comparison to high income group. The lack of good hygienic condition among lower income group was respon-


sible for maximum prevalence of the parasites. They also mentioned that it was quite high among agriculture, labours and house-wives. Overcrowding dieting habit and lack of sanitary conditions were more important factors in high number of incidence.

Bansal and Bhardwaj\(^\text{31}\) in their study in Himachal Pradesh, subscribed the above finding and observed that poor hygienic condition, absence of any type of laterine, hot climate with prolonged summers, low standard of sanitation and economic status, were the main factors in appreading the intestinal disease.

In another study of the Prevalence of Intestinal Parasites in West Godavri Das and Rao\(^\text{32}\) came to the same conclusion that the prevalence rate was high among lower income group people (82.4 per cent) than high income group people (73.2 per cent). This also suggest that unhygienic condition and inadequate environmental sanitation were responsible for high rate of incidence.

Mahanta and Laskar\(^\text{33}\) in their study conducted in Oil India Hospital, Duliajan Assam reported that poor economic and illiterate groups were much affected by this infection. An

\(^{31}\) Op. Cit.

\(^{32}\) Op. Cit.

The interesting feature of this study is that all the three income groups or social status groups living environment was more or less the same. All of them got pure drinking water, and had latrines of their own. The only observable difference: in these groups were personal hygiene, literacy, and monthly income. Thus the parasite prevalence rate in this study was comparatively lower with others, which can be attributed to improved environmental sanitation, safe drinking water, and proper disposal of excreta by use of laterite.

In another study on Prevalence and Pattern of Intestinal Parasitism in Rural Community of Varanasi, Singh, Kumar and Srivastava observed that the literacy, poor personal hygiene, and low socio-economic status were closely interwoven and reflected the poor quality of social life which lead to vicious cycle of recurrent intestinal infection.

A study of similar nature was conducted in Meerut among registered families of Urban Health Centre, Department of Social and Preventive Medicine LLRM Medical College Meerut by S.K. Koleh, Mishra and Gupta who tried to find out the relation between parasitic infestation and environmental conditions, personal habits and socio-economic status. They found that social and environmental conditions were very much significant in infestation. They further observed that here

who had Kutcha and mixed houses had more infestation (74.28 per cent) than those who had pucca house (61.05 per cent). They also made certain interesting conclusion that vegetarians were less victim than non-vegetarians and low social class had more infestation (72.0 per cent) than high social class (8.33 per cent). Same as in the case of literacy states and other sanitary and social and economic conditions, lower class were much prone to disease than higher class.

Same is the case of literacy status and other sanitary and social and economic conditions. In all these respects lower class people were much prone to diseases than of higher class.

The studies discussed above reveals that socio-economic status plays an important role in the phenomena of parasitic infestation. The parasitic infestation generally spreads to a great extent in poor socio-economic conditions and thus people of low status is more prone to the diseases caused by parasites.

A comparative analysis of the prevalence of the parasitic infestation is done on the basis of investigations discussed above. The data relating to it is presented in table no.21. According to the data the highest prevalent rate of Ascaris Lumbricoid is found in five investigations and the lowest is found in three cases. The average prevalence rate of this parasite in 23 investigations is 12.07 per cent. The
highest prevalence rate of Hookworm is found in three investigations. The average rate of prevalence of this parasites in 19 investigations is 21.0% per cent. Trichura Trichuris is found to be highest in one investigation. E. Coli is found to be highest in four investigations. Giardia Lamblia is found to be highest only in one case. As for as the E. vernicular, H. Nana, E. histolytica, B. Coli, S. Slaucheri, Ankylestoma D. are concern they are not found to be highest in any studies discussed above. The average rate of prevalence, E. Vernicularis and of T. Trichura in 16 studies is 3.36 per cent and 6.04 per cent respectively. The average rate of the prevalence of H. Nana and E. histolytica in 19 and 17 studies is 3.92 per cent and 12.11 per cent respectively. The analysis reveals that E. Coli's average prevalence percentage in 11 studies 26.41 which is highest of all the parasites studied the above discussed studies. As for as the Giardia L. its average prevalence rate is 13.54 per cent. The prevalence of strongglaides S. is found to be 3.86 per cent. The interesting feature of the comparision is that the highest rate of prevalence is of E. Coli which is 26.41 per cent and lowest average prevalence rate is of Ent. Verun which is 3.36 per cent.
### Comparative Statement Showing Pathogenic Intestinal Parasitic Prevalence

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<td>86 22.4</td>
<td>11 15.3</td>
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<td>47 12.2</td>
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<td>62 16.2</td>
<td>4 5.6</td>
<td>75 15.0</td>
<td>1 0.4</td>
<td>10 0.8</td>
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<td>10 2.6</td>
<td>1 1.4</td>
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<td>25 51.9</td>
<td>57 0.70</td>
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<td>6. E. Histolytica</td>
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<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>34 14.2</td>
<td>36 2.3</td>
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<td>7. E. Coli</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
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<td>9. Giardia Lamblia</td>
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<td>51 21.3</td>
<td>152 9.9</td>
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<td>10. Strongyloides Stercoralis</td>
<td>3 0.8</td>
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<td>5 1.0</td>
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<td>NR</td>
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**Note:** NR = Not reported
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<td>10.23</td>
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</tr>
<tr>
<td>3. Enterobius Vernicularis</td>
<td>NR</td>
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<td>NR</td>
<td>NR</td>
<td>3.36</td>
<td>NR</td>
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<td>4. Trichuris Trichura</td>
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<tr>
<td>5. H. Nana</td>
<td></td>
<td>6.6</td>
<td>3.92</td>
<td>5.4</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6. E. Histolytica</td>
<td>11.3</td>
<td>12.11</td>
<td>43.8</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>7. E. Coli</td>
<td></td>
<td>26.41</td>
<td>2.4</td>
<td></td>
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<td></td>
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<tr>
<td>8. Ankylostoma D</td>
<td></td>
<td>3.29</td>
<td>13.54</td>
<td>11.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>9. Giardia Lamblia</td>
<td>4.7</td>
<td></td>
<td>3.86</td>
<td>10.4</td>
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<td></td>
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</tr>
<tr>
<td>10. Strongyloides Stercoralis</td>
<td>NR</td>
<td>3.29</td>
<td></td>
<td></td>
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</tbody>
</table>
The present study is conducted among two sorts of population: rural and urban. For this purpose the investigator approached the Rural Health Centre, Jawan and the Urban Health Centre Zohrabagh Aligarh where cases of parasitic infection are deducted by examination of stools. In the urban Health Centre Zohra Bagh Aligarh the doctors advised 610 persons out of the total 1000 registered in the centre, for stool examination. Out of 610 cases, 350 were found to be positive and indicated intestinal parasites. The important feature is that out of 350 cases of parasitic infection 29(8.28 per cent) indicated two or more parasites. It was revealed after the examination of stools that seven types of intestinal parasites were commonly among the patients in urban area. The data relating to the distribution of different kinds of intestinal parasites indicate that Ascaries are detected in 68 cases. T. Trichuris in 9 cases, H. Nana in 18 cases, E. Histolytica in 189 cases, E. Coli in 3 cases, A. Dudenale in 37 cases and Giardia in 25 cases. Thus E. Histolytica is the most common intestinal parasite in the area as 189 patients suffer with it and the second common is Ascaris which is found in 68 cases. E. Coli is the most uncommon as only 3 patients suffer with it.

In Rural Health and Training Centre, Jawan, the doctors advised 245 persons out of the total 600 registered in the centre, for the examination of stools. It was revealed that 150 persons out of 245 suffer with intestinal parasites. Further out of 150 patients, 18 the relative percentage is 12.00
indicated two or more intestinal parasites. According to data,
Ascaris are detected in 52 cases, T. Trichuris in 2 cases, H. Nana in 9 cases, E. Histolytica in 30 cases, E. Coli in 9 cases, A. Dudenale in 21 cases and Giardia in 25 cases. Here in rural area the highest degree of prevalence is of Ascaris i.e. 52, the relative percentage is 34.0 and the next that is E. Histolytica which are prevalent in 30 cases the relative percentage is 20.0. The lowest prevalence in the area is of T. Trichuris i.e. 2, the relative percentage is 1.33.

<table>
<thead>
<tr>
<th>Total No. of persons registered</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients advised for stool examination</td>
<td>&gt; 1000=</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>610=</td>
<td>245</td>
</tr>
<tr>
<td>No. of patients found to be suffered with parasites</td>
<td>350= (57.37)</td>
<td>150 (61.22)</td>
</tr>
<tr>
<td>No. of patients who suffered with more than one parasites</td>
<td>29= (8.28)</td>
<td>18 (12.00)</td>
</tr>
</tbody>
</table>

**Rural**

Total - 150

Two or more parasites - 18 - 12.0%

Total number of patient examined 245 positive - 61.22%.

Both Urban and Rural Population Total infected cases 500.
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Parasites</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ascaris</td>
<td>121</td>
<td>24.4</td>
</tr>
<tr>
<td>2.</td>
<td>Trichura Trichuris</td>
<td>11</td>
<td>2.2</td>
</tr>
<tr>
<td>3.</td>
<td>H. Nana</td>
<td>27</td>
<td>5.4</td>
</tr>
<tr>
<td>4.</td>
<td>E. Histolytica</td>
<td>219</td>
<td>43.8</td>
</tr>
<tr>
<td>5.</td>
<td>E. Coli</td>
<td>12</td>
<td>2.4</td>
</tr>
<tr>
<td>6.</td>
<td>A. Duodenale</td>
<td>58</td>
<td>11.6</td>
</tr>
<tr>
<td>7.</td>
<td>Giardia</td>
<td>52</td>
<td>10.4</td>
</tr>
</tbody>
</table>

Distribution of various types of Intestinal Parasites in Urban and rural

<table>
<thead>
<tr>
<th></th>
<th>URBAN 350</th>
<th>rural 150</th>
<th>total 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascaris</td>
<td>68 19.42</td>
<td>52 34.0</td>
<td>121 24.4</td>
</tr>
<tr>
<td>T. Trichuris</td>
<td>9 2.57</td>
<td>2 01.33</td>
<td>11 2.2</td>
</tr>
<tr>
<td>H. Hana</td>
<td>18 5.17</td>
<td>9 16.0</td>
<td>27 5.4</td>
</tr>
<tr>
<td>E. Histolytica</td>
<td>189 54.0</td>
<td>30 20.0</td>
<td>219 43.8</td>
</tr>
<tr>
<td>E. Coli</td>
<td>3 0.85</td>
<td>9 6.0</td>
<td>12 2.4</td>
</tr>
<tr>
<td>A. Duodenale</td>
<td>37 10.57</td>
<td>21 14.0</td>
<td>58 11.6</td>
</tr>
<tr>
<td>Giardia</td>
<td>25 7.14</td>
<td>27 18.0</td>
<td>52 10.4</td>
</tr>
</tbody>
</table>

350 100 150 100 500 100.0
STATEMENT OF THE PROBLEM

Intestinal parasitism being rife is of cardinal importance as a public health hazard in developing countries including Indian sub-continent. Parasitic infestations top the list of various intestinal disorders. There is scanty information about this ubiquitous entity more so in rural India, whose inhabitants are constantly exposed to this peril due to the poor environmental sanitation and hygienic conditions. In addition, they are a constant and perpetual source of further spread. Considering the magnitude of public health problem posed by the intestinal parasitism and resulting morbidity, any endeavour in a search of effective control of the mellady, and to find out the social and environmental condition that play major role in its spreading, is the need of the day. For implementing effective control measures, one should know about the prevalence and pattern of parasitic infestation in particular community. In view of this perspective the present study was carried out. As society and environment act as an agents in the transmission of diseases, an attempt was made to find out the role of social, environmental and cultural factors in prevelence of parasitic infestation. Thus the present study concentrate on to finding out the association between intestinal helminthic infections with all possible environmental sanitation, personal habit and socio-economic factors.
AREA OF STUDY

It is a comparative study of social conditions that help to spread intestinal parasites in rural and urban settings. As such it is proposed to comparatively analyse the socio-environmental conditions that encourage the prevalence of intestinal parasitic infestation.

It is conducted at Urban Health and Training Centre (UHTC) Zohrabagh (Dodhpur) Aligarh under Department of Community Health, J.N. Medical College, AMU, Aligarh for Urban Community and at Rural Health and Training Centre, Jawan, under the same department for rural Community.

DESCRIPTION OF THE FIELD

Urban Health and Training Centre, Zohrabagh is situated at a distance of about 1 Km form J.N. Medical College, AMU, Aligarh. The jurisdiction of the centre spreads over two nearby Mohalla's Zohrabagh and Jeevangarh, Zohrabagh is mainly inhabited by upper class people. The majority of the residents in this locality is of University employees and drawing handsome salaries. Housing and environmental conditions are generally satisfactory. In contrast to it the families residing in Jeevangarh is by and large, comprising poor people. As such the social and environmental conditions of the locality are not satisfactory. Most of the people belong to low social and economic structure.
Almost all the registered families residing in the above mentioned areas are provided comprehensive health care by the centre which conducts the health survey and provides all possible facilities to its registered families. Besides total Immunization, and other necessary health programmes are also provided to them. Health status alongwith other vital informations are recorded in the family folders of the registered families. An index card is issued to the head of the families, which indicates the number and names of the family members. The centre has registered about 1000 families belonging to both the localities: Zohrabagh and Jeevangarh. Centre has the facility of laboratory examination of stool, urine and blood. There is a team of doctors, laboratory technician, pharmacist, social workers and health workers.

Rural Health and Training Centre (RHTC), Jawan is situated in Jawan Block, in Tahsil Koil of Aligarh. The Centre is attached to the Department of Community Health, J.N. Medical College, AMU, Aligarh, and is situated at Jawan Village infront of primary health centre adjacent to the Community Development Block, which is about 15 km from Aligarh City and lies on the main highway connection Aligarh to Bulandshahar. The field under investigations is easily approachable by all weather pucca road. The nearest railway station is Hardwaganj which lies on Aligarh Bareilly route of Northern Railway. The village Jawan has about 5,000 population. The social and environmental condition of the village is
generally not satisfactory. Most of the people belong to low income group. As such the socio-economic condition of the people is not adequate. The people are not aware of hygienic condition RHTC has registered 600 families of the village. The centre provides all the facilities to all the card holders. Like UHTC this centre also recorded health status alongwith the vital information like, housing condition, food and diety habit, drinking water, drainage system, occupation income, literary and marital status in the family card of the registered families. An index card is given to the head of the families bearing the names and numbers of family members. The centre has well-equipped laboratory for different types of medical examination. A team of doctors social health workers also visit the area to educate the people to improve their health condition. Peoples are generally cooperative to some extent Researcher faced not much difficulty to establish report with the people and further to collect relevant information forthe purpose of the present study. In the begining they hesitate to reply certain questions, but after persuasion they come out of their responses and express their reaction.

OBJECTIVE OF THE STUDY

The study aims at achieving the following objectives:

1. To study the socio-demographic traits of rural and urban patients suffering from the intestinal parasitic diseases.
2. To study the social and environmental conditions in terms of:
   (A) Housing and locality
   (B) Water supply and drainage
   (C) Food and dietary habit,
   (D) Personal hygiene

where the patients of intestinal diseases live, and to comparatively analyse them in rural and urban settings.

3. To find out the relations, if any, of the social and environmental conditions with the intestinal diseases and compare them in two different settings: rural and urban.

4. To study the cultural constraints that help to spread the intestinal diseases and comparatively analyse them in rural and urban communities.

5. To study the perception of rural and urban patients of the aforesaid diseases and their outlook towards social conditions and to find out their relation if any, with the disease.
HYPOTHESIS

It is proposed to test the following sets of a hypothesis:

1. The social condition in which patients of intestinal parasitic diseases reside is generally unhygienic.
   or
   Poor and unhygienic social condition generally helps to spread intestinal parasitic diseases.

2. The social condition in rural area is more unhygienic than in urban area.
   or
   The group of rural population significantly differs from the group of urban population in terms of social conditions.

3.1 The place of residence and locality where the patients of intestinal parasitic diseases reside is, by large, unhygienic and unhealthy.

3.2 The housing condition and locality in rural is more unhygienic and unhealthy than in urban area.
   or
   Rural and urban groups of population significantly differ from each other in terms of housing and locality.

4.1 The water supply and drainage system of the areas where the intestinal parasitic infected persons reside is, by and large inadequate.
4.2 The water supply and drainage system in rural area is more inadequate than that of urban area.

or

Rural and urban areas significantly differ from each other in terms of water supply and drainage system.

5.1 Generally the patients of intestinal parasitic diseases have bad and unhygienic food and dietary habit.

5.2 The food and dieting habit of the patients under study in rural area is more unhygienic than that of urban area.

or

The patients of intestinal parasitic diseases in rural area significantly differ from those of urban area in terms of food and dietary habit.

6.1 The patients of intestinal parasitic disease are, by and large, do not take care of their personal hygiene.

6.2 The patients of intestinal parasitic diseases in rural area are more careless than those of urban area.

or

The rural and urban patients under study significantly differ from each other in terms of personal hygiene.
7.1 The patients of intestinal parasitic diseases have generally great extent of cultural constraints.

7.2 The patients of intestinal parasitic diseases in rural area have more cultural constraints than those of urban area.

or

The rural and urban patients under study significantly differ from each other in terms of cultural constraints.

8.1 The patients of intestinal parasitic diseases have traditional perception towards such diseases and their treatment.

8.2 The patients of intestinal parasitic infection in rural area have traditional perception towards such diseases and their treatment while their counterpart in urban area have modern perception.

or

The rural and urban patients under study significantly differ from each other in terms of their perception towards intestinal parasitic diseases and their treatment.
VARIABLES

In the present study both dependent and independent variables were taken into account. First of all the information was collected about independent variables like age, sex, marital status, family status, nuclear-joint, religion, occupation and income to expose the important features of the population under study. Apart from this a series of dependent variables like, structure of house, source of water supply, drainage system excreta disposal, personal hygiene, and cultural traits were also analysed to find out the extent to which they help to spread of intestinal parasitic infestation.

THE UNIVERSE

The universe of the present study is the registered families of UHTC Zohra bagh and RHTC, Jawan of the Department of Community Health, J.N. Medical College, Aligarh Muslim University, Aligarh.

METHOD

The major tool of data collection is pre-coded interview scheduled. The reason is that it may be administered to all segment of population. Both the communities: rural and urban have illiterate people. The sample is taken from both the areas and contains illiterate people. In the sample of rural area 46.44 per cent and in the sample of urban
area 31.33 per cent are illiterate. In order to maintain similar pattern and to assure free and frank response it is desided to use these tool for data collection.

The interview shedule constains the question relating to the following areas:

1. Socio-demographic traits: age, sex, marital status, religion family structure, occupation and income.
2. Social and environmental condition: which includes housing condition, water supply, food habit and personal hygiene.
3. Cultural constraints that helps to spread the disease.
4. Patient perception towards disease.

STATISTICAL ANALYSIS

In the interview schedule certain questions were framed to elicit information on the objective of the study. Some questions were in affirmative and some were in negative. A priori scoring of 0, 1, 2, were given to each respondent keeping the objective of the study and concerned hypothesis in view. The respondent were analysed statistically and further categorise into lower, medium and high on the calculated value of Q1, Q2, Q3.
$X^2$ test has also been used to assess the significance among different variables under study. It has further been used to find out the differences between rural and urban population for comparative analysis. To find out the statistical relation if any among independent variables like age, education, occupation, and income, coefficient correlation has been used.

**SELECTION OF THE SAMPLE**

In the Urban Health and Training Centre Zohrabagh 1000 families are registered. Against it 600 families are registered in Rural Health and Training Centre Jawan only from Jawan village, otherwise about 1,400 families are registered in centre comprising five villages. So only Jawan was selected for the purpose of present study for rural community.

The doctor, after medical check-up advised 245 cases for stool examination in the year 1986. Consequently the staff collected the stool samples and send them to laboratory for examination. The stool samples were examined by saline method in the laboratory within two hours of collection. It was found that out of the 245 cases advised for the stool examination in Rural Health and Training Centre, Jawan, 150 cases were positive and 95 were negative. It shows that the percentage of intestinal infestation is 61.0 per cent in rural community Jawan.
In the Urban Health and Training Centre 1000 families were registered, out of which 610 cases were advised for stool examination in the year 1986, by the doctors of the centre. The stool was examined by the same method by the staff of the centre in the laboratory. After examination it was revealed that 350 cases are positive and 260 are negative. Thus the percentage of prevalence of intestinal parasites is 57.81 per cent. The data about number of families registered, number of the cases investigated, number and percentage of positive and negative cases are shown in Table No. 1.

<table>
<thead>
<tr>
<th>Health Centres</th>
<th>Families Registered</th>
<th>Investigated</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHTC</td>
<td>600</td>
<td>245</td>
<td>150</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>61%</td>
<td>39%</td>
</tr>
<tr>
<td>UHTC</td>
<td>1000</td>
<td>610</td>
<td>350</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>57.37%</td>
<td>42.62%</td>
</tr>
</tbody>
</table>

In RHTC Jawan 150 cases of intestinal parasitic infection are detected, in the year 1986 by the doctors through stool examination, and some times on the basis patients report and symptoms. All the 150 cases were selected for the present study.

In Urban Health and Training Centre 4ohrabagh 350 cases were found infected by intestinal parasites. As the
DISTRICT ALIGARH

BULANDSHAHR

HARYANA

SHAHBAZPUR

HATHRAH

VILLAGE HAVING A POPULATION WITH NAME

POST AND TELEGRAM OFFICE

DEGREE COLLEGE

TECHNICAL INSTITUTION

INNOCENT OFFICE

MARY HOUSE

BOUNDARY — STATE, DISTRICT, TANCES, HARSAND,

HIGHWAYS — STATE

IMPORTANT METALLED ROAD

RIVER AND STREAM

HEADQUARTERS — DISTRICT, TANCES, HARSAND

VILLAGE HAVING A POPULATION WITH NAME

POST AND TELEGRAM OFFICE

DEGREE COLLEGE

TECHNICAL INSTITUTION

INNOCENT OFFICE

MARY HOUSE

M.0. T.M. K.

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investigator wanted to select only 300 cases due to time and money limit. It created a problem because the number of affected cases in Urban centre was quite high. The investigator already selected 150 cases from rural centre Jawan so he had to select 150 cases from UHTC.

The investigator prepared a list of 350 cases from the record of UHTC Zohrabagh and sampled out 150 cases by selecting every alternate cases from the list. Thus the total number of cases selected for the present study is 300: 150 were from RHTC Jawan and 150 from UHTC Zohrabagh. Over all 1600 families were registered in both the centres UHTC Zohrabagh and RHTC Jawan, attached to the Department of Community Health J.N. Medical College, Aligarh Muslim University, Aligarh. Out of these registered families 500 cases were (350 from UHTC Zohrabagh and 150 from RHTC Jawan) were found infected by intestinal parasites. Out of the 500 cases, 300(150 from UHTC and 150 RHTC) were selected for the administration of research tools. The data relating to the number of cases found infected by parasites and number of cases selected from both the centres are given in Table No. 2.

<table>
<thead>
<tr>
<th>Centres</th>
<th>Families Registered</th>
<th>Infected cases</th>
<th>Selected to Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHTC</td>
<td>1000</td>
<td>350</td>
<td>150</td>
</tr>
<tr>
<td>RHTC</td>
<td>600</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Total</td>
<td>1,600</td>
<td>500</td>
<td>300</td>
</tr>
</tbody>
</table>
REFERENCE

- PRIMARY HEALTH CENTRE
- MATERNITY & CHILD HEALTH CENTRE
- POPULATION OF VILLAGE
- RAILWAY LINE
- PUCCA ROAD
- CANAL
- BLOCK BOUNDARY

NOTE:- TEN DIFFERENT SECTORS SHOWN REPRESENT TEN "NYAY PANCHAYATS" OF THE BLOCK.
DESCRIPTION OF FIELD

The physiography, topography and climatic conditions are also considered of the area under study as these also affects the onset of diseases. Some diseases grow in damp climate and for some disease dry climate is more suitable to develop.

CLIMATE, SOIL AND SUB-SOIL

The climate prevalent in the western part of the U.P. where the RHTC and UHTC is situated is of tropical type, with three main seasons: Winter from November to middle of March, summer March to June and rainy season from July to October.

The soil of Aligarh is sandy, quickly drying and mixed with (Reh) salt not much favourable to agriculture.

TEMPERATURE

The Aligarh has extreme temperatures. Temperature is very high during May and June and low in December and January. The atmosphere is generally dry all the year.

The Table 1 shows the maximum and minimum temperature. Temperature chart is recorded by Department of Physics, Aligarh Muslim University, Aligarh.
Fig. 1 Average Maximum and Minimum Temperature of Year 1986.
RAINFALL

Though the onset of monsoon is schedule in the third week of June, but usually the rain starts in the begining of July. Table II shows the average rainfall during 1986. This is also recorded by the Department of Physics, Aligarh Muslim University, Aligarh.

Table I

Average Maximum and Minimum Temperature: 1986- Jan-December

<table>
<thead>
<tr>
<th>Months</th>
<th>Max OC</th>
<th>Min. OC</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>37.3</td>
<td>24.2</td>
</tr>
<tr>
<td>August</td>
<td>34.3</td>
<td>24.0</td>
</tr>
<tr>
<td>September</td>
<td>36.8</td>
<td>20.2</td>
</tr>
<tr>
<td>October</td>
<td>35.0</td>
<td>16.2</td>
</tr>
<tr>
<td>November</td>
<td>29.0</td>
<td>11.2</td>
</tr>
<tr>
<td>December</td>
<td>24.4</td>
<td>5.2</td>
</tr>
<tr>
<td>January</td>
<td>22.5</td>
<td>4.0</td>
</tr>
<tr>
<td>February</td>
<td>29.0</td>
<td>5.1</td>
</tr>
<tr>
<td>March</td>
<td>38.1</td>
<td>8.2</td>
</tr>
<tr>
<td>April</td>
<td>39.0</td>
<td>15.5</td>
</tr>
<tr>
<td>May</td>
<td>44.2</td>
<td>23.0</td>
</tr>
<tr>
<td>June</td>
<td>44.8</td>
<td>24.2</td>
</tr>
</tbody>
</table>
Total Rain Fall in mm = 803.01
Total Number of Rainy Days = 75

Fig. 2: Average Rain Fall (in mm) of Year 1986.
**Table II**

*Average Rainfall in Millimeter*

Year 1986 Jan - December

<table>
<thead>
<tr>
<th>Months</th>
<th>Average Monthly rainfall</th>
<th>Average No. of rainy days</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>78.0</td>
<td>23</td>
</tr>
<tr>
<td>August</td>
<td>340.0</td>
<td>11</td>
</tr>
<tr>
<td>September</td>
<td>180.8</td>
<td>4</td>
</tr>
<tr>
<td>October</td>
<td>120.0</td>
<td>2</td>
</tr>
<tr>
<td>November</td>
<td>7.6</td>
<td>3</td>
</tr>
<tr>
<td>December</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>January</td>
<td>6.6</td>
<td>3</td>
</tr>
<tr>
<td>February</td>
<td>30.2</td>
<td>6</td>
</tr>
<tr>
<td>March</td>
<td>0.6</td>
<td>1</td>
</tr>
<tr>
<td>April</td>
<td>16.6</td>
<td>4</td>
</tr>
<tr>
<td>May</td>
<td>1.8</td>
<td>2</td>
</tr>
<tr>
<td>June</td>
<td>20.8</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total** 803.01 75
CHAPTER FOUR

SOCIO DEMOGRAPHIC TRAITS
It is important in the scientific investigation of a problem to know the social background of the population under study. It gives us an adequate knowledge of the field and enables us to understand the role of important variables under study to influence population. It will also provide sufficient knowledge to understand the relation between dependent and independent variables. Thus, the investigator tried to explore the social background of the respondent selected for the presented study. Before analysing the subjective reactions of the respondent to the various items given in the interview schedule, it would be useful to know about their social background. It would not only help us to understand the social characteristics of the population but it also provide sufficient knowledge to relate the socio-economic traits to the various questions posed to them. As the prevalence of parasitic infestation is, to considerable extent, influenced by the socio-economic background of a person. So it will be useful to analyse the pattern of social background.

The social background in the present context throws ample light to certain issues of the research. It is generally said that socio-economic traits of an individual determines the ways by which he leads his life. The condition in which a person lives and the objects which he generally uses in order to maintain his subsistence and survival determines the style and pattern of his life. The presence of disease in general and
parasitic infestations in particular depend upon how a person satisfies his needs, maintains his body and gives different kind of priorities to different acts and things. It is clear beyond any doubt that certain living conditions habits and customs are very much helpful to spread disease caused by intestinal parasitic infestation. There is some sort of relation between the structural characteristic of the society and the prevalence of certain diseases. Here an attempt is made to find out the pattern of socio-economic background of the respondent in order to understand the nature and composition of the population and its relation to the disease.

AGE

Age is one of the important elements in the understanding of the individuals status in the society. The age of an individual symbolises his relative position and the prestige enjoyed by him in particular social milieu. In traditional society age is one of the basic determinents of individual's status, power and preveleges. Even in modern society age reflects the social exposure and some sort of social status. In the study of health, age indicates bodily strength and weakens. Tender and old age generally considered prone to disease as they show weakeneses. The age of youth symbolises strength and valour. It can not be the victim of diseases according to the general perception of people. The propose to study the age of the respondent is to understand which age group is more prone to parasitic infection and which group is less prone.
Data relating to the age group of the respondent selected from the urban Health and Training Centre, Zohra Bagh, Department of Community Medicine, J.N. Medical College, AMU., Aligarh, are presented in table 3.1. The respondent are divided into five age groups:

Table 3.1

Age group and prevalence of Parasitic infection in Urban Centre

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0 - 10</td>
<td>56</td>
<td>37.33</td>
</tr>
<tr>
<td>2. 11 - 20</td>
<td>50</td>
<td>33.34</td>
</tr>
<tr>
<td>3. 21 - 30</td>
<td>25</td>
<td>16.67</td>
</tr>
<tr>
<td>4. 31 - 40</td>
<td>18</td>
<td>12.00</td>
</tr>
<tr>
<td>5. 41 - above</td>
<td>1</td>
<td>0.66</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

0-10, 11-20, 21-30, 31-40, 41 above. According to the data the highest percentage of parasitic infection i.e. 37.33 percent is found among the people of age 0-10. It gradually decreases as one proceed to the higher age group. Accordingly the lowest percentage of parasitic infestation (0.66) is found among the people of age group of 41 to above.

Similar pattern is found among the respondent of the rural background selected from Rural Health and Training Centre,
Jawan, under department of community Health, J.N. Medical College, A.M.U., Aligarh. The only difference is of the degree. The data relating to age of the respondent of the rural background are presented in table 3.2 which indicates that the age group of 0-10 has the highest (46.66 per cent) percentage of parasitic infestation.

Table 3.2

Age group and Prevalence of Intestinal Parasitic Infection in rural centre

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10</td>
<td>70</td>
<td>46.66</td>
</tr>
<tr>
<td>11 - 20</td>
<td>43</td>
<td>28.65</td>
</tr>
<tr>
<td>21 - 30</td>
<td>20</td>
<td>13.37</td>
</tr>
<tr>
<td>31 - 40</td>
<td>9</td>
<td>6.0</td>
</tr>
<tr>
<td>41 - above</td>
<td>8</td>
<td>5.32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

In both the cases this group has highest percentage of prevalence, but the difference is among the population of rural background. The percentage of infestation is 9.33 higher than that of urban. It further shows that the age group of 41 to above has the lowest percentage (5.32) of prevalence. It is 4.66 higher than that of urban. The data from rural area also
reveals the percentage of infection which gradually decreases as it proceed from lower to higher age group. The more the age the less is the parasitic infection and vice versa.

A comparative analysis of age of the respondent from urban and rural background is presented in table 3.3. It indicates the same pattern: the lowest age group has highest percentage of prevalence and the highest age group has lowest of it.

Table 3.3

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>Urban Freq.</th>
<th>Urban Per cent</th>
<th>Rural Freq.</th>
<th>Rural Per cent</th>
<th>Total Freq.</th>
<th>Total Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10</td>
<td>56</td>
<td>37.33</td>
<td>70</td>
<td>46.66</td>
<td>126</td>
<td>42.0</td>
</tr>
<tr>
<td>11 - 20</td>
<td>50</td>
<td>33.34</td>
<td>43</td>
<td>28.65</td>
<td>93</td>
<td>31.0</td>
</tr>
<tr>
<td>21 - 30</td>
<td>25</td>
<td>16.67</td>
<td>20</td>
<td>13.37</td>
<td>45</td>
<td>15.0</td>
</tr>
<tr>
<td>31 - 40</td>
<td>18</td>
<td>12.00</td>
<td>9</td>
<td>6.00</td>
<td>27</td>
<td>9.0</td>
</tr>
<tr>
<td>40 - above</td>
<td>1</td>
<td>0.66</td>
<td>8</td>
<td>5.32</td>
<td>9</td>
<td>3.00</td>
</tr>
<tr>
<td>Total:</td>
<td>150</td>
<td>100.00</td>
<td>150</td>
<td>100.00</td>
<td>300</td>
<td>100.00</td>
</tr>
</tbody>
</table>

In order to determine the significance of difference between these two groups $\chi^2$ is used. As siegel says:

"The hypothesis undertest is usually that the two groups differs with respect to some characteristics and therefore, with respect to relative frequency
with which group numbers fall in several categories. To test this hypothesis we count the number of cases from each group which fall in the various categories, and compare the proportion of cases from one group in various categories with the proportion of cases from the other group".

Thus a null hypothesis is framed. The value of \( X^2 = 11.08 \) which is greater than 9.48 and thus significant at 0.5 per cent level of significance and 4 df. It enable us to conclude that in the case of age and parasitic infestation both the group rural and urban population differ from each other and the difference is statistically significant.

Table 3.4

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10</td>
<td>56(6.3)</td>
<td>70(6.3)</td>
<td>126</td>
</tr>
<tr>
<td>11 - 20</td>
<td>50(46.5)</td>
<td>49(46.5)</td>
<td>93</td>
</tr>
<tr>
<td>21 - 30</td>
<td>25(22.5)</td>
<td>20(22.5)</td>
<td>45</td>
</tr>
<tr>
<td>31 - 40</td>
<td>18(13.5)</td>
<td>9(13.5)</td>
<td>27</td>
</tr>
<tr>
<td>41 - above</td>
<td>1(4.5 )</td>
<td>8(4.5 )</td>
<td>9</td>
</tr>
</tbody>
</table>

\[ X^2 = \sum \frac{(O - E)^2}{E}, \text{ where } O \text{ is observed value and } E \text{ is expected value.} \]

\[ X^2_{(0.05)} = 11.08 \text{ significant at 0.5 per cent level of significance and 4 d.f.} \]

Tab value \( = 9.49 \) -do-
2. **SEX**

Sex distribution of the population is also explored to find out the ratio of males and females among the population who is affected by the Intestinal parasitic infestation. The data relating to sex ratio of the population of Urban background selected from UHTC are presented in Table 3.5. According to it among the whole urban sample, 44 per cent are males 56 per cent are females. Against it in the sample of rural area 58 per cent males and 42 per cent females suffer from parasitic infestation. The data of sex distribution of rural population selected from RHTC are presented in table 3.6.

**Table 3.5**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>66</td>
<td>44.0</td>
</tr>
<tr>
<td>Females</td>
<td>84</td>
<td>56.0</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The important point is to note that both groups indicates different pattern of sex ratio.
Table 3.6

Sex ratio in Rural Population

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>87</td>
<td>58.0</td>
</tr>
<tr>
<td>Female</td>
<td>63</td>
<td>42.0</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
</tr>
</tbody>
</table>

A comparative analysis of sex ratio of both type of population is done and data relating to it are presented in table 3.7.

Table 3.7

Comparision between Rural and Urban Population

| Sex | Urban | | | Rural | | | Total | | |
|-----|-------|---|---|-------|---|---|-------|---|
|     | Freq. | Per cent | | Freq. | Per cent | | Freq. | Per cent |
| Male | 66    | 44.0 | | 87    | 58.0 | | 153   | 51.0 |
| Female | 84   | 56.0 | | 63    | 42.0 | | 147   | 49.0 |
| Total | 150   | 100.0 | | 150   | 100.0 | | 300   | 100.0 |

It shows that among the urban population the highest percentage of females 84(56.0 per cent) suffers with parasitic infection while in rural population highest percentage of males 87(58.0 per cent) suffers with it. The comparision reveals that in urban area females are more prone to these diseases
and in rural area males are more prone to it.

Similarly in urban area males are less prone while in rural area less prone to diseases mentioned above. The difference between rural and urban groups in case of sex ratio is also determined from statistical point of view. For this purpose $x^2$ test is used. The value of $x^2$ is 5.88 which is greater than the tabulated value i.e. 3.84. It is significant at 0.5 per cent level of significance and 1 d.f. It further indicates that both groups of rural and urban population differs in terms of sex ratio. The analysis is presented in Table 3.8.

Table 3.8

<table>
<thead>
<tr>
<th>Sex</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>66(76.55)</td>
<td>87(76.55)</td>
<td>153</td>
</tr>
<tr>
<td>Females</td>
<td>84(73.5)</td>
<td>63(73.5)</td>
<td>147</td>
</tr>
<tr>
<td>Total:</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

\[
x^2 = \sum \frac{(O - E)^2}{E}
\]

\[
x^2 = 5.88 \quad \text{Significant with 1 d.f. at 0.5 per cent level of significant.}
\]

\[
x^2 = \text{Tabulated value} = 3.84
\]
3. Marital Status

The information about the marital status of the respondent under study indicates some interesting features. The data relating to it are presented in table 3.9. According to it the sample of urban population 96 (64 per cent) are bachelor, 43 (30 per cent) are married 9 (6 per cent) are widows or separated. Similarly in the sample of rural population 93 (62 per cent) are bachelor, 53 (35.3 per cent) are married and 4 (2.4 per cent) are window separate.

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>Per cent</td>
<td>Freq.</td>
</tr>
<tr>
<td>Bachelor</td>
<td>96</td>
<td>64.6</td>
<td>93</td>
</tr>
<tr>
<td>Married</td>
<td>45</td>
<td>30.0</td>
<td>53</td>
</tr>
<tr>
<td>Widow/ Separate</td>
<td>9</td>
<td>6.0</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
<td>150</td>
</tr>
</tbody>
</table>

It indicates that both the population has similar pattern in regard to marital status, which enable us to conclude that both the groups of population bachelor are more affected by parasitic infection in comparision to married persons. Apparently it seems that there is no difference in marital status of the both population selected from rural and
urban areas. In order to know statistical significance between these groups of population $x^2$ test is used and presented in table 3.10. The value of $x^2$ is 2.62 at 0.05 per cent level of significance and 2 degree of freedom which is lesser than the tabulated value i.e. 5.99. It indicates that no difference lies between two groups.

Table 3.10

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor</td>
<td>96(94.5)</td>
<td>93(94.5)</td>
<td>189</td>
</tr>
<tr>
<td>Married</td>
<td>45(49.0)</td>
<td>53(49.0)</td>
<td>98</td>
</tr>
<tr>
<td>Widow/separated</td>
<td>9(6.5)</td>
<td>4(6.5)</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

$$x^2 = \sum \frac{(O - E)^2}{E}$$

$x^2 = 2.62$ insignificant with 2 d.f. at 0.5 per cent level of significance.

4. RELIGION

Religion is an other important attributer of the individual which have tremendous bearing on the health of the people. It is observed that infant mortality in India differs from religion to religion. According to Park¹ infant mortality is very low among christians, it is higher among Muslims and highest among Hindus.

¹ Op.cit., p.123
These differences are attributed to religion which has a bearing on the socio-cultural patterns of living age-old habits, customs and traditions affecting clearliness, eating, clothing, child care and almost every detail of daily living. Cultural factors directly affect the health of the community because certain customs and practices, beliefs values and religious taboos etc., create an environment that helps in spread or control of disease. The folk concepts, beliefs, customs, and practices, and religious, taboos etc. may be divided into two groups (a) positive cultural or religious factors i.e. those customs, practices beliefs and religious taboos etc. that help in maintenance of health and (b) negative cultural factors i.e. those customs and practices, beliefs and religious taboos that adversely affect the health of the people or the individual of the community.

Keeping these perspectives in mind an attempt is made to find out the religious background of the patients of intestinal parasitic infection.

Table 3.11 deals with such background and shows that 120(80 per cent) Muslims are affected by intestinal parasitic infection in urban health and training centre while the number of affected Hindus is only 30, the relative percentage is 20. Against it in Rural Health and Training Centre Jawan 105(70.0 per cent) Hindus and 45(30 per cent) Muslims are affected. No other religion is observed in the population under study.
<table>
<thead>
<tr>
<th>Religion</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>Per cent</td>
<td>Freq.</td>
</tr>
<tr>
<td>Muslim</td>
<td>120</td>
<td>80.0</td>
<td>45</td>
</tr>
<tr>
<td>Hindus</td>
<td>30</td>
<td>20.0</td>
<td>105</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
<td>150</td>
</tr>
</tbody>
</table>

As far as total 300 respondents of both urban and rural backgrounds are concerned, 165 Muslims, the corresponding percentage 55 are affected by parasitic infection, and 135 Hindus the corresponding percentage is 45 are affected by it. It shows that Muslims patients suffering from intestinal infection are 10 per cent greater than Hindu patients.

It is also tried to know the statistical difference between these two groups. Thus $x^2$ test is used to attain this purpose. The value of $x^2$ is 76.60 which is far greater than the tabulated value 3.84 and thus significant at 0.5 per cent level of significance and 1 d.f. It indicates that both groups of urban and rural population differ in terms of religion. It further indicates that Muslims and Hindus also differ from each other in terms of intestinal parasitic infestation. The data related to it is presented in Table 3.12.
Table 3.12

<table>
<thead>
<tr>
<th>Religion</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muslim</td>
<td>120(82.5)</td>
<td>42(82.5)</td>
<td>165</td>
</tr>
<tr>
<td>Hindus</td>
<td>30(62.5)</td>
<td>105(67.5)</td>
<td>135</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

$x^2 = 76.60$ significant at 0.5 per cent level of significance and 1 d.f.

Tab. value = 3.84

5. CASTE

Castes among Hindus are very important factor in observing the socio-economic condition of the population. It is generally observed that lower caste people also have low economic status and so due to lack of poor social and economic condition they are much affected by the parasitic infection. Their cultural and social pattern and low income do not permit them to maintain good hygienic condition.

On the basis of caste, the Hindu society is stratified into four Varnas - Brahmins, Kshatriyas, vaisas and Sudras. These are further divided in various other castes and sub-castes. The caste system in India is an example of a "closed class" i.e. there is no mobility or shifting from one to
another, and the member remains throughout life where in they are born. Each caste is governed by certain rules and sanctions relating to endogamy, food taboos, rituals and rules of purity and pollution etc. Each caste group with a village is expected to give certain standardized services to the families of other castes.

The respondents under study are divided into three broad categories of castes i.e. upper, backward and schedule caste. Table 3.13 deals with the data relating to castes of the respondent under study.

Table 3.13

<table>
<thead>
<tr>
<th>Castes</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>Per cent</td>
<td>Freq.</td>
</tr>
<tr>
<td>Upper</td>
<td>3</td>
<td>10.0</td>
<td>34</td>
</tr>
<tr>
<td>Backward</td>
<td>12</td>
<td>40.0</td>
<td>43</td>
</tr>
<tr>
<td>Schedule</td>
<td>15</td>
<td>50.0</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>100.0</td>
<td>105</td>
</tr>
</tbody>
</table>

According to data in the sample of the urban population 3(10 per cent) patient of intestinal parasitic infection out of total 30 belong to upper caste, 12(40 per cent) of their belongs to backward and 15(50 per cent) belong to schedule castes.
It shows that highest rate of prevalence of intestinal parasitic infestation is among schedule caste people and the lowest among upper caste people in urban areas. In comparison to it 34(32.5 per cent) patients belong to upper caste 43(40.9) belongs to backward and 28(26.6 per cent) belongs to schedule caste. According to it the highest prevalence i.e. 40.9 per cent is among backward class and the lowest i.e. 26.6 per cent is among scheduled castes. Over all in the entire Hindu population of the total sample from rural and urban areas the highest rate i.e. 55 the corresponding percentage 40.7 is among backward caste. The next to it is schedule caste to which 43 patients belong the percentage is 31.9. The lowest prevalence i.e. 37 (274 per cent) is among upper caste. The analysis indicated that upper caste people are less affected by infection and backward caste people are more affected by it, and schedule caste people fall in between the two.

\(X^2\) test applied to determine the difference between urban and rural population in terms of caste distribution and prevalence of intestinal parasitic infections. The value of \(X^2\) is 8.23 which is greater than tabulated value i.e. 5.99 and thus significant at 0.5 per cent level of significance and 2 d.f. It reveals that respondent from urban and rural background differs in each other in terms of caste distribution. The data relating to it are presented in table 3.14.
Table 3.14

<table>
<thead>
<tr>
<th>Castes</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper</td>
<td>3(8.22)</td>
<td>34(28.78)</td>
<td>37</td>
</tr>
<tr>
<td>Background</td>
<td>12(12.22)</td>
<td>43(42.78)</td>
<td>55</td>
</tr>
<tr>
<td>Schedule</td>
<td>15(9.56)</td>
<td>28(33.44)</td>
<td>43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30</td>
<td>105</td>
<td>135</td>
</tr>
</tbody>
</table>

\[
\chi^2 = \sum \frac{(O - E)^2}{E}
\]

= 8.23 significant at 0.5 per cent level of significance and 2 d.f.

\[
\chi^2 \text{ Tab.} = 5.99
\]

6. **EDUCATION**

Education has direct bearing on the prevalence of intestinal parasitic infestation. It gives knowledge, inculcates values and this develop the personality of an individual. It develops a sense of cleanliness and sanitation among the people and this amends their attitude towards disease, health standard and perception of health and disease. In brief it determines the ways and styles of life. Illiteracy is a major for poor health and sanitation. Illiterates do not understand the danger involved in unhygienic way of life. One cannot neglect the importance and role of education leading a healthy life. This is an important parameter in determining
the health condition of the population under study.

In this perspective information is collected about the educational status of the respondent under study. The data relating to it are presented in table 3.15. It shows that among the sample of urban background 47 (31.33 per cent) are illiterate, 67 (38.0 per cent) are educated up to high school, 14 (9.35 per cent) are graduate, 22 (14.66 per cent) secured professional education and only 10 (6.6 per cent) are postgraduate. It indicates that highly educated persons are less affected by intestinal parasitic infection. According to the data highest rate of prevalence of it is found among the people who are educated up to high school. In comparison to this in the sample of rural background the highest i.e. 70 (46.66 per cent) of its prevalence is among illiterate. The next to it is the people who are educated up to high school. Their number is 55 and the corresponding percentage is 36.66. Only 10 (6.6 per cent) respondent of the rural background are graduate. The number of those who have professional education is 12, the corresponding percent is 8. The lowest prevalence is among those who are postgraduate.

The analysis clearly shows that among the population of rural background the more the people are educated the less they are infected. Similar pattern is also observed in the analysis of total population. Overall 117 respondent (39 per cent) are illiterate, 112 (37.4 per cent) are educated up to High School,
24 (8 per cent) are graduate, 34 (11.4 per cent) have professional education and 13 (4.2 per cent) are postgraduate.

**Table 3.15**

<table>
<thead>
<tr>
<th>Literary Status</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>Percent</td>
<td>Freq.</td>
</tr>
<tr>
<td>1. Illiterates</td>
<td>47</td>
<td>31.33</td>
<td>70</td>
</tr>
<tr>
<td>2. Middle/H.S.</td>
<td>57</td>
<td>46.00</td>
<td>55</td>
</tr>
<tr>
<td>3. Graduate</td>
<td>14</td>
<td>9.35</td>
<td>10</td>
</tr>
<tr>
<td>4. Professional</td>
<td>22</td>
<td>14.66</td>
<td>12</td>
</tr>
<tr>
<td>5. Postgraduate</td>
<td>10</td>
<td>6.66</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total:          | 150   | 100.0  | 150   | 100.0  | 300   | 100.0  |

The $X^2$ is also calculated to find the difference between both groups of population having urban and rural background. The value of $X^2$ is 11.92 which is significant at 0.5 per cent level of significance and 4 d.f. It indicates the significant difference lies between the two groups. Table 3.16 deals with $X^2$. 


<table>
<thead>
<tr>
<th>Literary Status</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>47(58.5)</td>
<td>70(58.5)</td>
<td>117</td>
</tr>
<tr>
<td>Middle/H.S.</td>
<td>57(56.0)</td>
<td>55(56.0)</td>
<td>112</td>
</tr>
<tr>
<td>Graduate</td>
<td>14(12.0)</td>
<td>10(12.0)</td>
<td>24</td>
</tr>
<tr>
<td>Professional</td>
<td>22(17.0)</td>
<td>12(17.0)</td>
<td>34</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>10( 6.5)</td>
<td>3( 6.5 )</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>150</strong></td>
<td><strong>150</strong></td>
<td><strong>300</strong></td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{(O - E)^2}{E} \]

= 11.92 significant at 5 per cent level of significance and 4 d.f.

Tabulated value of \( X^2 = 9.49 \)

This information shows that literacy affects the health of the people to a great extent. It further indicates that the infection rate increases gradually with a gradual fall in literacy.

7. **OCCUPATION:**

Social scientist have used occupation widely as determinant of social status of an individual in a community. Occupation has enormous importance in all societies for understanding human behaviour. In urbanised and industrialised societies, where there is a substantial division of labour
occupation is a major determinant of: (1) Economic rewards: That is income and wealth which can promote or achieve health easier, (2) Extent of authority: That occupation is an important of determinant of authority which the individual has over other people; it spills over into his life itself, his pleasure and other activities, through control of purchasing power. Those who receive higher economic rewards tends to be vested with greater authority. For example a person who is a judge exercises authority not only in the court but commands respect from a large number of people. His position enables him to acquire authority, (3) Extent of obligations: The extent of obligation demanded of individuals by the rest of the community will be determined by the occupation he holds. One who holds high place occupationally has greater obligations. (4) Degree of status: Closely allied with the occupational role is the degree of status and standing of the individual in the community. For example medical practitioners in India enjoy a higher status in society than others. The occupation itself will give the person status irrespective of personal character or age and experience, (5) Values and life styles: The occupation of an individual very largely will determine many of the values the individual has, the things he feels worth pursuing, his life style, his pleasure, friendships and relationships with others. Therefore, occupation is widely used as a measure of social differentiation. Thus occupation determines the life style and standard of living and affects health and environment.

It also modifies man's thinking and his ways of living. Social determination on the basis of occupation is an effective tool for examining the role and behaviour of an individual in society. Considerable number of researches in social medicine have been conducted to explore the relation between social class and disease prevalence. Keeping these perspective in view the data relating to occupation of the respondent were collected. In case of respondent under 15 years of age the occupation of their parents is taken into account.

Table 3.17 deals with occupation of respondent of rural and urban background. According to it, in the sample of urban people only 8 (5.3 per cent) are engaged in agriculture, 60 (40 per cent) do service and other jobs, 20 (13.3 per cent) are engaged in teaching and other technical jobs. In the same context 35 (23 per cent) are labourer and 27 (18.0 per cent) do business. Thus in urban community the highest number of person i.e. 60 do service and other jobs and next highest 35 (23 per cent) are labourer, and 27 (18.0 per cent) do business. Thus in urban community the highest number of person i.e. 60 do service and other jobs and next highest 35 (25 per cent) are labourer.
Table 3.17

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Urban Freq.</th>
<th>Urban Per cent</th>
<th>Rural Freq.</th>
<th>Rural Per cent</th>
<th>Total Freq.</th>
<th>Total Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>8</td>
<td>5.3</td>
<td>45</td>
<td>30.0</td>
<td>53</td>
<td>17.66</td>
</tr>
<tr>
<td>Service/other job/House wife</td>
<td>60</td>
<td>40.0</td>
<td>30</td>
<td>20.0</td>
<td>90</td>
<td>30.0</td>
</tr>
<tr>
<td>Teaching</td>
<td>20</td>
<td>13.3</td>
<td>10</td>
<td>6.6</td>
<td>30</td>
<td>10.0</td>
</tr>
<tr>
<td>Labourer</td>
<td>35</td>
<td>23.4</td>
<td>40</td>
<td>26.6</td>
<td>75</td>
<td>25.0</td>
</tr>
<tr>
<td>Shop/Businessman</td>
<td>27</td>
<td>18.0</td>
<td>25</td>
<td>16.8</td>
<td>52</td>
<td>17.4</td>
</tr>
<tr>
<td>Total:</td>
<td>100.0</td>
<td></td>
<td>100.0</td>
<td></td>
<td>300</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In comparison to it in the sample of rural community, 45(30 per cent) engaged in agriculture, 30(20 per cent) do service and other jobs and 10(6.6 per cent) do teaching or professional job. Further 40(26.6 per cent) labourer, and 2.5(16.8 per cent) are business man. The highest number of respondent are engaged in agriculture i.e. 45(30 per cent) and the lowest 10(6.6 per cent) are engaged in teaching and other professional jobs. In the whole sample 53(17.66 per cent) are engaged in agriculture, 90(30.0 per cent) in service and other jobs and 30(10 per cent) are in teaching and other professional job. In the same context 75(25.0 per cent) are labour and 52(17.4 per cent) are engaged in business. It is clear from the analysis, out of the total sample(300) from both urban and rural communities the highest i.e. 90(30 per cent)
are engaged in service and other jobs. The next highest 75 (25.0 per cent) are labourer, agriculture comes on the third place as 53(17.66 per cent) persons do it. The interesting feature is that lowest number 30(10 per cent) persons are engaged in teaching and other professional jobs.

The $X^2$ is used to determine the significant difference between two groups of population. The value of $X^2$ is 35.58 and thus significant at 5 per cent level of significance and 4 d.f.

**Table 3.18**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>8(26.5)</td>
<td>45(26.5)</td>
<td>53</td>
</tr>
<tr>
<td>Service &amp; other Job</td>
<td>60(45.0)</td>
<td>30(45.0)</td>
<td>90</td>
</tr>
<tr>
<td>Teaching/Professional</td>
<td>20(15)</td>
<td>10(15)</td>
<td>30</td>
</tr>
<tr>
<td>Labourer</td>
<td>35(37.5)</td>
<td>40(37.5)</td>
<td>75</td>
</tr>
<tr>
<td>Business</td>
<td>27(26.0)</td>
<td>25(26.0)</td>
<td>52</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

\[ X^2 = 33.58 \] significant at 5 per cent level of significance and 4 d.f.

Tab. value = 9.49
8. **INCOME**

Income is an important factor to determine the subsistence of an individual and thus his status in society. It also affects his food habit and sense of personal hygiene. It enables a man to spend considerable amount of the money in maintaining his health and making his surroundings conducive to health. It further indicates status according to which a man adopts different ways and manners to establish relation with the external world as well as to lead his life.

It is generally believed that health differs from class to class and the same case is with the diseases. Those who belongs to upper class have a larger life expectancy, less mortality and a belt or health than those belong to lower classes. Diseases are also subject economic position and status. Certain diseases are common among the people of upper class. Similarly we find the incidence of other diseases among the people of lower classes. For example coronary heart disease, hypertension, diabetes have high incidence among upper class people, whereas other classes have low incidence of these diseases.

Similarly diseases of skin, eye, ears diarrhoea and dysentery have high incidence in other lower classes, which can be ascribed to the poor state of physical environment in which they live. Social class differences have also been
observed in the family structure, and utilisation of medical and health services. Families in lower classes are bigger in size, women marry early and bear more children. The upper social classes are characterised by small sized families and less children. There are sufficient differences in utilisation of medical health services. Individual in the lower social classes have been found to make less use of the hospital facilities, consult the doctors less often and are less likely to utilize preventive health services.

In order to understand the economic status of respondent relevant information is collected from respondent and presented in table 3.19. In the sample of urban community 45(30.00 per cent) persons earn upto Rs.500, 26(17.73 per cent) earn Rs.500 to 1000 and 33(22 per cent) earn Rs.1000-1500. Further 26(17.34 per cent) earn Rs.1500 to 2000 and 20(13.33 per cent) earn Rs.2000 and above. The highest number of person have upto Rs.500 as their monthly income and lowest number of persons have highest income i.e. 2000 and above. Against it in the sample of rural community 55(36.67 per cent) earn Rs.500 to 1000, 24(16 per cent) earn Rs.1000-1500, 19(12.67 per cent) earn Rs.1500 to 2000 and only 9(6 per cent) earn Rs.2000 and above.

---

Table 3.19

<table>
<thead>
<tr>
<th>Income groups</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>Per cent</td>
<td>Freq.</td>
</tr>
<tr>
<td>Upto 500</td>
<td>45</td>
<td>30.00</td>
<td>55</td>
</tr>
<tr>
<td>500-1000</td>
<td>26</td>
<td>17.7</td>
<td>43</td>
</tr>
<tr>
<td>1000-1500</td>
<td>33</td>
<td>22.0</td>
<td>24</td>
</tr>
<tr>
<td>1500-2000</td>
<td>26</td>
<td>17.30</td>
<td>19</td>
</tr>
<tr>
<td>2000-above</td>
<td>20</td>
<td>13.00</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
<td>150</td>
</tr>
</tbody>
</table>

The pattern of income is the same except the next highest number. In the sample of urban community the next highest number of persons i.e. 33 earn Rs.1000 to Rs.1500 in a month while in the sample of rural the next highest number of person 43 who earn Rs.500 to 1000. Overall in the total sample 100 persons earn upto Rs.500 in a month 69 earn Rs.500 to 100, 57 earn Rs.1000-1500, 45 Rs.1500-2000 and 29 Rs.2000 to above.

The value of $X^2 = 11.86$ which is significant at 0.5 per cent level of significant and 4 d.f.
Table 3.20

<table>
<thead>
<tr>
<th>Income group</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 500</td>
<td>45(50)</td>
<td>55(50)</td>
<td>100</td>
</tr>
<tr>
<td>500 - 1000</td>
<td>26(34.5)</td>
<td>43(34.5)</td>
<td>69</td>
</tr>
<tr>
<td>1000 - 1500</td>
<td>33(28.5)</td>
<td>24(28.5)</td>
<td>57</td>
</tr>
<tr>
<td>1500 - 2000</td>
<td>26(22.5)</td>
<td>19(22.5)</td>
<td>45</td>
</tr>
<tr>
<td>2000 - above</td>
<td>20(14.5)</td>
<td>9(14.5)</td>
<td>29</td>
</tr>
<tr>
<td>Total:</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

\[ X^2 \text{ tab.} = 9.49 \]

Calculated value is greater than the tabulated value, so it is statistically significant.

9. FAMILY

Whenever the community health research is conducted family is being taken as a unit to deal with. The family is a group of biologically related individuals. Family performs many functions in which so we are relevent to health and health behaviour and that is important from health point of view.

Two types of families are generally observed:

1. The **nuclear or single family**: This type of family is universal in all human societies. It generally consists of married couple their children. They generally tend to occupy
the same dwelling space. In nuclear family the husband usually plays a dominant role in the house hold. The husband wife relationship is likely to be more intimate in nuclear family than the joint family.

2. The joint family or extended family: This type of family grouping is common in India particularly in rural areas, than in urban city or industrial areas. Now it is breaking because people are migration to the urban or industrial areas for jobs, education and better means of livelyhood. The joint family generally consists of a number of married couples and thus children who live together in the same household. They holds common property and land. All the authority is vested in senior male number of the family, who is the most dominant member and controls the internal and external affairs of the family.

In the present study information is collected about the types of family. The data show that in urban locality there are 96(64 per cent) unitary or single families and 54(36 per cent) external or joint families. But in rural locality it is just reverse. In rural locality the number or joint is 84 (56 per cent) and that single family is 66(44.0 per cent). The interesting feature is that in rural area the number of joint family is not very high as it should be. The reason for the may be Jawan, where the shidy was conducted is highly exposed to urban centre and gradually aquiring its traits. Consiquently the joint family is gradually dismitigrating.
Table 3.21

<table>
<thead>
<tr>
<th>Type of family</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>Freq.</td>
<td>Freq.</td>
</tr>
<tr>
<td></td>
<td>Per cent</td>
<td>Per cent</td>
<td>Per cent</td>
</tr>
<tr>
<td>Single</td>
<td>96</td>
<td>66</td>
<td>162</td>
</tr>
<tr>
<td></td>
<td>64.0</td>
<td>44.0</td>
<td>54.0</td>
</tr>
<tr>
<td>Joint</td>
<td>54</td>
<td>84</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>36.0</td>
<td>56.0</td>
<td>46.0</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

A comparative analysis of the family structure in urban and rural areas show that overall the number of single entry is 162 (54 per cent) and that of joint family is 138 (46 per cent). The single family is 8 per cent higher than joint family.

To show the significance between two groups $X^2$ test is used. The value of $X^2$ is 12.08 which is significant at 0.5 per cent level of significance at 1 d.f.

Table 3.22 show the $X^2$.

Table 3.22

<table>
<thead>
<tr>
<th>Type of Family</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>96(81)</td>
<td>66(81)</td>
<td>162</td>
</tr>
<tr>
<td>Single</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint</td>
<td>54(69)</td>
<td>84(69)</td>
<td>138</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

\[
X^2 = \frac{(O - E)^2}{E} = 12.08 \text{ significant at } 5 \text{ per cent level of significance at } 1 \text{ d.f.}
\]

Tabulated value = 3.84 < 12.08 calculated value.
CHAPTER FIVE

SOCIAL AND ENVIRONMENTAL CONDITION
The health of a man is rooted in his environment. Environmental conditions, generally characterised as "social conditions", affect the growth and development of infectious agents and the resistance of susceptible host. In recent years, since man's relatively successful conquest of communicable as well as parasitic diseases and the rapid growth in impendence of the chronic degenerative diseases increased attention has been focussed on the social as well as the physical aspect of man's environment. How man lives has become as important as where he lives. Socio-environmental factors lay the foundation of man's living on the earth. These factors are intimately related to an individual's exposure and susceptibility to diseases. In terms of both ancient and modern history, sanitation-activities aimed at the promotion of environmental health represent a major phase of community health. "The need for a healthful environment is common to all people; it cuts across boundaries of occupations, race, class and politics. If it differs from neighbourhood to neighborhood and from region to region, it differs not in fundamentals but only in complexity". The health status of an individual, a community or a nation is determined by the interplay and integration of two ecological universes—the internal environment of man himself and the external environment which surrounds him. In the modern concept disease is

due to a disturbance in the delicate balance between man and his environment. The three ecological factors (agent, host and environment) are responsible for a disease. The disease agent is usually identified with the help of the laboratory, the host is available for study; but the environment from which the patient comes is largely unknown. Yet frequently, the key to the nature, occurrence, prevention and control of diseases lies in the environment. Without this knowledge, this key may not be available to the physician who desires to cure, prevent or control a disease.

Environment is defined by Leavel Clark as "the aggregate of all external conditions and influences affecting the life and development of an organism, human behaviour and society". UNESCO considered the Norwegian Professor Week's definition as identical to it. Week said that "the environment is a part of the world which man influences and is also influenced by it". Martin has also rightly defined environment as follows:

"the environment is as the whole of the world around us, i.e., the air we breathe, the water we drink, the food that we eat, the ground that we walk on and all the other living things as well."
The Society lays stress on the total well being that permits the individual to utilise full potential for healthful, social living. Healthful Social living depends upon many factors. The health of the people depends upon Social and environmental conditions under which they live and work upon security against fear and want, upon nutritional standards, upon educational facilities, for exercise and leisure. So social environment and heredity are important factors affecting the health of individuals. Man is influenced by his environment to which he is exposed since his birth. Since the beginning of his life he comes in contact with his mother, father, neighbour and other people through which he acquires knowledge and shapes his beliefs towards the world. Thus, a social environment plays an important role to mould and determine the attitude and opinion of a man towards disease and illness.

The word "Sanitation" is derived from the Latin word **Sanitas** which means a state of health. The dictionary meaning of the word sanitation is "the science of safeguarding health". One of the best definitions is that given by National Sanitation Foundation of the USA, which is as follows:

'Sanitation is the way of life. It is the quality of living that is expressed in the clear home, the clean farm, the clean business, clean neighbourhood and the clean community. Being a way of life it must come from within the people; it is nourished by knowledge and grows as an obligation and an ideal in human relations'. 
The WHO defines environmental sanitation as "the control of all those factors in man's physical environment which exercise or may exercise a deleterious effect on his physical development, health and survival".

The sanitation covers the whole field of controlling the environment with a view to prevent disease and promote health. Man has already controlled a number of factors in his environment, e.g. food, water, housing, clothing and sanitation. These controllable factors are included in the "Standard of living": It is the control of these factors that has been responsible for considerable improvement in the health of the people during the past century in the developed countries. However, man's mastery over his environment is not complete. As old problems are being solved, new problems are arising. Air pollution is a growing concern in many urban centres. Industrial growth has given rise to the problems of environmental pollution by industrial wastes. Therefore the attainment of healthy environment is becoming more and more complex. India is still lagging far behind many countries in the field of environmental health. The basic problem of safe water supply and sanitary disposal of human excreta are yet to be solved. Much of the ill health in the country is due to defective environment. Since more than 80 per cent of the population of India live in rural areas, the problem is one of sanitation.
SANITATION AND CULTURE

In the perspective of ecological sub system sanitation is largely a matter of "regulation of man-environment relationship in the interest of health". In the hands of technocrats the word sanitation has however become synonymous with a few technological interventions (such as latrines, waste disposal, sewage, water supply vector control and more recently air and water pollution control). This has led to be neglected in public health of the whole spectrum of cultural and behavioral interventions in man environment relationship which the term "sanitary" originally signifies.

In all human culture, the agents, situation and pathways perceived to be associated with current diseases constitute a major cultural imperative. Constant innovations and adaptations in health culture is one of the ways in which folk communities strive to achieve a balanced relationship to perceived disease risks. The ongoing process of culture-parasites relationship is analogous to biological interactions implicit in host parasite relationship.

The social conditions in which a person lives determines his attitudes and perception towards social and natural objects and he behaves accordingly. This is very much applicable

to health, disease and treatment. If a person lives in unhygienic conditions he will be naturally affected by pathogenic and parasitic elements and develops diseases. But he will never be conscious about the responsible living conditions. The investigator observed in the field study that some of the respondents do not subscribe to the view that living conditions are responsible for the parasitic infections diseases. Instead they argue that from childhood to old age they lived and grew up in the similar atmosphere and conditions but rarely suffered from this kind of diseases. It is this attitude of the respondent that sometime proves fatal to their health.

There is no doubt that the social and living conditions are responsible, to a great extent, for spreading the parasitic infection. The place where a person lives, the ways in which he works, the beliefs through which he develops the custom that he follows, the culture that he practises, are some of the important factors which affect his health.

The social and environmental factors which are responsible for the maintenance of health of a person or community are of different varieties. These are the main criteria for determining the social and environmental factors responsible for accumulating and spreading the different types of diseases specially the intestinal parasitic diseases. These basic sanitary conditions are necessary for the elimination of the
gross causes of parasitic disease in the population. They are as follows:

1. Housing
2. Disposal of waste, water supply and drainage.
3. Food habits
4. Personal hygiene

1. HOUSING: Housing, in the modern concept, includes not only the "physical structure" providing shelter but also the immediate surroundings and related community services and facilities. The WHO prefers to use, the term "residential environment" which is defined also the physical structure than man uses envirous of that structure including all necessary services, facilities, equipments and devices needed or designed for the physical and mental health and so well being of the family and the individual. To put it briefly a healthful residential environment is one in which the family can develop and flourish physically, mentally and socially.

HOUSING AND ITS RELATION TO HEALTH

Good housing is one of the ablest handmaidens of good health. Bad housing with its resultant overcrowding,

filth, lack of personal and family privacy, its noises, its odors and its dark and dirty corners, breaks down family morale and has an adverse and evil influence upon the happiness, welfare, and health of the people.

It is very difficult to prove that any given specific disease is produced by bad housing conditions. But the overall convincing. There are many studies on the prevalence of diseases in relation to housing condition. In those studies it is invariably found that there is a close correspondence of intensity of illness with intensity of bad housing, whereas good housing is accompanied by good health.

The illustration obviously does not give the complete explanation of the situation; bad housing is accompanied by poverty, ignorance and in carelessness and indifference to matters relating to health promotion.

It is true that bad housing conditions is not the sole factor in production of a high incidence of illness in the slums or in the village; and it is also true that if ideal housing conditions are suddenly provided on a wholesale scale to all the people, the immediate results on disease incidence would be disappointing. But with bad housing the other related handicaps are almost insurmountable, whereas good housing is one of the first steps towards sound community planning.
President Herbert Hoover's conference on Home Building and Home Ownership in 1982 resulted in a fine report on Housing and the community. This report emphasized the fact that good housing is of real social, economic and aesthetic importance. The effect of good housing upon health was noted to be more or less incidental and indirect component of its other benefits to the community. The committee studied the effects of housing upon delinquency and crime and health status. Housing was studied also in its relationship to citizenship, recreation and education. This report emphasized the fact that good housing is invariably associated with good health. But the report also showed the ill effects of bad housing and slums conditions upon health which cannot be measured directly, since this factor cannot be separated from its accompaniments of other slum conditions, such as poverty, ignorance, sloth, slovenliness, poor haredity, racial customs of slum dwellers, accumulation of filth and dirt, malnutrition, poor family planning and low social conciousness. In brief, the report stated that the bad housing is known to be associated with poor health; and good housing and good health go hand in hand. But the exact relationship of the one to the other cannot be appraised quantitatively. The report also showed that there was a close relationship between poverty and bad housing and high infant mortality, particularly from intestinal which cause diarrhoea. Although he could not relate it directly but it is as clear now as it was then that overcrowding, lack of
sunlight, filth, insufficient provision for recreation, malnutrition and all the other accompaniments of bad housing and poverty do contribute directly to moral and physical decadence, promote the incidence of infections and other diseases and have an adverse effect upon the health of the people in urban and rural slums. One of the clear cut effects of bad housing upon health is overcrowding. Many human infections are transmitted by direct contact. When families live huddled together in a small space, with no privacy, with insufficient facilities for bathing or for keeping the home clean, it is inevitable that familial outbreaks of household infection will occur.

**ESSENTIAL REQUIREMENT OF A HOUSE:**

An expert Committee of the WHO recommended the following criteria for healthful housing:

1. Healthful house provides physical protection and shelter.
2. It provides proper facilities for cooking, eating, washing and excretory function.
3. It is designed, constructed, maintained and used in a manner such as to prevent the spread of communicable diseases.
4. It provides for protection from hazards of exposure to noise and pollution.
5. It should have sufficient number of rooms.

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6. It should have ready accessibility to sanitary facilities i.e. safe water supply, safe sanitary human excreta disposal, kitchen waste.

7. It should have appropriate protection against excessive heat, cold, rainfall, wind, and dump.

8. It should have adequate ventilation.

9. Housing of domestic animals should be separate.


11. It should be structurally sound and dry, no dampness.

In addition to this, there are several other components of good housing in relation to health protection:

1. There should not be overcrowding.

2. Provision for adequate privacy

3. Provision for opportunities for normal community life.

These are the basic components for ideal housing or good housing. These criteria should be kept in mind when an individual builds a house or an organization provides housing facilities to the members of a community. Housing has an important bearing on family life and educational achievement. It further indicates level of culture and social status.

It is evident from the above explanation that housing does not mean only shelter but it must also provide other relative facilities as mentioned by WHO which are
considered necessary for monitoring health. The investigator collected fruitful information about the housing condition of the respondents of both the communities, rural and urban, in order to know how much criteria they fulfil and how much facilities they provide to the people. This information helps us to understand the nature of physical surroundings in which people live and further enable us to understand the location of physical surroundings with the spread of parasitic infestation.

From the above description of the housing, the present study reveals that the houses in both localities do not fulfil the basic requisites. Despite the abundance of space in the villages houses are generally huddled together, poor in quality and inadequate from health point of view. Though air and light are available in abundance in the area, people do not take advantage of these gifts of nature. Leaky roofs, absence of good flooring and constant presence of dampness are the characteristic feature of the majority of houses in the village "Jawan", the universe of the present study for rural people. The poor housing conditions described above adversely affect the villager's resistance which gradually decrease day by day.

The reason of this miserable condition is well known. It is generally observed that ignorance, poverty, a sense of insecurity and age-old habit are, largely responsible for such conditions. The housing condition in urban area is somewhat different from that of rural as there are certain improvements in it.
The slum in urban communities is an exception. It is the worst type of human settlement which lacks all facilities of a good house. The conditions prevailing in it are injurious to human life.

Houses in the areas under study may be classified into three categories on the basis of their physical features. They are:

1. Pucca
2. Semi Pucca and
3. Kacha/Jhuggies

The data show that in urban area there are 34 pucca, 56 semi pucca and 60 kaccha houses. This indicates that the prevalence of parasitic infection is high. 60 in kaccha house and prevalence reduces as the housing condition improves to semi pucca and pucca houses. So the table shows that the people living in pucca houses have the minimum chance of getting infected with parasitic infection as compared to the people living in kuchcha houses and jhuggies.

Same pattern was observed in rural locality. The prevalence of intestinal helimenthic infection was also much high 80 in kuchcha/jhuggies as compared to semi pucca 45 and 25 pucca houses.
Table - 4.1

<table>
<thead>
<tr>
<th>Type of Houses</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pucca</td>
<td>34</td>
<td>22.6</td>
<td>25</td>
</tr>
<tr>
<td>Semi-Pucca</td>
<td>56</td>
<td>37.34</td>
<td>45</td>
</tr>
<tr>
<td>Kachcha or Jhuggies</td>
<td>60</td>
<td>40.00</td>
<td>80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>150</td>
<td>100</td>
<td>150</td>
</tr>
</tbody>
</table>

Over all out of the total 300 infected persons 59 (19.66) reside in pucca houses, 105 (35.0 per cent) in Semi-Pucca and 136 (45.34 per cent) reside in Kachcha or Jhuggies.

The comparative data from rural and urban areas which are presented in Table 4.1 indicate the nature of difference between the two.

Table 4.2

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pucca</td>
<td>34(29.5)</td>
<td>25(29.5)</td>
<td>59</td>
</tr>
<tr>
<td>Semi-pucca</td>
<td>60(52.5)</td>
<td>45(52.5)</td>
<td>105</td>
</tr>
<tr>
<td>Kachcha or Jhuggies</td>
<td>56(68)</td>
<td>80(68)</td>
<td>136</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

\[ X^2 = 8.68 \quad \text{Significant at 0.05 per cent level of significance and 2 df.} \]
In order to find statistical difference between two different population $X^2$ is used. The value of $X^2$ is found to be $8.68$ which is greater than $5.99$ i.e. tabulated value and thus significant at $0.05$ per cent level of significance and $2$ degree of freedom, which show that both groups are different in respect of nature of houses. The analysis is presented in Table 4.2

It indicates that housing condition is associated with the prevalence of disease. Consequently if the housing condition is bad it will naturally affect the health of the people.

**HUMAN EXCRETA DISPOSAL**

The health hazards caused by human excreta is a big challenge to the environmental sanitation of a community. It is a source of many infections and environmental pollution. Safe removal of human excreta is the responsibility of every society so that it may not constitute a threat to public health. The socio-economic status of the community can be achieved by decreasing high morbidity and mortality associated with its safe disposal. People are ignorant that faeces is infectious and pollutes water and soil, contaminates food and propagates flies. Due to this, disease like typhoid, dysenteries, diarrhoeas, cholera hookworm, ascariasis, viral hepaticities and similar other intestinal and parasitic infectious cause a great problem to the society.
Excreta disposal is a universal problem but it is very serious in third world countries like India, Sri Lanka and Bangladesh. In India more than 80% population lives in rural areas and the majority of them "go to fields" for defecation and this pollutes the environment. The condition in many of the urban areas also is not satisfactory as the sewage system is not adequate to cope with the entire urban population. The condition of the slums and subslums is worse than that of rural areas. Statistics indicate that the intestinal groups of diseases claim about 5 million lives every year while another 50 million people suffer from these intestinal infectious diseases.\(^\text{10}\).

Different studies were conducted in different states in the community Development Blocks e.g. The ones done in A.P., Bihar, West Bengal, M.P. show that enteric group of fevers is very common in rural areas- the annual incidence varying from 102 to 2,119 per 100,000 of population.\(^\text{11}\). Hookworm disease is also known to be highly prevalent: about 45 million people are estimated to be infected with hookworm. This alarming problem can be minimised only through disposal of human excreta which is the cornerstone of all public services.


The factors by which the faecal-borne diseases are transmitted to a new host is as follows:

The human excreta of a sick person or a carrier of disease is the main source of parasitic infection. It contains the disease agent which is transmitted to a new host through various channels: (1) water (2) fingers (3) flies (4) soil and (5) food. These events are shown in fig. 1.

Community medicine aims at breaking the disease cycle at vulnerable points. The disease cycle (Fig. 1) may be broken at various levels: segregation of faeces, protection of water supplies, protection of foods, personal hygiene and control of flies. Of these, the most effective step would be to segregate the faeces and arrange for its proper disposal so that disease agent can not reach the new host, directly or indirectly.

During the field survey in rural area the investigator observed that the people generally go to the field to defecate and leave the night soil which is sometime eaten by animals.

It is also observed during the field work that there is difference in habit of defecation among Hindus and Muslim. Most of the Hindu males and females go to the field for defecation where as the Muslims have latrine in their houses.
Though some of the male members go out side the house for defecation, yet all female members use the latrine \textit{of} their houses because they are not supposed to go out side the house due to the tradition of purdah. Hasan observed the same feature in rural community in his study of village chinaire. Hindus traditionally go out for easing because they feel unhygienic and uncomfortable inside the latrine. According to them the atmosphere inside the latrine is dirty and full of foul smell which makes them feel bad. Further these are breeding places of flies. They also consider it good to go to the field early in the morning as they enjoy morning walk and breeze— a gift of nature. Another reason is that their houses are small and if a latrine is provided inside the house they will have to live very close to it and that would be very unclean way of living. They also consider it to be very unclean to defecate at a place where is already some excrete of other persons. Another important reason in this context is that they do not know how faecel borne diseases are spread. Hindus women usually go out to the field to ease in groups. Going in groups serves may purposes. There is a fear among them that if a woman goes singly some enemy, thief or criminal may attack her but if they go in group, there is no such danger. Beside, women take some time off from the busy domestic hours, meet other women outside and talk together on various subjects. The women especially the daughter-in-law do most of the work inside the house and remain indoors for
most of the day. In the field they find a certain amount of leisure time to meet together in the open air and exchange ideas.  

Men in the village go for defecation singly and not in groups. Some of them take a spouted jug (Lotā) full of water with them for cleaning the parts, but a good number of them do not do so, especially during the rainy season. Under such circumstances they sit near a pond and clean the parts with pond water after easing. This is one of the greatest sources of pollution of pond water.  

These are some of the beliefs and practices among the rural people which the investigator came to know during field work. These existing habits are generations old and rooted firmly in the behaviour of the people and these are greatly responsible for morbidity and ill health.  

The data about excreta disposal in the urban area are presented in table 4.3. According to it, the least affected persons are those who use flush latrines. They constitute 18.66 per cent of the sample. Those who use service latrines fall in the highest position as their percentage is 43.34. Those who used to go out side for defecation fall in the middle as their percentage is 30.0. The only

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13. A report on the Conference held in New Delhi on 10-11th Sep.1956, to discuss the "Social and Cultural Factors in Environmental Sanitation in Rural India", Ministry of Health, Govt. of India 1957.
difference between these groups of population is that in the urban area people who go to the field for defecation fall in the middle while in rural area people who use service latrine occupy this position.

Similar pattern has also been observed in the sample of rural area the data of which are presented in Table 4.5. The data indicates that 13 people (8.66 per cent) have flush latrines in their houses, whereas 54 (36.0 per cent) people use service latrine which is cleaned by sweepers daily and the remaining 83 (55.34 per cent) people are habitual to field defecation. These are the persons who are highly affected by intestinal parasitic infestation.

Table 4.3

<table>
<thead>
<tr>
<th>Type</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flush</td>
<td>28</td>
<td>18.66</td>
<td>13</td>
</tr>
<tr>
<td>Service</td>
<td>65</td>
<td>43.34</td>
<td>54</td>
</tr>
<tr>
<td>Field defecation</td>
<td>57</td>
<td>38.00</td>
<td>83</td>
</tr>
<tr>
<td>Total</td>
<td>150.0</td>
<td>100.0</td>
<td>150</td>
</tr>
</tbody>
</table>

The analysis shows that those who have service latrines are more affected (the percentage is 43.34) by
intestinal parasitic infestation against it, the lowest infestation is (i.e. 18.66) is among those who use flush latrine. Those who are habitual to field defecation fall in the middle in urban population.

It has also been observed that in some cases the adults do not go out but their children generally go outside the house or they sit at street for defecation near their houses and they do not mind the gravity of spreading the disease.

Overall in the whole sample of rural and urban area 41 (13.66 per cent) persons use service latrine and 140 (46.68 per cent) go to the field for defecation. Thus highest infestation rate is found among those who go to the field for defecation and the lowest is amongst those who use flush laterine.

$X^2$ test is also applied to know the difference between these two groups of population. The calculated value of $X^2$ is 11.32 which is much greater than $(5.99)$ the tabulated value and this is significant at 0.05 per cent level of significance and 2 degree of freedom. $X^2$ shown in Table 4.4
Table 4.4

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flush</td>
<td>28(20.5)</td>
<td>13(20.5)</td>
<td>41</td>
</tr>
<tr>
<td>Service</td>
<td>65(59.5)</td>
<td>54(59.5)</td>
<td>119</td>
</tr>
<tr>
<td>Open field</td>
<td>57(70.0)</td>
<td>83(70.0)</td>
<td>140</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

\[ x^2 = \frac{(Q-E)^2}{E} \]

= 44.32 significant at 0.05 per cent level of significance and 2 df.

This confirms our hypothesis that human excreta disposal system affects the infestation of the parasites.

PLACE OF TAKING BATH

Housing condition is also related with bathing facilities. Bathing habit affects the man's health. If a person has a bathroom in his house he will be prevented from infection. But those who do not have separate bathroom and take bath at community tap or at well they have some chances of getting infected by other persons. Furthermore those who take bath at the pond where other members of the community particularly poor and dirty also take bath there is greater chance of being infected. Some time pet animals also use the same pond. It
has been found that drain fall in the pond where people take bath. Pond's water is thus polluted and helps to spread the diseases.

In urban area there is no pond and thus no question of taking bath in the pond arises. People usually take bath at community water supply or hand pump. Some of them have separate bath room in their houses. But almost all the women usually take bath in their houses.

In rural area many people do not mind to take bath at ponds and well. A few of them have separate bath room in their houses. Niether they have any idea of being infected in the pond nor they have any facility to have separate bath room. Even when take bath as well they do not mind that dirty water runs back to the well and this will harm them.

The data regarding bathing habit has been shown in table 4.5 which reveals that in urban locality there are 54 (36.0 per cent) people who have their separate bath room whereas 90(60.0 per cent) people use municipal water supply. Women take bath at water supply some time they take water from common water supply and take bath at their home. Remaining 6(4.0 per cent) people take bath at well. But in rural area there is only 10(6.6 per cent) people who have their separate bathroom facilities in their houses and 78(52.0 per cent) people like urban area take bath at public hand pump/well.
Table 4.5

<table>
<thead>
<tr>
<th>Place of taking bath</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate bathroom</td>
<td>54</td>
<td>36.0</td>
<td>10</td>
</tr>
<tr>
<td>Community tap or Hand pipe</td>
<td>90</td>
<td>60.0</td>
<td>78</td>
</tr>
<tr>
<td>Well/Pond</td>
<td>06</td>
<td>4.0</td>
<td>62</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
<td>150</td>
</tr>
</tbody>
</table>

Whereas 62 (41.4 per cent) people take bath at well or pond so if we compare we find that there is a difference in their bathing in rural and urban settings. It is evident from the data that those who take bath at common place and at pond or well are more affected with parasites.

Table 4.6

<table>
<thead>
<tr>
<th>Place of taking bath</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate bath</td>
<td>54(32.0)</td>
<td>10(32.0)</td>
<td>64</td>
</tr>
<tr>
<td>Community</td>
<td>90(84.0)</td>
<td>78(84.0)</td>
<td>168</td>
</tr>
<tr>
<td>Well/Pond</td>
<td>6(34.0)</td>
<td>62(34.0)</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>
\[ X^2 = 77.84 \] significant at 0.05 per cent level of significance and 2 d.f.

Tabulated value: 5.99 significant at 5 per cent level of significance and 2 d.f.

When \( X^2 \) is applied to know the difference between two rural and urban groups it reveals that it is very much significant as the \( X^2 \) value is much greater than the tabulated value i.e. 5.99 at 0.05 per cent level of significance and 2 d.f.

The housing condition was taken into consideration in total and it was found that the general housing condition of the rural area is very unsatisfactory as compared to the standard housing structure laid down by WHO whereas in urban locality the condition is somewhat better than what it is there in the rural. But the whole conditions is also not very much satisfactory.

In order to study the housing condition ten questions were framed to find out the features of good housing. It is obvious that if housing condition and locality are unhygienic, it will help in the spread of different diseases which ultimately affect the health of the people. The criteria of good housing are taken into account and if any of them is present a priority weighting of two is assigned and in case anyone of them is absent zero is assigned. The total score was calculated and the respondents were placed into three categories i.e., poor, average and good on the basis of the value of the Q1, Q2, Q3.
The data relating to the urban locality is presented in Table 4.7. According to the data the housing condition of 39 (26 per cent) respondents is poor and unhygienic. The housing condition of 43 (28.66 per cent) is tolerable. The housing condition of 68 (45.33 per cent) is good and hygienic.

In rural area 61 (40.66 per cent) respondents live in poor housing condition whereas only 35 (23.33 per cent) respondents live in good housing condition. Remaining 56 (36.00 per cent) live in housing condition which falls in between the two areas.

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<th></th>
<th>L</th>
<th>M</th>
<th>H</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>39 (26.00)</td>
<td>43 (28.66)</td>
<td>68 (45.33)</td>
<td>150</td>
</tr>
<tr>
<td>Rural</td>
<td>61 (50.66)</td>
<td>54 (36.34)</td>
<td>35 (23.33)</td>
<td>150</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>97</td>
<td>103</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>URBAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>178</td>
<td>169</td>
<td>165</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>185.15</td>
<td>182.89</td>
<td>148.77</td>
<td>115.11</td>
</tr>
<tr>
<td>RURAL</td>
<td>163</td>
<td>131</td>
<td>109</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>155.85</td>
<td>137.11</td>
<td>125.23</td>
<td>96.89</td>
</tr>
<tr>
<td>TOTAL</td>
<td>341</td>
<td>300</td>
<td>274</td>
<td>212</td>
</tr>
</tbody>
</table>

\[ X^2 = \frac{(O-E)^2}{E} = 17.12 > 16.92 \]

Significant 0.5 per cent level of significant at 9 df.

The tabulated value i.e. which is higher than 16.92 at 9 d.f.
The housing condition in urban and rural area has been studied from comparative point of view. For this purpose $X^2$ test is applied to know the difference between these two groups. The value of $X^2$ is found to be 17.12, which is higher than the tabulated value i.e. 16.92 and thus significance at 0.5 per cent level of significance and 9 degree of freedom.

It shows that both groups are different in respect of housing condition consequently we come to the conclusion that housing condition that prevails in urban areas is different from that in rural area.

**WATER SUPPLY AND DISPOSAL OF SOLID WASTE**

Adequate and safe water supply is essential not only for prevention of some of the common diseases but also for the provision of facilities for a decent standard of living. Safe water is absolutely essential for the maintenance of health. Water is one of the prime necessities of human exisitance, so much so that, given dire enough circumstances, even the most educated individual will resort to the consumption of water from grossly polluted or dangerous sources. There can be no state of positive community health and well being without safe water supply. In countries where safe water has been provided diseases like cholera, dysentery, typhoid and other intestinal diseases have almost disappeared. A report by WHO from Uttar Pradesh points out that after water works sanitation, the cholera death rate decreased by 74.1%

per cent, typhoid fever death rate by 63.6 per cent the dysentery
death rate by 23.1 per cent and the rate for diarrhoeal diseases
by 42.7 per cent. This report suggests that the provision of
safe community water supply is one of the most effective and
permanent health technologies for improving the health of the
people.

**DISEASE TRANSMISSION BY WATER**

Many etiologic agents of disease survive for a long
period of time in water, though they do not multiply and
increase there. The intensity of water borne infection in any
community is in direct proportion to the degree and duration of
the pollution of water by human wastes. The ingestion of con-
taminated water either directly or through food affects the
individual's health. Common human infections that are trans-
mitted through water are:

1. **Viral:** Viral hepatitis, poliomyelites.

2. **Bacterial:** Cholera, typhoid, bacillary dysentery,
   acute diarrhoea, E-Coli.

3. **Protozoal:** Ameobiasis, giardiasis,

4. **Helmithia:** Round worm, whipworm threadworm, hydatid
diseases Trichusis, hookworm and strongyloides
tercoralis.

The diseases mentioned above are caused by contaminated
water. It is also explained that contaminated water spreads a
a lot of infections.

CRITERIA FOR SAFE AND PURE WATER

Drinking water should be safe and agreeable to use when it will be free from germs. Safe water and wholesome water is defined\(^16\) as water that should be:

1. free from pathogenic agents
2. free from harmful chemical substance
3. pleasant to taste
4. usable for domestic purposes.

Water is said to be contaminated when it contains infective and parasitic agents, poisonous chemical substances, industrial and other wastes\(^17\).

SOURCES OF WATER

Generally water for drinking purposes is being taken from well, hand pump and municipal water supply. Water other than for drinking purpose can be had from tank, river and canal. The data relating to source of drinking water in urban population under study reveals that as much as 50 people 33.3\(^\text{rd}\) per cent use tape or municipal supply water; 96(64.0 per cent) depend upon hand pump and only 4(266, per cent) of them reported that they take water for drinking purposes from their wells. It further reveals that maximum number of people take water from

17. op.cit.
hand pump, hand pump water sometime also become polluted as hand pumps do not go deep in the earth. The water which is supplied by municipality is much safe and free from contamination.

In rural area maximum number of population still depends upon well. Open wells obviously stand in great danger of pollution and contamination. Wells without a parapet are most dangerous in this respect for they allow the flowback of water to the well which carry away other organic matter and during the rainy season its chances of pollution becomes very high. People use well water for all purposes. The percentage of hand pump users are 75(50.00 per cent). Private hand pumps are being dug not very deep. On examining the water taken from some hand pumps it was found contaminated and polluted. In rainy season water comes out at only six to seven feet deep. However, 65(43.34 per cent) take drinking water from well and only 10(6.66 per cent) use tap water for the purpose of drinking. Data relating to water supply are presented in Table 4.9.

<table>
<thead>
<tr>
<th>Type of water supply</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tapwater</td>
<td>50</td>
<td>33.34</td>
<td>10</td>
</tr>
<tr>
<td>Handpump</td>
<td>96</td>
<td>64.00</td>
<td>75</td>
</tr>
<tr>
<td>Wells</td>
<td>4</td>
<td>2.66</td>
<td>65</td>
</tr>
<tr>
<td>Total:</td>
<td>150</td>
<td>100.00</td>
<td>150</td>
</tr>
</tbody>
</table>
Over all in the whole simple, 60 (20.00 per cent) use the tap water, 171 (57.00 per cent) use hand pump and only 69 (23.00 per cent) take drinking water from well.

DISPOSAL OF SOLID AND LIQUID WASTES

No environmental health problem has had greater significance than the disposal of man's liquid and solid wastes. The accumulation of domestic wastes around camp sites undoubtedly caused ancient nomadic tribes to move to new clean location thereby becoming one of the pressures forcing the disposal of mankind. Down through the middle ages wastes were frequently thrown into streets from windows and door ways, and countless numbers succumbed to pestilences spread by rats, flies that were supplied by such wastes\textsuperscript{18}. With the advances in civilization, and as houses have become more permanent and living more complicated, the difficulties encountered in waste disposal and the dangers therefore, have multiplied enormously. Thus it has become a truism that the system for waste and sewage disposal that it encountered in any given community is a direct index of the stage of civilization and the degree of development of that community.

Today the environment is being polluted as never before by the accumulation of liquid and solid wastes. The term

"solid wastes" is applied to unwanted or discarded waste material from houses, streets sweeping, commercial, industrial and agricultural operation arising from man's activities. In the cities it is called refuse, in the country side it is called litter and in general it is called solid wastes. It is a conglomeration of dust, ash, vegetable and putrescible matter, paper and packing of all kinds; rags and other fabrics, glass and many other combustible and incombustable debris.

**THE EFFECT OF SOLID WASTES ON HEALTH AND WELFARE**

**Health aspects:** Solid wastes vary throughout the world because both the quantity and the constituents are determined by social customs and living standard. Most wastes are heterogenous and may vary seasonally, thus there can be no uniform approach to the problem they present. Health issues are linked with man's total environment. The accumulation of solid wastes in man's environment constitute a positive health hazard because of the following reasons:

1. The organic portion of solid wastes ferments and favours fly breeding.
2. The garbage in the refuse attracts rats.
3. The pathogens may be conveyed to man through flies and dust.
4. There is possibility of water pollution if rain water passes through depositories of fermenting refuse.

5. There is risk of air pollution, if there is accidental or spontaneous combustion of refuse.

6. Piles of refuse are a nuisance from an aesthetic point of view.

Thus, there should be an effective collection, removal and disposal of refuse without the risk to health. It is a fundamental environmental health service. In fact, the social development of a community is reflected in the collection and disposal of its refuse.

1. Street refuse which are collected by street cleaning service or scavenging and consists of leaves, straw, paper, animal droppings and litter of all kinds.

2. Market refuse contain a large portion of putrescible vegetable and animal matter.

3. Stable litter contains mainly droppings and left over animal feeds.

4. Industrial refuse comprises a wide variety of wastes ranging from completely inert materials such as calcium carbonate to highly toxic and explosive compounds.

5. The domestic refuse consists of ash rubbish and garbage.

Ideally solid wastes should not contain any faecal matter or urine. It is necessary to concentrate attention on certain of these immediate problems insects, rodents, polluted water, and air contact contamination.

Insects: Various flies, particularly the house fly and the blow fly, breed near houses where there are wastes products in the vicinity. They are also to be found at solid wastes disposal sites at which good standards of operation are not observed. Improper discharge of wastes in open drains may result in the creation of breeding places.

SOLID WASTES AND AIR POLLUTION

Uncontrolled and incomplete combustion of solid waste materials can result in the release into the atmosphere of a number of undesirable pollutants, including particular matter, \( \text{SO}_2 \), nitrogen oxide, various hydrocarbons and other nitrogenous gases that may have deleterious effects on the health of those who inhale them.

SOLID WASTES AND WATER POLLUTION

Rain water that passed through a deposite of fermenting solid wastes emerges as a leachate which contains a very high proportion of fermenting organic matter.

EPEDIOEMEOLOGICAL STUDIES

A study in India stool specimen from refuse workers indicated that 94 per cent of this group were infected with selected parasites as against slightly 4 per cent in the control group.\(^\text{21}\).

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However, although it is certain that vector insects and rodents can transmit various pathogenic agents of diseases (amoebic and bacillary dysenteries, cholera etc.) It is often difficult to demonstrate the precise relation between the source of infection and the health of population affected.

In this respect we see that solid wastes are very much helpful in spreading the different types of diseases particularly intestinal infection. Thus an attempt was made to study the environmental condition both in urban and rural areas in order to understand the relation between solid wastes and parasitic infection. The average people in the rural area are not aware that mosquitoes breed in collection of waste water and refuse. It is permitted to flow into the streets. The solid wastes (refuse) is invariably thrown in front of the houses where it is permitted to accumulate and decompose. Periodically it is removed to the fields and used as manure. The animal dug (cow dug) is allowed to accumulate. It some time pressed into cakes sundried and used as fuel.

In urban locality people are somehow aware about the danger of accumulation of wastes and they do not generally have pet animals. So they do not use animal dug as fuel.

According to data only 22(14.6 per cent) dispose of these matters at proper place and they are also conscious about its gravity, whereas 82(54.6 per cent) throw them at just outside the house and remaining 46(30.6 per cent) do not have any
idea about its dangerous effects and throw them anywhere indiscriminately. But the position in the urban locality is different from rural as 56(37.34 per cent) and conscious of its danger and they throw it at proper place. Against it 77(51.33 per cent) of them throw these things outside the house and remaining 17(11.33 per cent) have no idea of its gravity and not particular about its disposal. Table 4.10 deals with the data regarding the disposal of refuse.

**Table 4.10**

<table>
<thead>
<tr>
<th>Disposing of wastes</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>No.</td>
</tr>
<tr>
<td>Proper place</td>
<td>56</td>
<td>37.34</td>
<td>22</td>
</tr>
<tr>
<td>Outside house</td>
<td>77</td>
<td>51.33</td>
<td>46</td>
</tr>
<tr>
<td>Any where</td>
<td>17</td>
<td>11.33</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100</td>
<td>150</td>
</tr>
</tbody>
</table>

As far as the total sample comprising rural and urban population is concerned, 78(26.0 per cent) are conscious of the gravity of disposal of refuse and throw it at proper place, 123(41.00 per cent) dispose of the wastes outside the house where as remaining 99(33.00 percent) do not take any care of waste and dispose of it any where. It creates a lot of problem and gives birth to many diseases. As a whole the situation is not satisfactory and so it contributes to develop certain parasitic diseases.
Same pattern was observed when their drainage system was studied. It was not satisfactory in rural area where there was not any proper concrete drain. Only some of them have pucca drain in their houses only and not outside the house. The waste either goes to outside the house without proper arrangement or stragment in their houses. This condition is responsible for spreading the diseases, because intestinal parasite in humid climate and damp condition grow rapidly. Generally in the rural area drainage system does not at all exists. There are a number of ditches and pits which are good breeding places for mosquitoes and flies.

During the investigation it has been observed that the house wife usually wash the utensils or clothes in a corner of the central yard of the house. A platform made of a few bricks is usually made whereas she wash them. In most of the cases it was found that just near this platform a small hole at the bottom of the wall leads the sullage water to flow outside the house. In cases where the house is adjacent to a pond the sullage water is not allowed to accumulate outside the house and is directed to flow towards the pond. In other cases where there is no pond just adjacent to the house, the sullage water is directed to accumulate first in a pit dug outside the house for this purpose. The house water usually carries some organic contents with it. In the pit these organic contents decompose and the whole thing assumes the shape of a black thick fluid. This pits provides a suitable breeding place for mosquitoes, flies and other insects.
In urban locality there are concrete and proper drainage system, but not everywhere. There are also many houses that do not have any proper drainage neither inside the house nor outside there are also ditches and pits around their houses.

Their attitudes towards cleanliness were also studied and it was found that they were not very much particular about their cleanliness. Dirty water was generally strangment in the surrounding areas or their houses. They were also not much careful about cleaning the well from where they took water.

Table- 11

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>40</td>
<td>20.66</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>10.66</td>
<td>85</td>
</tr>
<tr>
<td>Indiff.</td>
<td>94</td>
<td>62.68</td>
<td>47</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100</td>
<td>150</td>
</tr>
</tbody>
</table>

The important feature of the present study is that the population under study is not very much particular about the cleanliness of water. They do not understand the gravity and dangers of dirty and contaminated water. It is observed that people do not take much pain to clean well from where they take water.
The fact is that the respondent by and large do not know that unsafe water is responsible for intestinal parasitic diseases. It is quite strange that in rural area only 12 per cent respondents know that unsafe water causes intestinal diseases while 56.66 per cent respondent are quite ignorant about the fact. There are some respondent, the percentage of them is 34.4, who are indifferent to it. In urban population only 26.66 per cent were aware of the fact that unsafe water causes parasitic diseases, though they are 14.66 per cent greater than the rural people, yet they are still insignificant against it. 10.66 per cent of the urban population is completely ignorant about the fact while 6.68 per cent is indifferent.

But in rural locality the result is quite different. Here only 18(12.00 per cent) people are conscious about the gravity of danger by contaminated water while 85(56.66 per cent) people do not have any idea about it. Remaining 47(31.66 per cent) people are not particular in their idea about its danger. So here we see that most of the rural people are ignorant about its harmful effects. So ignorance is major factor for their health. They do not care or donot mind that the water they are using is either good or bad. Lack of knowledge of hygienic sense leads them to be infected.

Overall out of the 300 respondent only 19.36 per cent know that unsafe water causes intestinal parasitic diseases and 33.64 per cent of them are completely ignorant while 47 per cent
are indifferent. This indicates that majority of the people are not at all aware that unsafe water causes different kind of diseases as such they are neither particular nor conscious of using safe, clean water. By and large they do not hesitate to use dirty and unsafe water. Consequently they suffer from many kind of diseases particularly intestinal parasites.

In general it can be said that water supply and the system of drainage are important to determine the social condition of the people. They are also related to the spread of the diseases. If the drainage system is defective and dirty water accumulates, it will naturally serve as breeding ground for mosquitoes and germs and this will be a source of different kind of diseases.

The water supply and drainage system determines the social condition of the people. They are further responsible for spreading different kinds of diseases because if the drainage system is defective and dirty water accumulates, it will naturally serve as breeding ground for mosquitoes and germs which will cause different diseases.

As the present study concentrates on social conditions which are investigated in terms of housing, water supply and drainage, food and dietary habits and personal hygiene, an attempt is made to study the water supply and drainage system in both the area under study. Ten questions are framed to assess the adequacy of water supply and drainage system others
of the respondents. They are placed in low and high degree in terms of inadequate and adequate of the system.

If the water supply and drainage condition is good a priori weighting of two is assigned and in case it is bad zero is assigned to each question. The total score was calculated and respondent were placed into poor, average and good category. On the basis of the value of Q1, Q2, Q3.

The data regarding water supply and drainage condition are given in Table 4.12 which reveals that in urban locality 31(20.66 per cent) respondents live in bad or unsatisfactory water supply and drainage condition whereas 61(40.66 per cent) have average condition and remaining 58(38.68 per cent) live in good condition.

In rural area 56(37.34 per cent) people have free water supply and drainage condition while 53(35.33 per cent) have average and the remaining 41(27.33 per cent have adequate water supply and drainage condition.

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>31(20.66)</td>
<td>61(40.66)</td>
<td>50(38.68)</td>
<td>150</td>
</tr>
<tr>
<td>Rural</td>
<td>56(37.34)</td>
<td>53(35.33)</td>
<td>41(27.33)</td>
<td>150</td>
</tr>
<tr>
<td>Total</td>
<td>87</td>
<td>114</td>
<td>99</td>
<td>300</td>
</tr>
</tbody>
</table>
An overall position of water supply and drainage system in both urban and rural areas is very interesting. According to the analysis only 87 (29.00 per cent) people live in unhygienic condition and 114 (38 per cent) live in good condition. A comparative analysis of water supply and disposal of waste and liquid, condition in urban and rural localities is done. The purpose is to know the difference between two groups: rural and urban in terms of the above mentioned qualities. The null hypothesis is framed and 2 tests is used to know the significance. It was observed that the result is not significant as the value of $X^2$ is 11.47 which is insignificant at 5 percent level of significance at 9 degree or freedom.

It further shows that both rural and urban areas are not different in terms of water supply and drainage system. Both have similar type of arrangements.
### Table - 4.13

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
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<th>Total:</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td></td>
<td>125</td>
<td>102</td>
<td>227</td>
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<tr>
<td></td>
<td>198</td>
<td>147</td>
<td>345</td>
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<tr>
<td></td>
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<td>185</td>
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<td></td>
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<td></td>
<td>1625</td>
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<td>2863</td>
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<td>172.55</td>
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</tr>
<tr>
<td></td>
<td>137.36</td>
<td>104.64</td>
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<tr>
<td></td>
<td>176.52</td>
<td>89.51</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>134.48</td>
<td></td>
</tr>
</tbody>
</table>

\[
x^2 = \frac{(O_1 - E_1)^2}{E_1} = x^2 = 11.47 < 16.92
\]
FOOD AND DIETARY HABIT

Food is a potential source of infection and is liable to contamination by microorganisms at any point during its journey from the producer to the consumer. Food hygiene, in its widest sense, implies hygiene in the production, handling, distribution and serving of all types of food\textsuperscript{22}.

Fruits and vegetables constitute an other important source for the spread of pathogenic organism, protozoans and helmenthic. These infection are a serious menace to public health where sewage is used for growing vegetables. The vegetable which are consumed raw in the form of salads pose a problem in food sanitation. If one does not care in taking food or keeping it at proper place one will suffer from different diseases. A man will become victim of parasities if he does not take the minimum care in washing the fruits, vegetables before consuming them; avoiding the semi-rotten fruits, vegetable, dust and dirt with food and other edible items.

In most part of India the people subsist on agriculture and the larger part of the diet is obtained from locally produced food for better economy still persists, although partly. It is a widely recognized fact today that the diet

of the people of a particular area is greatly influenced by local conditions of soil and climate, the density of population, local religious customs and traditions relating to fast, feast and taboos. Many researchers have thrown light on numerous social and cultural factors involved in the dietary of the people of the certain area and shown that method of storage or distribution, system of production and cooperation, economic incentives, or traditional attitudes and values in relation to food stuffs are at the root of special deficiency in diet. Contamination of food and water is common during summer and particularly in the rainy season due to microbial infection causing pain, diarrhoea and vomiting. Meat and its products, poultry, eggs, fish, raw vegetables (salads) and fruits, cereals and cereal-based products are commonly affected. Milk gets contaminated by bacteria soon after it is drawn from the udder. Milk products like barfi, khoya and sweets also get infected depending on the manner in which sugar is incorporated into the product.

These infected food cause a number of diseases such as typhoid, bacillary dysentery, streptococcal sore throat and undulant fever. Contaminated water causes gastro-enteritis, cholera and jaundice. These organism produce toxins or metabolites which cause physiological symptoms like nervous paralytic disturbances, gastro intestinal disorders or even death. Bacterial food poisoning is basically of two types.
In the ineffective type, food containing a large number of live bacteria is consumed. After incubation the bacteria releases a toxin in the body as they die and disintegrate. A good example is food poisoning by Salmonella typhimurium, the most common species infecting food, leading to typhoid where the bacteria particularly affect the liver and gall bladder. The infection also spreads to bone marrow, kidney, spleen and lungs, causing bronchitis and pneumonia. The source of infection is contaminated food such as meat from a sick animal, poultry, fish egg and dairy products, eaten raw or inadequately heated.

Maintenance of personal hygiene is most important to prevent such contamination. Generally the symptoms of food poisoning appear within two to 48 hours and the illness lasts one to three days.

In the other type of food poisoning an example of which is staph-lococcal food poisoning, the toxin is already present when the food is eaten and the bacteria may not be living; in this case, there is no incubation period and the symptoms develop within three to six hours of eating the infected food. Staphlococcal poisoning is caused by enterotoxins produced by Staphlococeus aureus, causing severe gastrointestinal disturbances. This organism proliferates on semi-solid foods, such as custard, ice-cream, chicken, salads, poultry dressing, ham and ground mat.
Bacillary dysentery or shigellosis caused by shigella is widely distributed. The disease is characterised by fever, abdominal pain, vomiting and diarrhoea. Infection is through infected human faeces which is transmitted from food or water.

*Clostridium perfringens* is a gas-producing organism normally present in the intestinal tract. It causes harmful effects only when produced in large number due to consumption of contaminated food.

**MALNUTRITION AND INTESTINAL PARASITIC DISEASE**

According to David Crompton and Nesheim the Intestinal Parasitic disease and malnutrition affect the same people, at the same time, and in the same parts of the world. On an average, an individual living in the tropics is more prone to at least one species of intestinal parasites and some people may play host to five. The alimentary canal provides a home for these parasites. These parasites live in a dynamic relationship with their human host who must provide all the energy and nutrients required for both to survive. Parasitic disease develops when the equilibrium between the host and its intestinal intruders is upset, as parasitic activity depletes host resources and causes physical and metabolic damage.

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24. Ibid, p.19
The relation between intestinal parasitic infection and the multifactorial origin and consequences of human malnutrition were studied by many researchers. Many studies of host parasite relationships in the laboratory and in domesticated animals have established that a major feature of a parasitic infection in the elementary tract is a significant reduction in food intake by the host. Numerous clinicians have reported that patients harbouring intestinal parasites showed improved appetite following treatment. Parasite induced reduction in food intake may be one of the most serious aspects of an intestinal infection in the areas where the human host is already consuming only small quantities of food of poor quality. Reduced growth rate of young children is often observed in communities in many countries where poverty, poor housing and sanitation, inadequate diet, viral bacterial, and parasitic infections and other environmental forces interact. In this setting, intestinal parasitic infections and their associated reduced food intake, digestive disturbance, malabsorption, diarrhoea and anemia may be implicated in the retardation of child growth.

It becomes clear in the above discussion that food and dietary habits play an important role in harbouring the intestinal parasites. The investigator asked certain questions to assess how much care the respondent take in taking food. Are they particular about washing their hands before taking food. Are they careful about washing the fruits
and vegetables. How do they dispose off left over food; their carefulness against access' of flies. Do they mind to allow their children to purchase 'chat' and snacks by vendors who sell their articles open, and do they prefer breast feeding or bottle feeding? These questions were asked to have an assessment of their awareness regarding food and dietary habit.

On asking about how many of them are vegetarian and how many are non-vegetarian, it was observed that in urban population 110(73.34 per cent) are non-vegetarian and rest 40(26.66 per cent) are vegetarians whereas in rural population there are only 69(46.0 per cent) are vegetarian and remaining 81(54.0 per cent) are non-vegetarians. There is the difference between rural and urban population in terms of their diet is of 29. It is due to the fact that in rural centre the population of Hindus is much higher than that of Muslims and many upper cast Hindus do not take meat as it is prohibited by their religion. However, the lower cast Hindus do not mind to take meat although not regularly. In comparison to it the Muslims largely inhabiting the urban centre, prefer to take meat.

They were asked to know whether the people are particular about having fresh food or partly conscious about the fresh food or whether they are not particular about having the condition of the food. Also whether they consume any kind of food or have sense to differentiate it. Data reveals that in urban population 64(42.66 per cent) are very particular
about consuming fresh hygienic food whereas 54 (36.0 per cent) are not very much particular about it, whereas remaining 32 (21.34 per cent) have no sense of fresh and contaminated food. They do not bother whether it is hygienic or unhygienic.

In rural area only 30 (20.00 per cent) people do not to take unhygienic or adultrated food. They are conscious of fresh and hygienic food whereas 41 (27.34 per cent) have some awareness of unhygienic food. Rest 79 (52.66 per cent) people do not have any awareness of the unhygienic and contaminated food. This clearly indicates that rural people, due to the negligence and illiteracy, have no awareness. Poverty and socio-economic status also prevent them to have hygienic and contamination-free food.

It is observed during the investigation that in the lower socio-economic group people do not mind to give the left over food to their children whenever they demand. Generally children demand food several times although less in quantity whereas elders require three times only.

As for as the entire sample consisting of rural and urban population is concerned only 94 (31.34 per cent) people are particular about taking hygienic and contamination-free food while 95 (31.66 per cent) are partly conscious to some extent of it. The highest number of 111 (37.0 per cent) are not particular about the food they consume. They do not have any idea of its bad effects.
### Table - 4.14

<table>
<thead>
<tr>
<th>Nature of food consumed</th>
<th>Urban</th>
<th>Rural</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh or hygienic</td>
<td>64</td>
<td>42.66</td>
<td>30</td>
</tr>
<tr>
<td>Partly fresh</td>
<td>54</td>
<td>36.0</td>
<td>41</td>
</tr>
<tr>
<td>Do not have hygienic sense</td>
<td>32</td>
<td>21.34</td>
<td>79</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.00</td>
<td>150</td>
</tr>
</tbody>
</table>

When $X^2$ is used show the difference between the two groups it was found significant. The value of $X^2$ calculated is 32.30 which is much greater than their tabulated value i.e. 5.99 and significant at 0.5 per cent level of significant at 2 d.f.

### Table - 4.15

<table>
<thead>
<tr>
<th>Nature of food consumed</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh food</td>
<td>64(47.0)</td>
<td>30(47.0)</td>
<td>94</td>
</tr>
<tr>
<td>Partly fresh</td>
<td>54(47.5)</td>
<td>41(47.5)</td>
<td>95</td>
</tr>
<tr>
<td>Not fresh/Unhygienic</td>
<td>32(55.5)</td>
<td>79(55.5)</td>
<td>111</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

$X^2 = 32.30 > 5.99$
Similar is the attitude of the respondents towards milk. Milk is an efficient vehicle for a great variety of disease agents. The sources of infection or contamination of milk may be (1) The dairy animals (2) human handler or (3) the environment, e.g. contaminated vessels, polluted water, flies, dust etcetra. The safety and keeping quality of milk are related to its microbial content.

In rural area the attitude of people is quite different as compared to urban people. Villagers have very little idea about fact that milk may get contaminated or infected. Contamination of milk is very common in Jawan. People do not bother to clean the vessels in which they collect and sell the milk. Right from the milking process down to the vessel from which milk is sold or given to the other family members it is open to serious contamination. Since growth in a warm climate should be used with care and precaution.

An interesting feature of the villagers has been observed by the researcher during the field work. The villagers believe that if milk is boiled, the memory gland of the donor animal may get itching. So some people drink unboiled milk which causes different diseases. This practice was also reported by Hasan during his research in cinaura village\textsuperscript{25}.

\textsuperscript{25} (Hasan) op.cit.
The study reveals that in rural area only 33 (22.00 per cent) people are very much particular about consuming boiled milk, while 66 (44.0 per cent) are not very particular about it. Some time they take boiled and sometime unboiled milk. The remaining 51 (34.0 per cent) are totally ignorant about contamination of milk and the process by which contamination free milk is collected and stored. They do not have any idea of infection by the contaminated milk as they do not mind to keep it in unclean pot.

<table>
<thead>
<tr>
<th>Boiled milk</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particular in boiling</td>
<td>80</td>
<td>55.34</td>
<td>33</td>
</tr>
<tr>
<td>Some time</td>
<td>49</td>
<td>32.66</td>
<td>51</td>
</tr>
<tr>
<td>Do not have any sense</td>
<td>21</td>
<td>14.0</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>150</td>
<td>100.0</td>
<td>150</td>
</tr>
</tbody>
</table>

There is a marked difference between rural and urban population. Rural population is less conscious about bad consequences of unboiled milk. An overall picture of both rural and urban population indicates that 113 (33.34 per cent) are less conscious rather not much particular about having boiled milk. Remaining 87 (29.0 per cent) are totally ignorant or do not mind to consume boiled or unboiled milk.
$X^2$ test is used to show the difference between these two groups. It was found statistically significant as the value of $X^2$ is 41.04 which is greater than 5.99 (the tabulated value) and thus significant at 5 per cent level of significance and 4 d.f.

**Table 4.17**

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiled milk</td>
<td>80(56.5)</td>
<td>33(56.5)</td>
<td>113</td>
</tr>
<tr>
<td>Some time boil</td>
<td>40(50.0)</td>
<td>51(50.0)</td>
<td>100</td>
</tr>
<tr>
<td>Do not care</td>
<td>21(43.5)</td>
<td>66(43.5)</td>
<td>87</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

$x^2 = 41.04$  5.99  significant

It shows that both groups differ from each other in terms of the present characteristics. The urban people are quite conscious of the gravity and consequences of contaminated milk and consume boiled milk while rural people are not at all conscious of these facts and consume both boiled and unboiled milk.

Flies and insects are very important carriers of germs and parasites. House flies are the commonest and most familiar of all insects which live close to man. They are to be found in abundance all the year round in India.
Houseflies should be regarded as a sign of insanitation and their number as an index of that insanitation. One should be very much aware of its breeding places. Generally houseflies breed on human excreta, solid and liquid refuse, or garbages, decaying fruits, and vegetable, and rubbish dumps containing organic materials. Adult flies delight in sputum, faeces, discharge from wounds and open sores. The fly vomits frequently. These vomit drops are a culture of disease agent. Due to its constantly defecating tendency, it deposits countless bacteria on exposed food and edible items.

Flies are potential vectors of many diseases like diarrhoea and dysenteries, cholera, gastro enteritis, amobiasis, helminthic infections, typhoid and para typhoid fevers. Conjectivities and so many other other diseases.

They transport microorganisms on their feet and hairy legs. Pathogenic organisms, ova and cysts have been transported from the bodies of the common housefly. It has also been called as "porter of infection".

In the light of the above discussion an enquiry is made to know how many people are careful about the danger caused by houseflies and wether they take any precaution or care against flies. Do they allow their children and family members to purchase chat and snacks kept open by shopkeepers and vendors.
It is revealed that in urban area 53 (35.33 per cent) people take precaution against the flies and do not allow the members to take such edible items kept open to the flies. But simultaneously 28 (18.66 per cent) of them do not mind its gravity and do not take any care as they think that its protection is beyond them. Against it 69 (46.0 per cent) of them are not much particular although they sometimes take care but not very strictly. The situation in rural area is entirely different. Only 22 (14.66 per cent) of the total 150 infected people are conscious about nuisance caused by houseflies and they do not allow their family members to buy such things which are open. Against it 86 (52.33 per cent) people do not have any consciousness about the danger caused by flies. They do not mind to have such items which are exposed to the flies. They never think that they can be infected with diseases by these flies. That is why they easily get infected unnoticably. The other problem with them is that the condition in which they live—make it difficult for them to afford to take any measure to protect themselves against flies. So they have to live in unhygienic surroundings. However, 42 (28.0 per cent) of them are not much particular about the flies. They sometime avoid consuming the edible items which are infected by flies and other insects. The data are presented in Table.
Table 4.18

<table>
<thead>
<tr>
<th>Care against flies</th>
<th>Urban</th>
<th>Rural</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take care</td>
<td>53</td>
<td>35.34</td>
<td>22</td>
</tr>
<tr>
<td>Not particular</td>
<td>69</td>
<td>46.00</td>
<td>42</td>
</tr>
<tr>
<td>Do not take any care</td>
<td>28</td>
<td>18.66</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>150</td>
<td>100.00</td>
<td>150</td>
</tr>
</tbody>
</table>

The overall position that the entire sample indicates that 75 (25 per cent) take care and precaution against flies, which 111 (37 per cent) are not particular and 114 (38 per cent) do not have any sense to protect themselves against flies. The data also reveal that most of the people generally do not pay particular attention towards the houseflies. When $X^2$ test is used to find one statistical difference between the two groups, it is found significant. The value of $X^2$ at 50 per cent level of significance and degree of freedom is 48.86 which is much greater than the tabulated value (5.99). The analysis is presented in Table 4.19.

Breast feeding has various advantages both for the infant as well as for mothers. Breast feeding favours the establishment of a satisfactory relationship between mother and child which is of permanent psychological benefit to both.
### Table - 4.19

<table>
<thead>
<tr>
<th>Care against flies</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take proper care</td>
<td>53(73.5)</td>
<td>22(37.5)</td>
<td>715</td>
</tr>
<tr>
<td>Not particular</td>
<td>69(55.5)</td>
<td>42(55.5)</td>
<td>111</td>
</tr>
<tr>
<td>Do not take care</td>
<td>28(57.0)</td>
<td>86(57.0)</td>
<td>114</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

\[ x^2 = 40.86 \]

Significant at 0.5 per cent level of significance and 2 degree of freedom

Tabulated value = 5.99

Breast milk provides the infant with a certain amount of protective antibodies, enzymes and vitamins and a sterile, easily assimilable complete food. Breast fed infant get their nourishment direct from the mother, at a suitable temperature and in an assimilable composition without any exposure to air. The milk contains no adulterants or preservatives and above all, is bacteriologically clean pure and sterile. It fully meets the requirements of the infants. It is available to the child at right temperature and is easily digested. It requires no preparation and costs nothing in money. It has psychological effect on the health of the mother. Furthermore sucking is also good for the baby. By providing a relatively cheap source of protein, breast feeding prevents malnutrition. The
antibodies which are present in breast feeding provides considerable protection not only against diarrhoeal diseases but also against respiratory infections\textsuperscript{26}. Protection against intestinal infection is provided by a protein in breast milk known as Lactoferrin. Breast feeding reduces infant mortality\textsuperscript{27}. Many intestinal parasitic infection like diarrhoea, bacillary dysentry, cholera and so many other pathogenic diseases can be prevented by adopting suitable child feeding practices. Diarrhoeal diseases in infants and children constitute a major health problem in developing world. Nearly 500 millions children suffer from it annually.

Approximately 5 million die of diarrhoea each year in the developing world including India\textsuperscript{28}. In short above 10 children die in every passing minute from diarrhoea. Each of the 140 million children in India suffer from 2-3 episodes of diarrhoeal illness annually—nearly 300 million episodes of diarrhoea occur each year in this country\textsuperscript{29}. These figures show the gravity of diseases and this mainly can be minimised by educating urban and suburban mothers. Mothers can breast feed their children exclusively for the first four to six months.

\textsuperscript{26} Editorial(1976) \textit{British Medical Journal} 1, 1167.
\textsuperscript{27} \textit{Medical Annual}, 1976, p.130.
\textsuperscript{29} National Diarrhoeal Diseases Control Programme—Management of Acute Diarrhoea, Calcutta, NICED (ICMR). 1985, p-1.
of life and partially thereafter up to 12 months or beyond. It is important that mothers realise that the breast fed child runs less risk of severe diarrhoea death than the bottle fed child. Recent data from Brazil and Iraq show that the difference in risk may be 20-fold or more. Breast feeding in the developing countries has declined rapidly in the past two decades. The situation is particularly serious for children being raised in urban slums, where diarrhoea remains a major cause of death and yet breast feeding has become less popular. This is more dangerous among the lower socio-economic groups who have little idea about hygiene and sanitation. Infants are very much susceptible to these diseases.

Bottle-fed infants get their milk which has passed through several hands and has been exposed to endless risks of contamination in buckets, pails, cans feeding cups, bottles and nipples. Admitting that it was neither skimmed, waterred, nor otherwise adultrated, yet after being exposed to the dust of the streets and to filthy surroundings, it arrives in varying degrees of staleness, more or less polluted and charged with microbes. The preparation of the milk and the process of feeding cannot always be satisfactorily done in the homes, keeping in mind the gravity of infection and pathogenic microorganism microbes caused by bottle feeding an enquiry is made of both rural and urban population under study to know their

opinion about breast feeding. Most of the urban people feel that bottle feeding is not hygienic. They know its consequences and bad effects. Their number is 70 (46.66 per cent). Inspite of it urban mothers do prefer bottle feeding in high income group.

A considerable number 52 (34.0 per cent) of them are indifferent or have no opinion at all. Against it 28 (18.34 per cent) prefer breast feeding.

In rural area 97 (64.66 per cent) used to feed their infants by breast. They do not find bottle feeding convenient and good. As such they always prefer breast feeding. Against it 20 (13.34 per cent) do not have any opinion whereas 33 (22.0 per cent) prefer bottle feeding.

Table 4.20

<table>
<thead>
<tr>
<th>Child feeding practice</th>
<th>Urban</th>
<th>Rural</th>
<th>Both R/U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast feeding</td>
<td>70</td>
<td>46.66</td>
<td>97</td>
</tr>
<tr>
<td>Bottle fed</td>
<td>52</td>
<td>34.66</td>
<td>33</td>
</tr>
<tr>
<td>Indiffer.</td>
<td>28</td>
<td>18.68</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100.0</td>
<td>150</td>
</tr>
</tbody>
</table>

X^2 test is used to show the difference between the two groups (rural and urban).
Table - 4.21

<table>
<thead>
<tr>
<th>Child feeding practice</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast feeding</td>
<td>70(83.5)</td>
<td>97(83.5)</td>
<td>167</td>
</tr>
<tr>
<td>Bottle fed</td>
<td>52(42.5)</td>
<td>33(42.5)</td>
<td>85</td>
</tr>
<tr>
<td>Indifference</td>
<td>28(24.0)</td>
<td>20(24.0)</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

\[ X^2 = 10.94 > 5.99 \]

It is found to be significant as the value of \( X^2 \) is 10.94 which is greater than the tabulated value (5.99) and significant at 0.05 per cent level of significance and 2 df. It shows that rural and urban population differs from each other in terms of infant feeding practices.

The data relating to both the urban and rural locality in terms of food habits and dietary habits is presented in Table no. 4.22.

Table 4.22

<table>
<thead>
<tr>
<th></th>
<th>L</th>
<th>M</th>
<th>H</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>50.45(30.00)</td>
<td>56(37.34)</td>
<td>49(32.60)</td>
<td>150</td>
</tr>
<tr>
<td>Rural</td>
<td>55(36.66)</td>
<td>55(36.66)</td>
<td>40(26.66)</td>
<td>150</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>111</td>
<td>89</td>
<td>300</td>
</tr>
</tbody>
</table>
### Table 4.24

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN</td>
<td>139</td>
<td>152</td>
<td>174</td>
<td>148</td>
<td>154</td>
<td>125</td>
<td>122</td>
<td>141</td>
<td>160</td>
<td>218</td>
<td>1533</td>
</tr>
<tr>
<td></td>
<td>143.36</td>
<td>134.36</td>
<td>178.29</td>
<td>147.06</td>
<td>174.57</td>
<td>111.62</td>
<td>123.78</td>
<td>149.70</td>
<td>166.10</td>
<td>204.19</td>
<td></td>
</tr>
<tr>
<td>RURAL</td>
<td>132</td>
<td>102</td>
<td>163</td>
<td>130</td>
<td>176</td>
<td>86</td>
<td>112</td>
<td>142</td>
<td>154</td>
<td>168</td>
<td>1365</td>
</tr>
<tr>
<td></td>
<td>127.64</td>
<td>119.64</td>
<td>158.73</td>
<td>130.94</td>
<td>155.43</td>
<td>99.38</td>
<td>110.22</td>
<td>133.30</td>
<td>147.90</td>
<td>181.81</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>271</td>
<td>254</td>
<td>337</td>
<td>278</td>
<td>330</td>
<td>211</td>
<td>234</td>
<td>283</td>
<td>314</td>
<td>386</td>
<td>2898</td>
</tr>
</tbody>
</table>

Calculated $X^2 = 17.59$ significant at 0.05 per cent level of significance and 9 degree of freedom.

Tabulated $X^2 = 16.92$ significant 0.05 per cent level of significant and 9 degree of freedom.
The data indicates that in urban area food and dietry habit of 45(30 per cent) respondents poor, while 49(32.66 per cent) of them have good food and dietry habit and remaining 56(37.34 per cent) respondents fall in middle. However, 55 (36.66 per cent) of rural people have bad food and dietry habit, 40(26.68 per cent) have good habit while remaining 55(36.66 per cent) fall in the middle.

The food and dietry habit of both the rural and urban population is also compared to know the difference between them and so $X^2$ test is used. The value of $X^2$ is found to be 17.59 which is significant at 0.05 per cent level of significance and 9 d.f. The tabulated value of $X^2$ is 16.92 at 0.05 per cent level of significance and 9 d.f. It indicates that both groups differs in terms of food and dietry habits. The $X^2$ is shown in table 4.24.

**PERSONAL HYGIENE**

Hygiene is defined as the science of health and embraces all factors which contribute to healthful living.

Personal hygiene deals with matters pertaining to health on the individual for the maintenance of which he alone is responsible. Self preservation is a law of nature but to be able to live a healthy life entirely depends on social conditions. Health not only keeps body and mind at the best level but it also enables a man serve the society in the best possible
manner. It affects primarily the health of the individual and is largely related with the standard of living. The study of personal hygiene requires the understanding of the individuals particular habits which grow by practice and eventually become part of the culture.

Indian society has an immense of personal cleanliness, much of which is closely interwoven with the ideas of ritual purification. Rituals are "a set or series of acts, usually involving religion or magic with the sequence established by tradition" 31.

Purification is the process of cleansing, washing, sacrifice, or similar symbolic acts. The village folk do not recognize germ theory of diseases causation nor are they aware of the relationship of bodily cleanliness with the diseases that may be associated with it. To them, ritual purity is an important concern and the point of practical application. Body cleanliness in scientific sense is not at all sufficient. Sometime it is considered impure due to lack of ritual purity. Generally it is believed that an orthodox Hindu should not drink water touched by a man of lower caste however neat and clean he might be, but he should not hesitate to do so, by the hands of a fellowcasteman even if he is dirty in scientific sense.

31. Hasan, op.cit. p.76
In context of personal hygiene it is proposed to study the habit of respondent pertaining to bodily cleanliness. It includes habit of cleaning tooth, taking food and after defecation and cutting their nails. Further it is also enquired that how many of them wear shoes. There are some of the aspects which are taken into account to study the personal hygienic condition of the respondents. If a person who does not take care of his personal hygiene he will get infected by many intestinal parasitic diseases because personal hygiene plays a significant role in spreading intestinal parasitic diseases.

Personal hygiene also reflects the perception of cleanliness, attitudes towards health consciousness about ones personality, awareness about the consequences of unhealthy life.

**BATHING HABITS**

Care of skin is largely related with bathing habit of the individual. The cleaning of the skin is of immense value as it helps to facilitating open the pores of the skin. The sweat glands beneath the skin open on the external surface of the body are responsible for perspiration. These glands help to relieve the body effete matter and give a feeling of comfort to it by obtaining latent heat of vapourization from the same. Cleaning of the skin, therefore, is very important for the body. If the skin is not cleaned regularly the pores get blocked by dirt and the action of the skin is hindered.
EATING HABITS

Eating habits also differ from society to society. It reflects one's religious and cultural attitudes. Among Hindu castes no two persons can eat together out of the common utensils while if is possible among Muslims. But Muslims too do not habitually eat out of the common utensils thought it is not prohibited. Muslims generally have no objection to sitting together and eating out of the common bowls, as they believe that it promotes affection and cordial relations among them. A Muslim will not mind eating a thing already eaten partly by another family member while such a practice is not prevalent among Hindu except that a married Hindu woman usually takes her meal in the same utensils in which her husband has just taken his meals, without washing the utensils. But this practice differ from community to community. In urban population they generally do not observe this practice of common eating in the same utensil by a woman which her husband has just taken his meal, without washing the utensil.

Other practices like washing hands before and after meal is common in both localities, but children in both localities are not much particular about it. Elders wash their hands simply with water.

A good number of both the population are not habitual of washing their hands with soap after defecation. Hindus are
very much particular about washing their lotas after defecation with mud. It is the way by which they make it pure in ritualistic sense. Children are different from the elders in washing their hand by soap in both the population. The habit of not using soap after defecation get them infected by many intestinal parasitic diseases and other water borne diseases. This is one of the major factor in getting them infected with the diseases. Human faeces as said earlier is the main cause for the spread of the disease as it has ova and cysts in them of many parasites.

In the light of the above discussion an attempt is made to study the level and degree of the personal hygiene of the population under study with particular reference to their attitude towards personal cleanliness and thus efforts made in this respect as well as their awareness of their health and the intestinal parasitic infection. The total scope obtained by the respondents in this respect is calculated and they are placed in low averages and high degree in terms of the level and degree of personal hygiene.

Ten questions are asked relating to the different aspects of personal hygiene of the respondent. A priori weighing of two is assigned to the question that indicates good and satisfactory hygienic condition. In case of bad condition zero is assigned to that aspect. Thus the total score obtained by the respondent is summed and they are
placed into three categories: poor, average and good on the basis of the value of the Q1, Q2, Q3.

The data relating to the urban locality is presented in table 4.25 which reveal that the personal hygienic condition of 34 respondents (22.66 per cent) is poor, while 65 of them (43.34 per cent) indicate average level of hygienic condition and the remaining 51 (34.00 per cent) indicate good hygienic condition.

In rural area 54 (36.0 per cent) have poor personal hygienic condition whereas only 35 (23.34 per cent) respondent have good personal hygiene. Remaining 61 (40.66 per cent) fall in between the two.

Table 4.25

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<td>34(22.66)</td>
<td>65(43.34)</td>
<td>51(34.0)</td>
<td>150</td>
</tr>
<tr>
<td>Rural</td>
<td>54(36.0)</td>
<td>61(40.66)</td>
<td>35(23.34)</td>
<td>150</td>
</tr>
<tr>
<td>Total</td>
<td>88</td>
<td>126</td>
<td>86</td>
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The personal hygienic condition in urban and rural population is also compared to know the difference between them. For this purpose $X^2$ test is applied. The value of $X^2$ is found to be 38.08 which is much higher than the tabulated value i.e. 16.92 and this is significant at 5 percent level.
of significant and 9 degree of freedom. The analyses is presented in Table 4.23.

It shows that both groups are different in respect of personal hygiene. As such we can draw the conclusion that personal hygienic condition in urban population are different from those of rural population.

It further shows that the personal hygienic condition in urban population is good while it is bad in rural population.
Significant at 5 percent level of significance and 9 df.

\[ X^2 = 38.08 > 16.92 \]

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Table 4.26
CHAPTER SIX

CULTURAL CONSTRAINTS
The concept of culture refer in a general sense to the designs for adapting the social and physical environments that characterize the life of a particular population. The concept is extremely global and inclusive, social groups, in contrast, are complex, varied and changing, and thus the concept of culture is at best a sensitizing one that gives us a way of viewing the social world. It is important to realize that the concept of culture is a scientific abstraction through which the investigator attempts to characterize the consistencies in behaviour that he observes as he studies the ways in which people deal with tasks and with other people. Although students of culture seek to find regularities and consistencies in patterns of behaviour from which they infer "cultural patterns", there is frequently great variation in behaviour among people in a particular community and, thus, so called cultural patterns are only rough approximation of the way people behave in a particular context.

The concept of culture is used in many different ways, and descriptions of cultural values, attitudes, and orientations vary greatly in their degree of abstraction. For example, it is commonly asserted by Americans that health is

1. Mechanics op. cit. p. 34.
an important cultural value. Talcott Parsons\(^2\), in an analysis of health value, has argued that the emphasis on health in American society is linked with other cultural values such as "activism" (orientations to mastery over the environment), "worldliness" (an emphasis on practical secular pursuits). In his view, not only does each of these values lead to an elaboration of the health sciences, but also the development of these sciences promotes man's opportunities to live in accordance with such values, the maintenance of good health enhances mastery and progress".

Bronislaw Malinowski wrote the article on culture for the Encyclopaedia of Social Sciences, placing emphasis on culture "as a functioning, active, efficient well organized unity, which must be analysed into component institutions in relation to one other, in relation to the needs of human organism, and in relation to the environment, man - made as well as natural"\(^3\).

A significant text for pattern theory is the historical and critical review by Alfred Kroeber and Clyde Kluckhohn of several hundred definitions of culture and their heroic effort


\(^3\) Bronislaw Malinowski, Culture in Encyclopaedia of Social Sciences, vol.4, New Yor; Macmillan, 1931, pp. 621-645.
to arrive at a summary formulation which, they believed, would be much acceptable. They observe:

"Culture consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiments in artifacts, the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values, culture system may, on one hand, be considered as products of action, on the other as conditioning elements of further action."^4.

They further consider culture as an intervening, variable between human 'organism' and environment'^4A.

The etymological meaning of culture is "the training and refinement of mind, tastes and manners, the condition of being thus trained and refined"^5. A new born human baby is only an organism and lacks the behaviour pattern necessary for living in human society. The infant acts on certain biological desires such as hunger, and know the sympathetic behaviour of his parents who satisfy those desires. But

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4A. Ibid.

5. The Oxford English Dictionary.
during his contact with others he bears the skills, knowledge, and thus learns culture. Linton defines culture as "the way of life of its members, the collection of ideas and habits which they learn, share and transmit from generation to generation". Man learns culture in society. He is actually a product of cultural environment. Every society develops a mechanism by which it transmits culture from one generation to the other. Culture plays an important role in human society as it develops norms, and determines the area within which an individual operates and manifests his behaviour.

The culture of a group affects every aspect of growth and development, the acquisition of goals and aspirations, the risk factors to which one is exposed and modes of response and adaptation. From conception to death, almost every major life experience is conditioned to some extent by cultural beliefs and orientations, who is eligible to mate, forms of contraception, family size and spacing, feeding and weaning these and many more depend on social customs and taboos.

All cultural traits, habits, pre-judices and the like are based essentially on a mixture of conscious and subconscious urges for individual and group survival and perpetuation.


As Kluckhon indicates: "Any cultural practice must be functional or it will disappear before long, that is it much shoehow contribute to the survival of the society or to the adjustment of the individual" . Every society has developed institutions and method of behaviour to safeguard and perpetuate the practices and beliefs which its members consider the most important, social arrangements or organisations have been developed over long periods of time on the basis of proven group experience to meet life's basic needs. Programmes such as public health necessarily involve the introduction to the culture of a society of new practices and changes in these arrangements.

Paul Benjamin also describes it in the same way as he says: "The cultural system does limit the range of individual behaviour and in this sense customs exert a restraining influence. Culture defines the value men hold, the goal they seek, the means they use. By thus organizing their outlook, culture is also a guide to action, a positive force that channels motivation and impart meaning to existence. We are too inclined to perceive the negative and overlook the positive when we behold the customs of others. Now a health programme strikes at the uncertainties of death and disease and it may seem ironical that the dissemination of improved

medical practices should be impeded precisely by those superstitions that owe their vitality to the hazards of life deriving from inadequacies of medical knowledge. But faith is strong where risks are great, and people act slowly when it comes to shifting their faith from a familiar system of security to an unfamiliar one, however, efficacious the new system may prove to be in the long run. It should not be overlooked that faith gives psychological security, whether faith is placed in magic, religion or science.  

It is a fact that health of a people reflects the way it chooses to live, but it remains a point of great significance. Patterns of illness and death in society are very much influenced by values affecting organization of the family, work and recreation. Man's constructed environment is a major cause of most parasitic and deadly diseases.

Cultural conditioning may contribute to or insulate individuals from serious health problems. Prohibited drinking associated with religious Muslim culture and the condemnation of drunkenness characteristic of Muslim values result in low rates of alcoholism in their society.

Many health workers reported that societies frequently

found it difficult to convince people of the protective values of immunization, decontaminated water supplies and other health measures without reinterpreting these measures so that they fit common cultural conceptions.\textsuperscript{10}

Some problems in public health work not only illustrate the importance of culture, but also show why public health programmes must take such factors into consideration.

1. Health officials attempt to persuade villagers in rural population to build laterines. Even when built, they are often not used because they are inconsistent with traditional forms of behaviour, or because their location interferes with cultural concepts of modesty or typical patterns of interaction. Going out "into the fields" to relieve oneself can be both a biological and social event.

2. For people to whom family and companionship is a central value the hospital is perceived as a threatening place. Rules of isolation for infectious diseases, visiting regulations and other restrictions produce a feeling of "aloneness" when people in the cultures may feel the greatest need for companionship and expect a large amount of familial attention.

3. Public health personnel frequently find it difficult to change peoples diet because social and religious ideas as well as nutritional ones, are

\textsuperscript{10} Margaret Mead ed. 1953. \textit{Cultural Patterns and Technical Change.} New York: World Federation of Mental Health, UNESCO.
associated with food. Certain foods are religiously unacceptable, other foods must be prepared in particular ways if group taboos are not to be violated. In other cases the introduction of new foods disrupts the pattern of family and group associations.

As the child develops in a culture, he learns the acceptable modes coping with the usual tasks relating to subsistence, social relations, and community obligations. He acquires a conception of himself and others, instrumental and expressive skills and psychological defences through which he protects his place in his group and his self image.

Even on the grossest level of cultural generalization, cultural beliefs have a profound influence on the health of the people. Indians may starve but will be reluctant to kill their cattle and will even share their homes and food with them. They will often allow monkeys to plunder their crops because they consider the monkey as sacred\[11\]. Similar attitude towards cattle we find in Egypt. Bogue and Habashy also described the attitude of the Egyptian villager towards his animals and the effect of it on attempts to improve health conditions by quoting one of those involved: "The Fellah has his own habits and traditions which have come down with his long heritage. Many of these habits are good but many contribute to bad health because of lack of experience or ignorance of their effect. The

\[11\] Ibid.
poorest farmers keep their cattle and other animals in the same house they themselves live in. One old man explained it to a health educator simply that: We like our animals and want them where we can see them at night. They are our most prized possessions on which we depend for our very food and livelihood." 12.

With some of the consideration in mind, it is obvious that many if not all cultural patterns bear some relationship to the degree of health of a people, and the extent to which they will accommodate themselves or by receptive efforts that might be made to improve their health. Let us concern ourselves with some examples of cultural patterns which may have a disadvantageous effect on the health of the people.

One obvious and commonly accepted reason for the factors involved in the causation of illness and health is ignorance or lack of knowledge. Now a days, it is common that the infant are traditionally taken off the breast at a very early age, following which they are fed essentially with adult foods, often directly from the family table. On analysing the causes of infant mortality in some areas indicated a high incidence of death due to severe digestive disturbances and intestinal infections. In addition to this instance, there

are many groups in which it is the custom for the mother to pre-chew solid foods for their babies and young children, not realizing the bacteriologic risk in their attempt to carry out what appears on the surface to be logical procedure.

One aspect of culture which is easily overlooked is the fact that it is more than a collection of customs, it is a system of customs, each one more or less is related to the others in a meaningful fashion. A culture has a structure as well as the content, it is not just like a haphazard pile of bricks.

The above discussion gives an idea that cultural factors are very important in health and diseases. Medical Scientists and sociologists express their concern with cultural factors. Park and Park rightly observe, "It is now fairly established that cultural factors are deeply involved in the matters of personal hygiene, nutrition, immunization, seeking early medical care, family planning, child rearing, disposal of refuse and excreta in short the whole way of life".13

The first thing that strikes a sociologist in India and which requires an explanation is the immense heterogeneity of medical beliefs and practices all over the country.

Besides the well known and wide spread medical systems such as Ayurvedic, Unani, Homeopathic and Allopathic, there are various types of localized folk and tribal medical beliefs and practices. All these beliefs and practices are, in varying degrees, different from each other in terms of tools, techniques, ideas and beliefs, and rationalization. But inspite of these differences, one finds that people belonging to all sections of the population including the most "westernized" resort simultaneously to elements of these varied systems.

Almost all the sociologist and anthropologists who have worked in this field have made interesting observations on the variety of medical techniques that are used by people living in small communities. M. Marriott observed that numbers of the same village or family often hold highly varied medical beliefs and follows widely divergent practices, "standardized medical treatment scarcely exist". L. Lewis writes: "An interesting aspect of our interview data is the way in which traditional views about disease exists side by side with modern germ theories. This reflects the fragmatic bent of the villager, who is willing to try anything if it works". One of the important tasks of the sociologists

is to collect more facts on this point and they explain this great heterogeneity in medical practices in terms of sociological framework. For instance, the social scientists suggest that this heterogeneity could be explained by subjecting the field of medicine to a scheme of analysis similar to that used to explain the heterogeneity of other items of Indian culture. Some of them refer to M.N. Srinivas's concept of spread and 'Sanskritization' and 'parochialization' which have been used to show how cultural items travel horizontally and vertically from one segment of the population to another. "As a consequence of uneven spread of the cultural items, one finds today that, where as certain cultural items are found all over India, there are another which have remained confined to particular sections of society". The work of R.S. Khare supports this approach. In his description of the village Gopalpur in Central Uttar Pradesh, Khare observes: " A detailed account of the concept of Jamoga (tetanus) clearly reveals gradual elaboration and Sanskritization of ideas regarding diseases as we move from lower to higher castes. The higher castes think about a disease more with the help of the ideas embodied in the greater tradition, while the lower castes largely seek explanations in spirits, impersonal forces, and tribal gods. There is also a difference in the elabora-

The fact is that the total ways of human life are determined by the culture. Every culture teaches human being how he has to take food, what material he has to use and what are permissible and what are prohibited to them. Similarly, the cultural traits develop different kinds of beliefs and opinions in human beings. The attitude and opinion of the people towards health and disease are based on, to a great extent, to cultural traits. A perusal to cultural traits reveals that there are certain elements and trends in culture which serve as regarding factors in adoption of hygienic way who check disease and to improve the health. In rural areas people still believe that diseases are the curse of super natural beings, when Gods and Goddes become angry they spread diseases. These beliefs are culminated in the cultural heritage which easily sways people to these apprehensions.

"Cultural constraints" means restrictions provided by culture, as I discussed above there are certain provisions in culture which restricts to adopt scientific and modern ways of curing the diseases, improving and maintaining the health.

In the earlier chapter an example cited when the personal hygiene was discussed that rituals are important in cleanliness rather than the hygiene. The concept of cleanliness in village is nothing but purification. They do not believe in germ theory of disease causation, neither they are aware of the relationship of bodily uncleanliness with the diseases. Ritual purity is very important to them against the scientific method of cleanliness, and thus, an orthodox Hindu in the village will not drink water by the hands of a man of lower caste however, neat and clean he might be, whereas he will not hesitate to accept water from the hands of a fellow casteman however dirty he might be in scientific terms.

During my field study it was found that both the communities by and large did not realise the gravity and consequences of parasitic hazards. They took it lightly and first they tried to cure it by their own devices. People were generally ignorant about how intestinal parasitic diseases are transmitted. Majority of them in rural population, i.e. 697 (38.0 per cent) did not know that the parasites could be transmitted by their neighbours, 33 of them reported their knowledge about their transmission through neighbour and rest of them showed their ignorance in this regard. In urban population 67 (44.66 per cent) of them gave their answer in negative and 28 (18.66 per cent) in positive, while rest of them did not hold any opinion.
Similarly a good number of the respondents in rural population, i.e. 83 (55.33 per cent) did not know that intestinal diseases exist in poor environmental conditions. Only 49 (32.66 per cent) were aware of this fact and 18 (12.0 per cent) did not give any reply. Whereas, in urban population, quite a different picture emerges. There 51 (34.00 per cent) knew that intestinal parasitic diseases could be transmitted due to poor environmental conditions while 44 (29.33 per cent) did not know this fact, and the remaining 55 (36.66 per cent) showed their ignorance about it. The rural people did not take much precaution against mixing up with those neighbours who lived an unhygienic life and were not at all mindful about having relations with those persons who maintained cleanliness. Urban people had some consciousness and they took noticeable precautions against mixing up with unhygienic people and in having relation with those who did not maintain cleanliness.

Illiteracy also plays a major role in the life of the people who are not aware about the causes and consequences of intestinal parasitism. People of the area felt that in the present circumstances which prevailed in their locality it was not generally considered desirable to get education. The percentage of such persons in urban areas was 55 (36.66 per cent) and 43 (28.66 per cent) did not agree with this statement while 52 (34.66 per cent) did not have any opinion.
In rural population only 35 (23.3 per cent) agreed with this statement and 58 (38.66 per cent) did not agree while 57 (38.0 per cent) did not hold any opinion. It was revealed during the field work that majority of them did not realise the gravity of intestinal parasite in both the populations. They were not aware of how the intestinal parasites originate and spread. This showed their ignorance and lack of knowledge about it.

Residents of both the communities generally felt that people did not care about the unhygienic conditions of their surroundings due to economic and social circumstances. They considered that economic and social conditions were responsible for unhygienic surroundings. Among rural people 75 (50.0 per cent) agreed with this view and 42 (28.0 per cent) opposed while 33 (22.0 per cent) did not have any opinion. In urban population 48 (32.0 per cent) felt that economic and social conditions were responsible for unhygienic surroundings and 42 (28.0 per cent) rejected this view while the remaining 60 (40.0 per cent) do not express any opinion.

In rural population a good number of them thought that suffering with the disease is the matter of chance or luck but against it urban people did not think about it in this term and most of them were against this view.

Generally, people are found of natural surroundings and they are accustomed to that life. They prefer to live in natural surroundings whether hygienic or unhygienic. They do
not worry about such ecological conditions except that they appreciate to live free from all artificial amenities which the urban people fabricate for themselves. That is the reason why they are not interested modifying the conditions in which they live. Although this tendency motivates man to create artificial or man-made environment to live a comfortable life. But the urban people do not prefer unhygienic life and they want to modify their surroundings. They want to change and apply certain measures to make their environment hygienic and beautiful. This difference is due to their cultural understandings and their concept of hygienic living. Rural people due to their cultural stigma, do not want any change. They never think about it. It certainly depends upon how they perceive illness and correlate it with the environment.

The present study has revealed that mostly people, inspite of their registration in the Rural Health and Train-Centre, Jawan, did not prefer to go there for petty health complaints. They first applied their own devices to cure the diseases themselves and after failing to get relief, reported to the Health Centre. It was also observed that the women were not particular about visiting the Health Centre for ordinary and seasonal ailments, they preferred to treat themselves at home while the males did frequently visit the Centre. Women generally used their own devices for the remedy of the diseases caused by common or parasitic
infections. This was one of the reasons that parasitic infectious cases were not reported in a sufficient number to the Centre. The present investigator traced out many cases of this infection during the conversation with the respondents. Many of them reported about the Ascariasis but they never reported to the Centre for the treatment.

Contrary to it in the urban Centre people were found aware of this infection and did not resort to apply their devices for curing it. Although a few of them tried their own treatment, an overwhelming majority preferred to report to the Centre. They never avoided visiting the Centre when they noticed the symptoms of their ailment. One of the factors of this promptness had been the existence of the Centre within their approach. In urban Centre women were frequent visitors to the Centre than the males. Men usually had to go to their work and could come back in the evening while the working hours of Centre were only upto the noon. Hence, only the women who generally stayed at home for their domestic responsibilities could conveniently avail the facilities of the Primary Urban Health Centre.

The present study shows that in rural population 59 (39.33 per cent) of the respondents felt that the people of the area considered it superfluous to consult the doctor for such ailments and 68 (45.33 per cent) of them did not
hold any opinion as such. In urban population only 39 (26 per cent) of the respondents considered it superfluous to consult the doctor for minor illness while 50 (33.33 per cent) preferred to consult the doctor and 61 (40.66 per cent) of them did not have any opinion.

However, the cultural constraints as observed in both rural and urban areas, were studied in terms of seven aspects of people's behaviour. The first was the transmission of parasitic intestinal diseases. The purpose was to know the role of people's general belief about the transmission and spread of the diseases due to cultural practices. If people believed that diseases were transmitted and spread by the evil sprits, caused by the destiny or by sin they neither took to maintain cleanliness nor avoid to mix up with unclean people. They were also not very much particular to keep their surroundings clean. Thus, three questions were framed relating to this aspect. The second was the interaction with inhygienic neighbours and unclean persons. Two questions were framed to know the inhibition in the people under study about their interaction with inhygienic and unclean persons. If people did not mind to mix up with unclean persons, they naturally invited the culmination of parasites. The third aspect was education. It is evident that education gives us adequate knowledge about our existence and the surrounding in which we have to exist. It enables us to know what is
beneficial and what is harmful for our life. It was, thus, tried to know the reaction of the people about education as well as the factors related to the present of knowledge. Two questions were framed about this aspect. The fourth aspect related to the attitude of the people towards intestinal parasites. This aspect was studied and assessed in terms of the gravity of the intestinal parasites, their origin and spread as well as the precautions to be taken. Further, was also investigated to know the extent of the respondents concern about these parasites. Thus, four questions were asked to study this aspect. The fifth aspect related to the practice of cleanliness. In this context, the researcher tried to know the feeling of the respondents towards cleanliness. As to, whether they felt it inconvenient to maintain cleanliness or were indifferent towards inhygienic conditions? Questions relating to this asked were because the maintenance of cleanliness is a characteristics of Indian culture. The sixth aspect related to the people's preference to live in a natural environment. Villagers generally preferred to live in wild natural surroundings where they met their necessities of life in a very rustic manner and invited the germination of intestinal parasites. Most of the villagers did not want to modify or improve their crude natural surroundings as they were very accustomed to them. Enquiries were being made to find out the particular characteristics of their
culture. The seventh and the last aspect reflected the trends of the treatment of diseases caused by intestinal parasites. In this aspect it was enquired as to how frequently did the respondents visit the primary health centre, how many of them used their own devices to cure the diseases and to which extent did they consult the doctors. In all, eighteen questions were framed to study the cultural constraints and relevant informations were collected to find out the degree of cultural constraints which the people have.

The present observation about the cultural constraints gave an idea of the attitudes, beliefs, customs and other cultural and social constraints that help to spread the disease. The purpose was to study the extent to which they were found in both the areas where the study had been conducted. Many of the cultural views had been described in the earlier chapter. The total score of cultural constraints was composed to present an overall view of the cultural constraints on the basis of the value of Q1, Q2, Q3 and the respondents were placed in low, average and high categories. If a respondent had high constraints a prior weighing of two was assigned to him and in the case of less constraints he was assigned zero.

The data presented in Table 5.1 revealed the extent of cultural constraint in both rural and urban population
under study.

Table 5.1

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<td>129</td>
<td>43</td>
<td>80</td>
<td>26.66</td>
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</table>

The present study establishes that only 26 per cent of the respondents in rural area had less cultural constraint while 30 per cent of them had high cultural constraints. A considerable number of rural population, i.e., 44 per cent felt in the middle. Viz-a-viz to it, in urban area 30.34 per cent of the respondents had less cultural constraints and only 23.44 per cent of them had high cultural constraints. However, the majority of the respondents, i.e., 43.0 per cent in urban area also felt in the middle as did the rural ones.

The cultural constraints in urban and rural areas were also compared for having an adequate understanding of both the groups. For this purpose, test was applied to find out the difference between these two groups. The value of $X^2$ was found to be 43.12 which was higher than the
tabulated value, i.e., 27.59 and thus significant at 0.5 per cent level of significance and 17 degree of freedom ( \( \chi^2 \) results are presented in Table 5:2).

It shows that both groups were different from each other as far as the cultural constraints were concerned. Consequently, we come to the conclusion that the degree of cultural constraints that prevail in rural area is different from that of urban area. In rural area people have high cultural constraints while in urban area people have less cultural constraints.
Table 5.2

|     | 525 | 550 | 583 | 607 | 629 | 650 | 673 | 697 | 723 | 749 | 770 | 794 | 811 | 824 | 833 | 848 | 860 | 873 | 900 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| u   | 182.13 | 147.98 | 181.57 | 166.44 | 148.51 | 152.99 | 163.08 | 137.30 | 137.94 | 149.07 | 164.76 | 159.71 | 174.28 | 173.16 | 178.21 | 152.99 | 188.29 | 189 |
|     | 186 | 166 | 160 | 156 | 158 | 160 | 159 | 159 | 151 | 151 | 152 | 153 | 153 | 152 | 152 | 150 | 152 | 154 |
| n   | 142.87 | 115.62 | 142.43 | 130.56 | 116.50 | 120.01 | 127.01 | 107.07 | 116.93 | 129.24 | 125.29 | 136.72 | 135.84 | 139.79 | 149.07 | 120.01 | 147.71 |
|     | 141 | 165 | 162 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 | 166 |
| R   | 239 | 200 | 139 | 164 | 136 | 117 | 80 | 81 | 106 | 134 | 149 | 150 | 155 | 156 | 157 | 161 | 152 | 162 |
|     | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
|     | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |

Table 5.2: Calculated value $\chi^2 = 27.99$ at 0.05 level of significance and 17 d.f. $\chi^2 = 43.12$ significant at 0.05 per cent level of significance and 17 d.f.
CHAPTER SEVEN

PATIENTS' PERCEPTION TOWARDS DISEASE AND TREATMENT
Perception, as defined by the Random House Dictionary, is "the act or faculty of apprehending by means of the sense or of the mind". It determines the opinion and attitudes of the people towards any object. In most of the cases man acts according to his perception. Similar is the case with the patients, interact with the external world according to their perception. They have their own perception about the diseases, physician, and the treatment. The way patients perceive disease and illness is important because according to them they apply different devices to cure the disease. Sometimes they also seek help in the treatment of diseases from the family members and neighbours who advise them according to their own perception.

People who are not aware of the gravity of diseases have no anxiety at all and thus do not apply any treatment. When they come to know about the disease they think that it is developed as a matter of chance. Hasan observes in his study that "many of the maladies or ailments are not diagnosed by the people. For example, helmithic infestations and anaemia, which are so common in the area, are not known to them. There seems to be little anxiety concerning health, because disease

is regarded as a matter of chance, and it is believed that there is very little that a person can do to maintain it" 2.

It is observed during the field work that people in rural area do not take illness seriously. They believe that birth, illness, marriage, and death are controlled by God and take place by his will. There is deep rooted belief in the area that every living creature on this earth has a particular span of life upto which it has to live in this world. One who has completed that span, can in no way escape from death and no one would meet his death earlier than schedule for him. It is partly due to this very deep rooted conviction that some of the elderly and middle aged people proudly claim that, so far, they have never visited a physician in spite of several illnesses they faced in their lives. These are also some of the reasons that they do not consult physician, when they get infected. Many of them during informal discussion reported about the parasites. Some of them said, that they have seen them but they do not bother to visit health centre.

Illness as such is taken primarily to mean not feeling well. Thus a number of maladies are not recognized as illness because they are not accompanied by subjective feelings or discomfort. People do not usually care for minor

2. Hasan op. cit.
ailments and unless seriously ill, they do not seek cure. Loss of health is attributed to more than one cause by rural folk and hence the treatment is also of several types. The various causes for sickness as understood by Indian people may be classified into two broad categories:

1. Super natural and
2. Physical

Both the supernatural and physical causes may be sub-divided according to the type of causative agent recognized by the people. For example supernatural causes include disease caused by (a) breach of taboo; (b) sorcery; (c) spirit intrusion; (d) devil eye; (e) wrath of gods and goddesses; and (f) ghost intrusion. There are, on the other hand, many diseases which are considered to be caused by natural or physical factors. The treatment of such diseases caused by include certain materia medica of animal, vegetable or mineral origin.

The treatment of disease may also be possible through primitive medicine, and modern medicine or scientific medicine. According to Ackerkneert "Primitive medicine is primarily magicoreligious, utilizing a few rational elements, while our (Scientific) medicine is predominantly rational and specific, 

3. Ibid.
employing a few magic elements". 4

In this age of rapid progress in medical technology, one might wonder why we pause here to consider "backward", or nonscientific system of medicine. We do so for reasons which have both theoretical and practical importance. First, it is generally agreed that sickness and disease are a universal threat to individual and group survival. It is important for the development of a parsimonious theoretical frame work for understanding medical behaviour. We also know how groups in other cultures meet this challenge. What attitudes and beliefs they hold, and what means they employ. As with all aspect of human behaviour, the social scientist studying medicine must always keep in the fore ground the question of whether specific behaviour pattern are universal reflecting the exigencies of human situation, or whether they are the special product of configuration of a specific culture. We may assance that problems people face and the psychological needs arising from these problems are everywhere at least similar despite differences in theories about and techniques for coping with them. Thus, studying the Indian or non-western societies provides an opportunity to observe human behaviour with respect to a universal problem- that of illness- in the context of radical different cultural settings.

Before looking at specific, detailed characteristics of non-scientific medical beliefs and practices, it may be helpful to point out, in a broad perspective, some features they hold in common with scientific or modern medicine. First medical culture patterns are not isolated but rather are integrated into a complex net work of beliefs and values that are part of the culture of any society\(^5\).

In modern societies diseases and illness are most often seen as natural phenomena and hence subject to investigation and study by scientific methods. Consequently, beliefs about causes of various diseases require scientific proof for substantiation. Thus, answers to questions of etiology are sought in the laboratory and in the field under controlled conditions. In most primitive societies, however, many if not most diseases are seen as manifestations of supernatural powers; thus causal explanation of these societies take on magico-religious tenor\(^6\).

It has already been indicated that certain supernatural causation are attributed to certain types of illness in non-western societies. The physician, surgeons and other highly educated people regard the recognition of such causes of disease as unusual primitive and supernatural and their

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6. Ackerknecht, op. cit.
methods of diagnosis and treatment as irrational. But what seems to be supernatural to westernized and educated persons is quite natural to rural folk. For supernatural causes of illness magical methods of diagnosis and treatment are followed. This may therefore, be called magic medicine. Magic as defined in Webster's dictionary is "the art or body of arts, which claims or is believed to be able to compel a deity or supernatural power to do or refrain from doing some act or to change temporarily the order of natural events, or which claims or is believed to produce effects by the assistance of supernatural beings, as angels, demons or departed spirits, or by a mastery of secret forces in nature".

The supernatural or primitive system of medicine regarded as traditional system of medicine as systems of values beliefs, knowledge, objects, tools, and techniques on one hand and as organization of roles, activities and relationship on the other hand. These systems. Should be therefore be studied with reference to (a) their distinctive notions regarding different aspects of disease, health, food, human anatomy and physiology etc. (b) their organization of persons, roles, groups and categories. Studies of the relationships between these systems of the medicine and other spheres of social life, such as religion, astrology, magic and morality, will make our knowledge, not only of these systems, but also

of these other spheres of life more meaningful and complete.

Some social anthropologists who have worked on different aspects of medicine have underlined the importance of such studies. According to Lewis, the advantage in learning about the indigenous beliefs and practices of the community is the insight it gives into the world view of the people. He observes:

"Concept of disease causation are part of a society's total world view, which is also reflected in other spheres such as agriculture, politics and other interpersonal relations".  

Some other social anthropologists have given descriptions of some of these aspects of these traditional systems and have indicated the types of relationships that may exist between these systems and other spheres of society. For example, S; Fuchs has given a description of how two types of medicine men, Janka, who works through divination, and Barwa who works by calling to his aid a superhuman force, practice their respective arts. The medicine men and the villagers among whom they practice their art have a common faith in the techniques used. In a study Shamanism, E.F. Harper describe


a shamanistic session in the Malnad region of Mysore. "A shaman in this South Indian Setting is a man who has familiar spirit that he can ask to possess him whenever he desires." When he goes into a trance, the spirit speaks through him, "The purpose of the Shamanistic possession is to allow people in the human world to have advice and help from a super human being whose knowledge and ability to accomplish certain ends is superior to that of any human."

Elwin has also described the role of male and female shamans among the hill sooras of Orissa. The services of these shamans are solicited in the treatment of disease, for the protection of crops and in the rites for the dead. The shaman emerges as one of the most important figures amongst the saoras. He says: "To the sick and lovely the shaman is the nurse and friend, the guide, the analyst..... an angel of strength and consolation."

From the literature available it seems that one most distinguishing characteristic of traditional medicine is the notions regarding disease causation. Here in one finds an extremely close relationship between medicine and such aspects

11. Ibid.
as religion, morality and magic.

The tendency for simpler societies to provide supernatural explanation of illness is not surprising. When compared with Urban societies, they tend to be previously religions. In India beliefs in magico-religious causes of diseases have their root in cultural history. A study of the vedic records of early medicine reveals that Hindus did not recognise difference between diseases and demon and this distinction developed later in the growth of classic medicine, which attempts to deal with many maladies strictly among the lines of humoral therapy or through sorcery.!

Breach of certain taboos is believed by village folk to be responsible for certain diseases. Both Muslims and Hindus have affected each other's values beliefs and customs. Certain Muslim also observe Hindu taboos although they do not believe in god and goddesses.

Sorcery is another kind of witchcraft especially linked with causing and curing disease. In a suspected case of spirit intrusion or sorcery, the services of exorcist (naut) are obtained. An exercist is usually a Bhagat who is considered to be in the possession of specialized knowledge of chasing away the evil spirit or nullifying the effects of sorcery by means of conjurations.

An other interesting and widely accepted belief connected with health and disease is the effect of evil eye. Every individual and even certain animals are considered to be in the possession of certain amount of supernatural power. Children are considered to be most susceptible to the evil-eye, but it is by no means confined to them. It is believed that as soon as a person including a close relation utters the sentence, looking at the child "How beautiful the child is", the child is bound to have a mysterious evil effect on its health. It may suffer from diarrhoea, develop fever and cry too much and in a short time may become weak. These are the symptoms by which evil-eye (nazar) is recognized among children. It is commonly held that in the case of evil eyes, the person should not be taken to a physician, because the physician does not know it nor does he show any respect for such ideas. On the contrary, he ridicules people if they talk about it. It is firmly believed that the modern medicine is not only incapable of curing a case of evil-eye but on the contrary, it may prove to be injurious and the condition of the patient may worsen. Thus, for unusual cases of illness, unusual methods of diagnosis and treatment are followed by the people. Evil-eye, as pointed out earlier also, is known to affect adults also but in a different manner. This is connected with eating. For example, a person is eating a particular food.

If an other person watches it and feels like eating the same, but does not get it, than there may be a mysterious effect of the evil-eye of the second person. Indigestion will result, vomiting may occur and diarrhoea may be caused. In this case also, the patient will have to approach the exorcist.

It is, therefore, clear that just as sophisticated urban people have preventive medicine, based on science, the rural people have "preventive magic" and the aims and objects of both are the same. This also illustrates the similarities between magic and science because human beings use magic and science to reach the same goal. But the basic philosophical assumptions of magic are different from science because magic is based upon faith in the supernatural forces but science depends up on rational outlook and looks for physical causes.

Positive aspect of non-western therapies

The strength of non-western medical systems can conveniently be considered under the categories of psychosocial support therapies and clinical or therapeutic acts, especially indigenous pharmacopeias. Medical anthropologist who have been concerned with these questions generally feel that non-western medicine has proven most effective. This is probably due to the fact that to a far greater extent than in the west as we have seen, illness in traditional societies (serious illness, at least) represents dysfunction not only within
patient's body, but also in his relationship with his society and perhaps, dysfunction as well as within the society itself.

This view is nowhere more clearly seen than among the Navaho. "The Navaho conception of health is very different from others. For him, health is symptomatic of a correct relationship between man and his 'environment', the world around him and his fellowman. Health is associated with good, blessing and beauty - all that is positively valued in life. Illness on the other hand, bears evidence that one has fallen out of this delicate balance." 15. It is this comprehensive man environment setting in which so many non-western peoples view illness that explains why the role of powerful curer (The Shaman or the folk doctor) is conceived to be far broader than that of his western counterpart. The curer is usually not simply therapist, one skilled in the ways of treating symptoms; indeed, he works to maintain harmony between man, his society and his environment.

This fundamental contrast in views about the context of illness between the west and the non-west helps to explain the frequent importance of public curing ceremonies found, at least in so far as "establishments" medicine is concerned,

only among traditional peoples. Some times the role of public is simple that of interested or amused spectators who enjoy a good show. Perhaps more often relatives and friends play active part in rituals.

For example, among the Navaho the members of family who have brought a "singer" to conduct a curing rite for an ill member of the group all remain during the entire ceremony, which may last up to nine nights. Relatives and friends come to the ceremony and take part in the chants and prayers directed by the medicine man and his assistant. By association they too receive position benefits from the cure, and in turn the presence of the family and friends is assuring to the patient who feels they are all working to restore his health.\(^\text{16}\).

There is a virtual consensus among medical anthropologists that in its psycho-social supportive dimension, non-western medicine is often remarkably effective. Adair writes of the Navaho sings that "There is no doubt that these curing ceremonies, in which the Navaho people have so much faith, have a psychotherapeutic effect on the patient. There is also good evidence that the sweat bath sedative and the body massage that is used in some ceremonies may act as beneficial physiotherapy.\(^\text{17}\)."

\(^{16}\) Adair op.cit. p.95-96

\(^{17}\) Ibid
Saunders, generalizing from his experience has written in his book. "The expected attitudes towards a given element of folk medicine is one of uncritical acceptance. Failure does not invalidate a practice or shake the belief on which it is based. A remedy is tried, and if it works no surprise is evinced, since that is what was expected. If it does not work the failure is rationalized and something else tried. In most illness the patient ultimately either recovers or dies. If he gets well the remedial technique is credited with effecting the cure. If he dies, the reason is not that the remedy was in appropriate, but that the patient was beyond help." 18.

On balance, when judged not alone in terms of therapeutic ends but also against all religious, legal, social and psychological functions they may be expected to fulfill, in the estimation of most anthropologists non-western medical system came out remarkably well as adaptive cultural institutions that promote the well-being of the societies concerned.

Discussing the reasons for the success of "premitive" medicine "Ankerkecht" 19 points out that primitive medicine contains a sufficiently large number of medical practices which are also employed in modern western medicine. Among

19. Ankerkecht op.cit.
these are massage, sun bath, cauterization and sorcery, while these therapeutic devices are used in magico-religious as well as in "empirical" ways in folk societies, they are used only in magico-religious ways in primitive societies. A second reason for the success of "folk medicine" lies in its assimilation of many drugs used in western medicine.

When we study the traditional system in the above background in a process of interaction, our focus of interest shifts to the determination of how and in what manner these systems have incorporated and continue to incorporate, elements from each other and also from modern system of medicine. Such studies will yield us the much needed answers to the questions, as to why some elements of the modern system of medicine are accepted and others rejected. The relevant sociological questions in this context are: what are the dynamics of diffusion of items of culture? What is the rationale behind acceptance and rejection of these items? what conclusion can one draw from these from planning change? Some of the studies already mentioned provide some answers to these questions, but the validity of those can be established only after many more studies have been conducted on this problem.

The above discussions about folk or non-western medicine and their importance gives us a comprehensive idea to assess the patient's perception towards causation of diseases and its remedies. How beliefs, customs and other
social and cultural taboos dominate their sense of perception. The purpose of the study is to know how do people perceive the diseases and to what extent their perception determines the attitudes and opinion of the respondents under study.

In this context, certain questions were asked to both the urban and rural respondents to assess their perception about the disease and methods of treatment they apply for its remedies. The responses were analysed and it was revealed that in rural setting majority of the respondents were ignorant about the causation of diseases. According to the data 50 (33.34 percent) out of 150 rural respondents believe that diseases are caused by evil spirits while 36 (24 percent) believe that they are caused by some deficiency. The interesting point is that the majority of them i.e. 64 (42.66 percent) are indifferent and have no opinion at all. In comparison to this in urban areas 86 (57.33 per cent) feel that diseases are caused by some deficiency or other metabolic changes in the body, while only 18 (12.0 per cent) have the opinion that the causes of disease are not deficiency and remaining 46 (30.66 percent) have no opinion at all. Thus it indicates a significant different in their opinion of rural and urban people with regard to the causation of diseases.

In the same context it is important that a considerable number of rural respondent think that they do not become sick due to some one spell on them. The actual number is 60
and corresponding percentage is 40. Against it 38(25.34 per cent) of the rural population under study think that they become sick due to some one spell on them. The remaining 52(34.66 percent) are indifferent. In comparison to this in urban area the majority of respondent i.e. 76 the corresponding percentate is 50.66 are of opinion that they do not become sick due to some one spell on them while 20(13.34 percent) are of opinion that they become sick because some one spell on them and the remaining 36 per cent have no opinion at all.

The same is the case with the attitude of the respondent regarding other aspects of the causation of disease, as the majority of both rural and urban respondent is of opinion that the intestinal parasites neither develop within body nor harm it due to the misdeeds of person. In urban setting 60 per cent of the respondents are of this view and only 15.33 per cent are of the opinion that intestinal parasites originate due to the misdeeds of persons. The remaining 24.66 per cent are indifferent and have no opinion at all. In comparison to it in rural context 42.66 per cent of the respondents are of opinion that spread of intestinal diseases has nothing to do with the misdeed of persons. While 20 per cent of them believe that the intestinal parasites come into being due to the misdeed of the people and the remaining 33.34 per cent are different. It shows that rural respondents are 17.34 per cent more traditional to urban respondent.
The rural people generally consult faith healer or other magic man in order to cure the diseases. This indicate their attitude towards the disease and their faith in devices other than medicine. The data indicate that in urban area only 20 (13.34 per cent) respondents consulted faith healer or some other magic man to relieve them of intestinal disease while 98 (65.34 per cent) did not at all consult any faith healer to relieve them from disease. The remaining 32 (24.34 per cent) were indifferent. In comparision to this in rural area 85 (56.66 per cent) respondents consulted the faith healer or some other magic man while only 22 (14.66 per cent) did not consult such people and remaining 43 (28.68 per cent) were indifferent. It clearly shows how traditional rural people are. Because the number of traditional persons in rural area is 43.33 per cent greater than the number of traditional person in urban area. It is also important that the percentage of those who hold no opinion is 6.34 per cent is greater in rural area in comparision to those of urban area. It has also been observed that rural people inspite of maximum facilities provided to them from health centre that do not like to visit and consult the doctor because they feel that modern treatment is not much suitable to them. The perception of people about the treatment of diseases is also interesting. Among rural respondents 56 (37 per cent) of them are of opinion that there is no other way to cure these diseases other than the modern medicine, while 60 (40 per cent) of them feel that
there are also some other ways to cure the diseases other than modern medicine and 34 (26.66 per cent) are indifferent. Against it urban respondents have quite different view about treatment of diseases. According to data 87 (58 per cent) respondents do not think that some other ways also exists to cure the parasitic diseases other than modern medicine while 15 (10 per cent) of them think that there are also other means to treat these diseases a part from modern medicine. It indicates that in urban area people, by and large, prefer to use modern medicine for the treatment of intestinal parasitic diseases. They generally consult the doctor and adopt modern method of treatment. There are few people who do not prefer to use modern medicine. We also find such type of respondent who have no opinion about the treatment of diseases, their number is 48 and corresponding percentage is 32, they neither prefer modern medicine nor any other medicine to cure diseases. It is a matter of convenience for them, some time they use modern medicine and some time they adopt other means to cure the diseases. The respondent of both the communities are not very particular about the instruction of physician. They do not generally follow them strictly. They are only interesting in taking the medicine. They are particular neither to follow the advice of the physician nor to take prescribed doses of medicine. The data regarding this aspect indicate that in rural population 50 (33.34 per cent) respondent do not follow the instruction of the physician strictly, while 40 (26.66 per
cent) of them follow the instruction and 60(40 per cent) do not have any opinion. It shows that the villager are not particular about the instruction of the physician. Similar observation is also made by the doctors of both the centres. They also express the same opinion and point out their difficulty in treating the patient due to this particular behaviour of respondent that they do not follow the instructions of the doctor strictly. Generally they rush to the centre when they get diseased and take medicine by the centre and after taking one or two doses of medicine and they discontinue the medicine without completing its prescribed doses. After sometime they again come and make the same complain. In comparison to it among rural population 70(46.66 per cent) do not follow the instruction of physician strictly while 26(17.34 per cent) of them do follow the instruction 54(36 per cent) do not have any opinion. One of the main factor for the spread of parasitic diseases in the area is their lack of knowledge about its causes of infection and mode of infection. People of the area generally are not aware of the fact that if one family member suffers from intestinal parasitic infection, whole of the family become infected. The fact is that they do not mind the gravity of this infection and do not know much about it. Majority of them do not know that parasitic infection can be spread by human faeces and so they do not take any precaution in this regard.
The above discussed data reflects the nature of patients' perception towards disease and its treatment. They also indicate their behaviour, their attitude and the lifestyle which they have. They also enable us to understand people's feelings and their reaction when they fall ill. The data further indicate how much people are dependent upon, magico-religious and other non-western method of treatment. We come to know people's opinion about faith healer and ritual man to get relief from certain disease.

The data reflect that rural people are much inclined towards magico-religious and supernatural causes of diseases where as most of the urban people regard such causes of disease as unusual and primitive and their method of treatment as irrational and non-scientific. The rural people hesitate to consult, the modern physician because in their opinion these physician do not understand their feelings and thus cannot treat their diseases. The modern physicians according to the people have no cure. On the other hand modern treatment sometime proves to be injurious. Thus they prefer to treat these unusual cases of illness by unusual method of diagnosis and treatment. Similarly most of the rural people do not understand the cases of intestinal parasitic diseases and their mode of infection. They are also not aware that harmful aspect of these diseases.

In comparison to this urban people are to some extent, aware of the causes and treatment of intestinal diseases.
They are also the more frequent visitor to the health centre than the rural people.

In order to study peoples perception and their attitudes towards health and diseases, certain questions are framed on the basis of pilot study and later on administered to the respondents. A part from this other queries are also made to know their reactions about the issues and problems concerning with the diseases and their treatment. The researcher also observed their life style and cultural environment as well as the health facilities which they have, as non participant observer.

In all twelve question are framed to study the respondents' perception towards disease and their treatment. Relevent information are sought to find out the nature of people's perception in both urban and rural settings. The total score of respondents perception is computed to present an overall view of their perception and the respondents are placed in low, average and high categories on the basis of Q1, Q2 and Q3. A prior scoring of 0, 1, and 2 is assigned to each response keeping the objective of study and the concerned hypothesis in view. Table 6.1 deals with the nature of perception of the respondents in both rural and urban setting.

According to the data only 22.66 per cent respondents of urban area secured lowest score in the scale of
perception. It shows that their perception is traditional because they express traditional view about the diseases and their treatment. They believe that supernatural elements cause diseases and as such they use non-scientific method to cure these diseases. Against it 46.68 per cent indicate modern perception as they express modern view of diseases and their treatment. They do not have faith in magico-religious explanation of health and illness. However 30.66 per cent of urban population fall in the middle.

In comparison to this, in rural area 58 (38.66 per cent) respondents show traditional perception of the diseases. They express traditional view of the diseases and their treatment. As such they prefer to use their own devices and non-scientific method of treatment. Only 28 (18.68 per cent) of them express modern perception. They believe in scientific causes of disease and as such they
prefer to use modern medicine and do not prefer traditional medicine. The majority of rural population i.e. 64 (42.68 per cent) have no particular opinion. Further the perception of urban respondents is compared with that of rural to have an adequate understanding of the problem in two different settings. For this purpose $X^2$ test is applied to find out the difference between these two groups. The value of $X^2$ is found to be 27.25 which is greater than the tabulated value i.e. 19.68 and thus significant at 0.05 per cent level of significance and 11 degree of freedom. The analysis of $X^2$ is presented in Table 6.2.

The result shows that both the groups are different in respect of perception towards health and disease. It leads us to conclude that nature of perception that prevail in rural area is different from that of urban area. In rural area people are much inclined towards the traditional view of diseases and their treatment, while in urban area people do not manifest traditional view and as such by and large, they practice modern way of treatment.
\[X^2 < X^2_{0.05}\]

\[X^2_{0.05}\text{ at } 11 \text{ d.f.} = 19.68\]

\[X^2_{\text{calc}} = 27.25\]

\[X^2 = 27.25\text{ significant at } 0.05 \text{ level of significance and } 11 \text{ d.f.}\]

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\[\text{Table 6.2}\]
CHAPTER EIGHT

CONCLUSIONS & DISCUSSION
The conditions in which man lives determine his health and physique. Certain conditions are necessary to maintain our survival on the earth. In the absence of those we develop certain deficiencies which later on cause diseases. It is thus necessary to improve the living conditions if we want to maintain the health of individuals. In this context it is important to know that what conditions generate which type of germs that cause diseases or which of the conditions is responsible for developing which type of deficiency that cause diseases. Here an attempt is made to study the extent to which conditions help to spread intestinal parasitic diseases. Thus the present study deals with social and cultural factors that are considered to be responsible for the spread of such diseases. In bring it is tried to find out the relation between socio-cultural factors and the intestinal parasitic infection. Further this relation is assessed in two different settings, rural and urban. In this context it is also tried to know the cultural constraints that help to spread the diseases. Lastly the investigator has studied the perception of the people about diseases and their treatment in the both rural and urban settings. The broad conclusions drawn from the present empirical study are presented here.
1. **SOCIO-DEMOGRAPHIC TRAITS:**

The socio-demographic traits of both the rural and urban population under study are investigated to understand the personal attributes of the respondents. For this purpose relevant information are sought, about age, sex, income, occupation, literacy, religion and family size. All of these personal traits are studied as independent variables. The informations about these traits reflects the social background of the respondent and further enable us to understand the characteristics in which prevalence of certain diseases is of great degree.

1.1 **AGE:**

The data reveal that the overall prevalence of Intestinal parasitism in both rural and urban population is highest in low age group and school going children. The percentage of such prevalence is 42.

The result further indicates that the similar degree of prevalence with some differences is found in rural, urban population separately as their respective percentages are 46.66 and 37.33. The analysis also shows that the lowest prevalence of intestinal parasitism is amongst highest age group i.e. 40 to to above. The overall prevalence including rural and urban respondents in highest age group is 3 percent. The percentage of high age infestation
in rural area is 5.33 and in urban area it is 0.67. Lower age infestation is also observed in many empirical studies conducted in this respect. Rao et al\(^1\), Agarwal et al\(^2\), Gupta et al\(^3\), Das\(^4\), and Rao, Parihar\(^5\) et al, Pal and Sen\(^6\) found the high rate of prevalence of intestinal parasites in low age group.

1.2 **SEX:**

The prevalence of intestinal parasites in different among males and females. As far as the total population including rural and urban is concerned the prevalence of parasitic diseases is highest among males. The actual percentage is 51.0. The overall prevalence of intestinal parasitic diseases among females is 49.0 percent. The interesting feature is that the degree of prevalence among males and females in urban area differs from the prevalence among such groups in rural area. In urban area males have lowest prevalence of intestinal parasitem. Its percentage

1. Rao op, cit.
2. Agarwal op, cit.
4. Das op, cit.
5. Parihar op, cit.
is 44. In comparison to this females have highest prevalence of such diseases as 56 per cent of them suffer with these diseases. The rural population present an opposite picture. Among them males are more prove in comparison to females. According to the analysis the prevalence of intestinal parasitism among males in rural area is 58 per cent while the percentage of female is 42. The analysis leads us to conclude that in rural area females are more prone to intestinal parasitism than males. Same result have been observed by the empirical studies conducted in this context. Das and Rao⁷, Aruna Parihar⁸ and Sen⁹ had drawn the same conclusion from their respective studies. All of them observed the same result i.e. high rate of infection among females than males. The prevalence among the females may be perhaps due to their defecation habits. Generally females due to the privacy repeatedly visit for defecation the same accumulated and shaded areas which are moist and heavily contaminated infected larvae.

1.3 MARITAL STATUS:

In the entire sample the highest number of patients suffering from intestinal parasitism is of bachelors and lowest is of widows and separated. According to the analysis 63 percent are bachelor 32.6 per cent are married and 4.4 are widows or separated. As for as the rural and urban

7. op cit. 8. op cit. 9. op cit.
population separately concerned both of them show similar result with some differences. Among urban population 64 per cent are bachelor. 30 per cent are married, 6 per cent are widows and separates. Similarly in rural area 62 per cent are bachelor, 35.2 per cent are married and 2.7 per cent widow. It indicates that bachelors are more prone to parasitism infestation in both rural and urban area in comparison to other groups.

1.4 RELIGION:

Two major religious groups are found in the population under study. In the entire sample 55 per cent are Muslims and 45 per cent are Hindus. But in urban area the percentage of Muslims are quite light than in rural area. In urban area the Muslim Hindu ratio is 80 and 20 percent, while in rural area it 30 and 70 respectively.

1.5 CASTE:

The distribution of the whole population under study indicates that 27.4 per cent of them belong to upper caste group 40.7 per cent backward caste group and 31.9 per cent schedule caste group. Further the rural urban population is quite different in terms of caste groups. Among urban population 10 per cent belong to upper, 40 per cent to backward and 50 per cent to schedule caste groups,
while in rural area 32.5 per cent belong to upper, 40.9 per cent to backward and 26.6 per cent to schedule caste groups.

1.6 EDUCATION:

Though the most of the patients of intestinal parasites in the entire sample are literate. Yet a good number of them is also illiterate. In the entire sample 39 per cent are illiterate, 34 per cent are educated upto middle/H.S., 8 per cent are graduate, 11.4 per cent have professional gratification and 4.2 per cent are post graduate. The rural and urban population differs significantly in terms of literacy and education.

In rural area 46.66 per cent are illiterate 36.66 per cent are educated upto middle/H.S., 6.68 per cent are graduates, 8 per cent have professional qualifications and 2 per cent have post graduate qualification. In comparison to this in urban area 31.33 percent are illiterate 38 per cent are educated upto middle or high school, 9.35 per cent are graduate, 14.66 per cent have professional qualifications and 6.6 per cent are post graduate. High rate of infestation among illiterates are also reported by Agarwal et al. Singupta, Yunus and Sinha, Rao and Rao, in their respective emperical studies.
1.7 **OCCUPATION:**

In urban area highest number of patient of intestinal parasite is of those who are doing service, their percentage is 40. The lowest number of them are engage in agriculture their percentage is 5.3. In comparison to this in rural area 53 per cent of the respondents are engage in agriculture, it is the highest percentage. The lowest of them 6.6 per cent are engage in teaching. The analysis further leads us to conclude that both rural and urban group significantly differ from each other in terms of occupation. Yunus et al and Sengupta in their studies also reported high prevalence rate of intestinal parasitism among agricultural and next to it among labours.

1.8 **INCOME:**

The entire population is devided into five income groups. Overall the highest percentage of the respondents i.e. 33.3 belong to income group earn upto rupees 500 per month. While 9.7 percent, the lowest among all earn rupees 2000 and above. The rural and urban group of population significantly differ from each in terms of income. In urban area 30 per cent earn upto rupees 500 per month and 13 per cent of them earn rupees 2000 and above. In rural area 36.67 per cent earn upto rupees 500 and only 6 per cent earn rupees 2000 and above.
Almost all the empirical studies conducted to find the rate of prevalence of intestinal infestation found the maximum incidence of infestation is in low income group as well as fourth social class.

1.9 FAMILY:

The rural and urban population under study significantly differ from each other in terms of the size of family. Though the total picture indicates that in the entire sample including rural and urban 54.0 per cent have nuclear family and 46 per cent have joint family. But the ratio is quite different when rural and urban population is analysed separately. In urban area 64 per cent have nuclear family 36 per cent have joint family while in rural area only 44 per cent have nuclear and 56 per cent of them joint family.

2. SOCIAL CONDITIONS:

As we have discussed in previous chapter the social conditions is generally measured by (i) housing and locality condition (ii) water supply and drainage (iii) food and dietary habit (iv) personal hygiene. The investigator adopted the above criteria to assess the social condition of population under study. As such the information relation to those aspects were collected and analysed.
It has generally been observed that housing condition, water supply and drainage system, food and dieting habit, and personal hygiene play and important role to spread and control the parasitic infection. The infected person both in the rural and urban area show the above mentioned factors in considerable extent.

2.1 The analysis leads us to conclude that social conditions were both the rural and urban patients of parasitic infection reside are by and large unhygienic. According to the analysis 95 (31.67 per cent) respondents of both urban and rural population live in unhygienic and inadequate condition while 78 (26 per cent) patients of both the population have adequate social conditions. The majority of them i.e. 127 (42.33 per cent) fall in the middle.

2.2 The cross-sectional analysis further shows that the overall social condition of rural area is generally more unhygienic than that of urban area as 50 (33.33 per cent) of rural have inadequate social condition while only 36 (24.0 per cent) of them have good social condition and 64 (42.67 per cent) fall in the middle. In comparison to this in urban area 45 (30.0 per cent) of the respondents have most unhygienic condition and 42 (28 per cent) have adequate social condition. The rest of them i.e. 63, its corresponding percentage is 42 fall in the middle.
2. (i) **HOUSING AND LOCALITY:**

The structure of the houses in the rural area under study is generally not satisfactory. Despite the abundance of space in the area houses and crowding and of the poor quality. Leaky roofs, absence of flooring, darkness and dampness are the characteristic feature of the majority of the houses. The reason for living in dark, congested and over crowded houses are due to ignorance, poverty, a sense of insecurity and age old practices. But the housing condition of urban is not as bad as rural. Generally, houses are made up of pucca bricks and have the minimum requirements of good housing.

The rural people usually keep some useful domesticated animals very close to the house. Certain diseases of man are known to be cause by domesticated animals are not recognized by them. The presence of domesticated animals close to human habitation definitely increase the chance of infection. Tapeworm and other intestinal parasites of hogs, cattle, dogs may secondarily infest man. But in urban people very few people have domesticated animals. Only those people who are residing in Jeevangarh usually have domesticated animals and so they become intrumental in transmitting the various infections to the Zohrabagh whose inhabitants generally belongs to higher socio-economic class.

and have also good sense of sanitation.

Human excreta disposal is the most major factor of spreading the intestinal parasitic infection. The health hazard caused by human excreta is a big challenge for the environmental sanitation of a community. The socio-economic status of the community can be achieved by decreasing high morbidity and mortality associated with its safe disposal. People are ignorant that faces is infectious and pollute water and soil, contaminates food and propagates flies. Excreta disposal is a universal problem but it is very serious in India where more than 80 per cent population live in rural area and majority of them "go to field" for defecation and thus pollutes environment. Due to this the intestinal groups of diseases claim about 5 million lives every year while an other 50 million people suffers from these intestinal parasitic infectious diseases. Human excreta of a infected person is the main source of parasitic infection. The data indicate that majority (55.34 per cent) of the rural people are habitual of field defecation and next to this i.e. (36 per cent) people use service latrine which is also in unhygienic condition as it is not being cleaned by any sweeper daily. Among urban area only 18.66 per cent respondents use fluch latrine while 43.34 per cent use service latrine and remaining 38.0 per cent go in the field. So here we see the majority of both the area either use the
service latrine or they go out for defecation. So this is major factor of spreading the parasitic diseases in the entire sample. All the relevant empirical studies are conducted in this context gave the same result that mode of human excreta is mainly responsible for spreading the parasites among other factors.

2.1.1 The housing and locality condition of rural and urban area when take together indicate that they are adequate. According to the data 103 (34.33 per cent) respondents have adequate housing condition while 100 (33.34 per cent) respondents have inadequate housing and locality condition and 97 (32.33 per cent) fall in the middle. The interesting feature is that the difference between adequate and inadequate condition is only one which is not very important. It is due the fact that a considerable majority of the urban respondents has adequate housing condition while the majority of the rural respondents has inadequate housing condition. However, the over all condition of housing and locality in rural and urban negates the proposed hypothesis.

2.1.2 The cross sectional analysis indicates that housing and locality in rural area is more unhygienic and unhealthy than urban area. According to the analysis 61 (40.66 per cent respondents of the rural area have inadequate housing
condition while in urban area only 39 (26 per cent) have inadequate housing condition. In comparison to this 35 (23.34 per cent) respondents of the rural area have adequate housing and locality condition while in urban area 68 (45.34 per cent) have adequate housing condition. The analysis further shows that the rural and urban population significantly differ from each other in term of housing and locality. The value of $X^2$ is 17.12 greater than 16.92 and significant at .05 level of significance and 9 d.f. See table 4.8.

2.2 WATER SUPPLY AND DRAINAGE:

The greatest threat to humanity, short of a nuclear calamity, is from environmental contamination which also includes inadequate, unreliable unsafe and contaminated water supply system. The global water resources have been contaminated with chemical and faecal pollution due to many reasons. Many water-borne diseases such as typhoid, cholera, gastroenteritis, intestinal parasitic infection and hepatitis are caused by unsafe and contaminated water supply system. Intestinal parasitic diseases can be significantly reduced by adequate and safe water supply. The present study shows that in both urban and rural population 56 per cent respondents use handpump for drinking water. The handpump water is found to be contaminated after laboratory analysis. The reason is
that handpumps are not very deep in the earth and they become polluted with faecal and chemical materials. Among the rural population under study only 6.66 per cent use well water and 50 per cent use handpump water and rest 43 percent use well or pond water. Among urban population 33.34 per cent enjoy the facility of running or safe water and 64 per cent respondents use hand pump water for drinking. Only 2.66 per cent use well water.

The condition of drainage in urban population is better than the rural where actually no drainage exist. The condition of disposal of the house sullage and rain water in the rural area need to be studied in the context of the local traditions, customs and practices which reflect how people lack understanding of sanitation and hygiene. They are also ignorant about the causation of disease. People are still accustomed of these conditions. They do not mind them seriously because they regard these conditions as characteristic feature of rural life. They hardly ever think about it or talk about it. It may not be out of place to quote Karve's explanation of the indifference of the people to environmental sanitation. Karve says: "When people can not afford to spend adequately even on food and clothing they do not bother environmental sanitation. Experience
strengthens the view that sanitation is inextricably the extent to which the later improve the sanitary conciousness of the people also correspondingly improve...."

This dipiets the real picture of the life style and attitude of rural people. In the urban area, due to the improved socio-economic condition and education their life style better than rural. They have sense of sanitation, drainage and house sullage condition. They think about it and they have facility of Municipal staff who use to come and clean the vicinity. Due to absence of the drainage system in rural population, water usually gets collected in pit dug outside the house for the purpose, which serves as a good breeding place for mosquitoes and some other insects. Heaps of house refuse continue to decay and vitiate the environment where house flies other insects, germs and parasites grow on a large scale and transfer germs to the healthy persons.

2.2.1 The water supply and drainage system of both rural and urban area when take together indicate that they are satisfactory. According to the analysis 87 (29 per cent) of the total population under study have inadequate water supply and drainage system while 99 (33.0 per cent) respondents have adequate water supply and drainage system. Thus, those who have adequate system are 4 per cent greater than those who have inadequate water supply and drainage
system. A considerable majority of them i.e. 114 (38 per cent) have average water supply and drainage system. This analysis negates our hypothesis that water supply and drainage system are by and large inadequate.

2.2.2 The cross-sectional analysis clearly indicate that the majority i.e. 56 (37.34 per cent) of the rural population have inadequate water supply and drainage system while 41 (27.33 per cent) of them have adequate water supply and drainage system. The rest of them 53 (35.33 per cent) fall in the middle. In comparison to the rural group of population urban under study show quite different nature. Among them only 31 (20.66 per cent) have inadequate water supply and drainage system while 58 (38.68 per cent) of them have adequate system. A considerable number of them i.e. 61 (40.66 per cent) fall in the middle. It shows that in urban area the respondents under study by and large adequate condition. The analysis leads us to conclude that the water supply and drainage system in rural area is more inadequate than that of urban area. It also indicates that rural and urban population significantly differ from each other in terms of water supply and drainage system. The value of $\chi^2$ is 9.54 which is greater than the tabulated value i.e. 5.99 and significant at 0.05 percent level of significance and 1 d.f. indicates the level of significance.
2.3.1 FOOD AND DIETARY HABIT:

The food and dietary habit of the patients of both rural and urban areas are generally bed and unhygienic. According to the analysis in the whole population under study 33.33 per cent of the respondent have unhygienic food and dietary habit while 29.67 per cent of them have good dietary habit and the rest 37 per cent fall in the middle.

2.3.2 The cross sectional analysis shows that the rural respondents have more unhygienic food and dietary habit than the urban respondents. According to the analysis 55 (36.66 per cent) rural respondents have bad and unhygienic food and dietary habit while 40 (26.68 per cent) have good and hygienic food and dietary habit. In comparison to this in urban area only 45 (30 per cent) have bad and unhygienic food habit while 49 (32.66 per cent) have good food and dietary habit.

The analysis further indicates that the patients of intestinal parasitic diseases in rural area significantly differ from those of urban area in terms of food and dietary habit as the value of $\chi^2$ is 17.59 which is significant at 0.05 per cent level of significant 9 d.f. It indicates the level of significance between the two groups.
2.4 PERSONAL HYGIENE:

The personal hygiene of parasitic intestinal disease is by and large poor. As they do not take proper care of this personal hygiene. According to the analysis the entire sample the personal hygienic condition of 88 (29.35 per cent) is poor while 86 (28.67 per cent) of them indicate good hygienic condition. The rest 126 (42.0 per cent) fall in the middle.

2.4.1 The cross sectional analysis indicates that the rural patients of intestinal parasitic diseases are more careless about the personal hygiene than urban patients. The analysis shows that in rural area the personal hygienic condition of 35 (23.34 per cent) respondents is good and the rest 61 (40.66 per cent) fall in the middle. In comparison to this in urban area only 34 (22.66 per cent) respondents indicate poor personal hygienic condition while 51 (34.0 per cent) indicate good personal hygienic condition and remaining 65 (43.34 per cent) fall in the middle. The analysis further shows the rural patients of intestinal parasitic diseases significantly differ from those of urban in terms of personal hygienic condition as the value of $X^2$ is 38.08 which quite higher than the tabulated value i.e. 16.92 and thus significant at 0.05 per cent level of significance and 9 d.f.
3. **CULTURAL CONSTRAINTS:**

The rural community have different culture. The rural people generally believe in supernatural elements and consider their important to guide their entire social life. According to them what happens in this world and in the life's of the individuals are due to the supernatural elements. They exhibit orthodox attitudes towards universe and human life as well. As such they are guided by irrational belief and attitude towards world. The villagers by and large exhibit orthodox and traditional attitudes towards diseases and their transmission. They do not take proper and adequate care about cleanliness. They are also not very much particular in interaction with dirty and unhygienic people. They are either uneducated or educated to some extent. Consequently they lack rational and scientific world view. Their opinion about the causes of intestinal parasitic diseases and their transmission is not scientific. Their economic condition also plays and important role to mould their opinion. It is also responsible for not maintaining cleanliness.

Apart from these conditions villagers generally prefer to live in natural surroundings. Thus they are exposed to unhygienic conditions and get infected. These are due to their cultural conditions which are responsible for the
3.1 The cultural constraints as imposed in rural and urban area when taken together indicate that the patients of intestinal parasitic diseases have less cultural constraints. According to the analysis 30.34 per cent respondents in the entire sample have less cultural constraints while 26.66 per cent of them have high cultural constraints the remaining 43.0 per cent show average cultural constraints. The difference between low and higher cultural constraints is only of 3.68 per cent. It negates our hypothesis that the patients of intestinal parasitic disease generally high cultural constraints.

3.2 The cross sectional analysis shows that the patients of intestinal parasitic diseases in rural area have more cultural constraints than their counter parts in urban area. The analysis indicates that 45 per cent of the rural respondents have high cultural constraint and only 26 per cent have low cultural constraint. The remaining 44 per cent have average cultural constraint. In comparison to this in urban area 23.44 per cent have high cultural constraints and 34.66 percent have low cultural constraint. The remaining 42 per cent show average cultural constraint.

The analysis further indicates that the rural patients of intestinal parasitic diseases significantly different from
their counterpart in urban area in terms of cultural constraints. As the value of \( \chi^2 \) is 43.12 which is higher than the tabulated value i.e. 27.59 and thus significant at 0.05 per cent level of significance and 17 d.f.

4. **PATIENTS PERCEPTION:**

Perception is generally determined by the beliefs and practices of the community. People perceive the objects and the world according to their culture and gradually develop particular outlook and attitudes towards the world. Their outlook towards the world is reflected in their behaviour as well as in their relation towards other individual and objects of the world. In the present study it is observed that the perception of the people plays an important role in spreading the intestinal parasitic diseases. In the rural community people generally underestimate the gravity and seriousness of the intestinal parasitic diseases and therefore they do not take adequate precaution to check and cure them. They are also not much particular to maintain cleanliness within and outside the house consequently their germs grow in unhygienic conditions and get the people infected.

4.1 The overall perception of the respondents of both urban and rural area towards intestinal parasitic infection and their treatment is modern. The analysis shows that 32.66 per cent respondents of the entire sample have modern perception
of intestinal parasitic infection and treatment while 30.68 per cent of them have traditional perception and the rest 36.68 per cent of the respondents fall in between the two. Those who have modern perception are only 2.0 per cent higher than those who have traditional perception but it negates our hypothesis that patients of intestinal parasitic infection have traditional perception towards parasitic infection and treatment.

The cross sectional analysis indicates that the rural respondents by and large have traditional perception about intestinal parasitic infection and treatment. According to the analysis 58 (38.66 per cent) have traditional perception while only 28 (18.66 percent) have modern perception. The position of urban respondent is entirely different where 22.66 per cent have traditional perception while 46.68 percent have modern perception. The result leads us to conclude that the urban responded by and large have modern perception about intestinal parasitic infection and treatment while rural respondents have tradition perception about that.

The analysis further shows that the rural and urban patients significantly differ from one another in terms of their perception toward Intestinal Parasitic disease and treatment as the value of $X^2$ is 27.15 which is highly significant at 0.5 per cent level of significant and 11 degree of freedom.
The above findings lead us to conclude that social conditions play an important role to cause and spread the intestinal parasitic infestation. Several empirical studies which have been concluded in this context reveal same things. The condition in which man lives and the habits which he develops are detrimental to his health. Social conditions generally include housing, drainage and water supply, food and dietary habit, sanitation and personal hygiene. If they are proper adequate and hygienic, they will help to maintain the health of the people, otherwise they will invite different kind of germs, caused diseases and communicate them to other persons.

The present study indicates that the pattern of housing, water supply and drainage, food and dietary habit, sanitation and of personal hygiene in two different settings: rural and urban.

It reveals that the majority of the people of rural area has no adequate housing condition. Generally the people in rural area have kuccha house or jhuggies. These houses consists of one or two rooms and have no adequate provision of light, air, bathroom and lavatory. The rural people by and large have no separate arrangement of keeping their cattle. These conditions obviously are unhygienic and help to cause and spread diseases. Apart from it there is no
proper arrangement of drainage in the villages. The dirty water flows in front of the houses and gathers hither and thither and turn into the breeding places of germs. Similarly there is no water supply system in village people take water either from well or from hand pumps. The rural Health and Training Centre tested the water from both the sources and found that contaminated with faecal and chemical materials. Thus the water which rural people drink also cause diseases. The sanitation in rural area is also not hygienic. People generally go to the field for defecation and oftenly they get infected and carry germs. Apart from this due to the particular socio economic and cultural condition the food and dietary habit of rural people is also not hygienic. These element of social conditions are very much apparent in the life pattern of rural people. They cause intestinal parasitic infestation and also help in spreading such diseases. The rural patients by and large, of intestinal parasitic infestation exhibit these features of social conditions.

The situation in urban area is no doubt better than the rural area. The social condition of the urban patient of these diseases is undoubtedly better than that of rural people. In spite of the improved social conditions the urban people also oftenly get infected by intestinal parasitic infestation. The reason may be that those who live in
improved social condition in urban area generally interact with those persons who live in inadequate social conditions. Due to the nature of their work and sometime due to their social needs both groups of people mix with each other. Consequently they get infected by those who already suffer with such diseases.

The other explanation may be that the causation of intestinal parasitic infestation depends on multiple factors. People may get infected from other sources.

The present study further indicates that in rural area there are different cultural constraints by which people develop unhygienic habits. They lack sense of cleanliness and do not take adequate precaution to make their body and surrounding clean. The rural people due to low economic condition and illiteracy are not aware of the importance of cleanliness as well as of the gravity of these diseases. They are also not aware of the causation and vehicles of these diseases. As a matter of fact they do not take due care and precaution to use such things which carry the germs of the diseases. Further the rural people have traditional perception about the causes and spread of intestinal parasitic infestation.

They think that illness is a matter of chance or it is due to the anger of evil sprits. The rural people due to their traditional outlook, economic condition
and illiteracy prefer to adopt traditional means to cure the diseases. They avoid to consult physicians or modern medicine to cure the diseases. These aspects of their behaviour also help to cause and spread the diseases.

The urban people again show a different picture. They have less cultural constraint and their perception towards disease and treatment is also modern to some extent. But they also suffer with such type of diseases because of other factors which cause these diseases.
RECOMMENDATION

- Primary medical care needs to be started after initial health education, taking into account broad socio-economic and cultural settings of the area.

- There is a great need of strengthening health education services which should be linked with each health activity so that people may adopt rational health behaviour.

- From time to time simple orientation training programmes on health and diseases need to be organized at least for the formal as well as non formal leaders of the community.

- Health education be directed more towards the low economic and illiterate groups.

- Hygiene education programmes must become an integral part of all community.

- In order to create a strong enough demand, materials used to convey messages about the benefits of safe water, adequate sanitation and hygienic practices must be realistic, believable and acceptable to the particular community. This is why community groups should be organized and particular groups of women, since this tend to ensure that information conveyed is sensitive to the socio-cultural characteristics of the people. Educational materials based entirely on "germ theory concept" are not always acceptable
to rural people, nor are they always particularly effective, because it is hard to give a meaning to invisible organism. To suggest that people are drinking water which contains the faeces of their friend and neighbours can be considerably more effective.

Many religious and supernatural beliefs are concerned with water quality, sanitation and proper hygienic practices, and can be used as a means of communicating positive message. When developing educational materials, these aspects should always be considered.

National specialists, such as sociologist, anthropologist, health educator should be seconded to work with the physicians and other organized groups in the area.

- As good number of the population is infected with the intestinal parasitic infection, opportunities may be explored to all people for stool examination, irrespective of related symptomatology. One of the ways is to examine the stool of all the registered persons in the centre as a routine.

- Since the infection rates are high in the school age groups, periodic stool examination may be insisted upon for school children starting from entry into school.

- Breast feeding of infants specially in lower socio-economic group should be promoted. Vigorous programmes of breast feeding promotion, education and facilitation are required.
Promotion and education must be directed not only at mothers but at fathers also.

- Epidemiological studies are required in many settings to define precisely the aspects of domestic and personal hygiene that are significant risk factors for many parasitic diseases. In addition to hand-washing, such matters as the hygienic disposal of the stools of young children, improved food hygiene, and the improved storage of water in the home may be important in many settings.

  The physical conditions of the locality should be improved. The government agencies should take responsibility of constructing proper houses and improving the sanitary condition.

- The number of primary health centres should be increased and proper and cheap health services should be provided to the people.
BIBLIOGRAPHY
Apple, Dorian ed.

"Sociological Studies of Health and Sickness",

Arther L. Caplan.


Ahmad, P.I. and Cohelo, G.V.


Anderson, G.W. and Margret, A.G.


Ackernecht, E.H.


Anita, P.F. et al.

"Incidence of Intestinal Helminthic in Bombay",
Indian Journal of Medical Science, 16 : 1964.

Agarwal, O.P. et al.


Bradley Buell.

Bronislaw Malinowski.


Banerjee, D.


Brown, H.W. and cort, M.W.

The Egg. Production of Ascaris L.J. Parasitol, 14 : 1927.

Bagchi, S.C. and Prasad, B.G.


Bagchi, S.C. and Prasad, B.G.


Chandler (AC) and Read (CP).

"Introduction to Parasitology", Wiley Faster, N. Delhi, 1970.

Cockerham, C. William.


Cyril M. Mac Bryde.

Signs and Symptoms Philadelphia; Lipincott, 1964.
Chaudhry, A.B. et al.


Chug, T.D. et al.


DuBos, Rene.


DuBose Rene.

"Mirage of Health, Utopias, Progress, and Biological Change, N.Y. Harper 1959.

David Crompton and M.C. Nesheim.

World Health; March 1984.

Das, N.C.


Directorate General of Health Services, Ministry of Health and Family Welfare, Govt. of India (1983);

Health Statistics of India.

Dutt, P.R.
"Rural Health Services in India, Primary Health Education"; New Delhi, 1965.

Dube, S.C.

Dunn, F.L.

Elvin, V.

Forbus, Wiley.
"Reaction to Injury" Baltimore, Williams and Wilking, 1952.

Freeman, and G. Reeder.

Foster, G.M.

Fiennes, Richard.

Firth, R.
Gulani, K.K. and K.N. Sharma,

Gould, H.A.
"Modern Medicine and Folk Cognition in Rural India". Human Organization - 24 (3) 1965.

Hasan, K.A.

Hanlon, J.J.

Holis, Mark.

Harper, E.B.


John, Adair and Kurt Denschle.


Jaco, E.G.


Kluckhohn, C.


Kroeber A.L. (Ed.).


Koleh, S.K. and Mishra.

Khare, R.S.

Leavel, H.R., and Clark, E.G.,

Lilienfeld, Abraham M.

Lewis, O.

Mechanic, David.

Mead, Margaret, ed. 1953.

Mora, George.

Mathur, T.N.
Majumdar, D.N. and Madan T.N.

An Introduction to Social Anthropology, Asia Publication House, Bombay, 1956.

Marriott, M.K.


Madan T.N.


Nisbet, Robert A.


Opler, M.E.


Prasad, B.G.


Park, J.E. and Park.

Text Book of Preventive and Social Medicine, M/s Banarsi Das Jabalpur, 1963.

Parsons, Talcott.


Paul, John R.

Parihar, A.


Rao and Rao,


Rajgopalan, S. and Shiffman, M.A.


A Report on the Conference held in New Delhi on 10-11th Sep., 1956, to discuss the "Social and Cultural Factors in Environmental Sanitation in Rural India". *Ministry of Health, Govt. of India*, 1957.

Ruth Bendicts,


Rodney, M. Coe.


River S, W.H.R.

"Medicine, Magic and Religion" New York, 1924

Read, Margaret.

Rao, C.K. et al.

Srinivas, M.N.
"Sociological Aspects of Indian Diet". Agricultural Sanitation in India. 16 (3) 1961.

Srinivas, M.N.

Suchman, E.A.

Syndney Siegel.
Nonparametric Statistics for the Behavioural Sciences
Mc Graw Hill, Kogakushan, Ltd. Tokyo, 1956. 1

Steel, E.W.

Saunders, Lyle.
"Cultural Difference and Medical Care" Russel Sage Foundation, New York, 1954.

Srivastava, J.B.
Sen, R.

Sengupta, J. and Bhattacharya.

Singh, D.S. and Kumar.

Smith, A.

Twaddle, A.C. and Hessler, R.M.

Ruckett, David and Joseph, M.K.
"Basic Reading in Medical Sociology". Tavistock Pub. London 1978.


Rene, Dubos.


Wagner, E.G. and Lanoix, J.N.


Younus, Mohammad et al.


Zimmer, H.R.


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<tr>
<td>ADDRESS</td>
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<td>R/U</td>
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</table>
1. **SDC:**
   - **Age:**
     1. 0 - 10
     2. 10 - 20
     3. 20 - 30
     4. 30 - 40
     5. 40 - 50
     6. 50 - above

   1.2 **Sex:**
   - 1. Male
   - 2. Female

   1.3 **Marital Status:**
   - 1. Bachelor
   - 2. Married
   - 3. Separated/Widow

   1.4 **Religion:**
   - 1. Hinduism
   - 2. Islam
   - 3. Christian
   - 4. Others

   1.5 **Caste:**
   - 1. Upper
   - 2. Backward
   - 3. Scheduled cast

   1.6 **Education:**
   - 1. Illiterate
   - 2. Literate
   - 3. High School
   - 4. Graduate
   - 5. Post Graduate
   - 6. Technical

   1.7 **Occupation:**
   - 1. Agriculture
   - 2. Laborer
   - 4. Teaching
   - 5. Business
   - 6. Technical

   1.8 **Income:**
   - 1. Upto - 400
   - 2. 400 - 800
   - 3. 800 - 1200
   - 4. 1200 - 1600
   - 5. 1600 - 2000
   - 6. 2000 - above

   1.9 **Family Structure:**
   - 1. Nuclear
   - 2. Joint
2. **SOCIAL CONDITIONS:**

(A) **HOUSING STRUCTURE AND LOCALITY:**

2.1 **Structure of the house?**
   1. Pucca
   2. Mud
   3. Mixed

2.2 **Have you separate arrangement for cattle keeping?**
   Yes  No  If Yes  1. Do not have
   2. Separate
   3. Not separate

2.3 **What type of latrine do you have?**
   1. Flush
   2. Service
   3. Going out side in open air.

2.4 **Does you neighbour have?**
   1. Flush
   2. Service
   3. Open air

2.5 **Do you take bath at?**
   1. Separate bathroom
   2. Community tap water supply
   3. Well/Pond/River

2.6 **How do you protect from mosquitoes & flies?**
   1. Windows and doors have net
   2. Using mosquito net/mosquito repellant
   3. Not using mosquito net/mosquito repellant
2.7 Where do you wash your utensils?
1. In Kitchen
2. At Varanda
3. At community tap/well

2.8 Where do you store cooked and edible articles?
1. In Refrigerator
2. Other hygienics place
3. Do not care/unhygienic

2.9 How do you Cook food?
1. Gas/Electricity
2. K. Oil/wood
3. Uplla

2.10 Have your house adequate ventilated?
1. Yes
2. No
3. Indi.

(B) WATER SUPPLY AND DRAINAGE:

2.11 From where do you get drinking water?
1. Tap
2. Handpump
3. Well/river

2.12 Where do you store drinking water?
1. In Refrigerator
2. In covered and hygienic
3. Uncovered non-hygienic

2.13 From where do you get water for use other than drinking?
1. Tap
2. Handpump
3. Well
2.14 Where do you dispose off waste water from house?
1. Adequate arrangement
2. Ditch around the house
3. Goes near by pond

2.15 Do you have covered drain in your locality?
1. Pucca and covered
2. Kachcha and uncovered
3. Not at all

2.16 Where do you dispose off your refuse (garbages)?
1. Proper place
2. Outside the house
3. Any where

2.17 Is running back of the bath water into the well dangerous?
1. Yes
2. No
3. Do not know

2.18 Do you take safe water for drinking?
1. Yes
2. No
3. Indi.

2.19 Do people of your locality use bleaching powder to purify water in wells/water tanks?
1. Yes
2. No
3. Some-time

2.20 Do you think that drinking water often the cause of intestinal disease?
1. Yes
2. No
3. DK/Ind.
(C) FOOD AND DIETARY HABIT:

2.21 Are you vegetarian?
   1. Vegetarian
   2. Non-vegetarian
   3. Not particular

2.22 Do you always cook fresh food whenever you need?
   1. Fresh Food
   2. Partly fresh
   3. Not particular

2.23 Do you avoid using semirotten fruit & Veg.?
   1. Do not take such things.
   2. We take them
   3. Not particular

2.24 Do you boil milk before use?
   1. Yes
   2. No
   3. Indi.

2.25 Do you care that food vege and fruits should be properly washed before use?
   1. Yes
   2. No
   3. Not particular

2.26 Do you care about the access of flies?
   1. Yes
   2. No
   3. Sometime
2.27 Do you allow your children and family members to purchase chat and snacks by vendors?
1. Yes
2. No
3. Not at all

2.28 Do you particularly take care of dust and dirt not mixing with your food and other edible items?
1. Yes
2. No
3. Not particular

2.29 Are you always careful about the cleanliness of your utensils, kitchen and place where you take food?
1. Yes
2. No
3. Not particular

2.30 Do you think that bottle feeding is more hygienic?
1. Yes
2. No
3. Indi.

(D) PERSONAL HYGIENE:

2.31 Do you eat with other members of your family out of the common utensils?
1. Yes
2. No
3. Not particular

2.32 Are you very much particular about cutting your nails?
1. Yes
2. No
3. Not particular
2.33 Do you and your children wash your hand after toilet?
1. Soap
2. Mud
3. Not particular

2.34 Do you clean your teeth daily?
1. Brush
2. Datan/Manjan
3. Not particular

2.35 Do you take bath daily?
1. Yes
2. No
3. Not particular

2.36 Do you wear shoes?
1. Yes
2. Do not wear
3. Sometime

2.37 Do you believe that you should worry about the cleanliness of your house and not the outside vicinity?
1. Yes
2. No
3. Do not know

2.38 Are you careful about washing your hands before you take meal?
1. Yes
2. No
3. Indi.
2.39 Do you take food any place where you feel convenient?
   1. Yes
   2. No
   3. Indi.

2.40 Do you careful about excess of flies?
   1. Yes
   2. No
   3. Not particular

3. CULTURAL CONTRAINTS:

   3.1 Do you think that the intestinal diseases could be transmitted to your family members by your neighbours?
      1. Yes
      2. No
      3. Ind/DK

   3.2 Do you feel that intestinal diseases are transmitted due to poor environmental conditions?
      1. Yes
      2. No
      3. Ind/DK

   3.3 Do you feel that one should not bother too much about the Intestinal Parasites?
      1. Yes
      2. No
      3. Indi.

   3.4 Do you take precautions against the unhygienic neighbour mixing up with your family members?
      1. Yes
      2. No
      3. Ind./DK
3.5 Do you think that you and your family should have relations only with those persons who care for cleanliness?
   1. Yes
   2. No
   3. Indi.

3.6 Do you feel that majority of the people of your locality are not particular about education?
   1. Yes
   2. No
   3. Indi.

3.7 Do you think that in the present circumstances that prevail in your locality it is general trend not to get education?
   1. Yes
   2. No
   3. Indi.

3.8 Do you think that suffering with the disease is the matter of chance or luck?
   1. Yes
   2. No
   3. Indi.

3.9 Do you feel that the majority of the people do not realise the gravity of Intestinal Parasites?
   1. Yes
   2. No
   3. Indi.

3.10 Do you feel that majority of the people do not know Intestinal Parasites originates and spreads?
    1. Yes
    2. No
    3. Indi.
3.11 Do you think that majority of the people do not know what precautions they have to take in order to save themselves from parasites?
1. Yes
2. No
3. Ind.

3.12 Do you think that in the condition of village it is difficult to maintain personal cleanliness?
1. Yes
2. No
3. Ind.

3.13 Do you feel that the people of your locality due to economic and social conditions do not mind the unhygienic condition of their surroundings?
1. Yes
2. No
3. Ind.

3.14 Do you feel that the people of the village prefer to live in natural surroundings whether hygienic or unhygienic?
1. Yes
2. No
3. Ind.

3.15 Do you think that people of your locality do not interested to modify the natural surroundings due to their social and economic conditions?
1. Yes
2. No
3. Ind.

3.16 Do you feel that people of your locality do not generally go to the primary health centre for treatment?
1. Yes
2. No
3. Ind.
3.17 Do you feel that people of your locality generally prefer to apply their own devices to cure the diseases?
   1. Yes
   2. No
   3. Ind.

3.18 Do you feel that the people of the village consider it superfluous to consult the doctors?
   1. Yes
   2. No
   3. Ind.

4. PATIENT'S PERCEPTION:

4.1 Do you feel that diseases are caused by some deficiency or just an overpowering of evil sprits?
   1. Def.
   2. Evil Sp.
   3. Ind/DK

4.2 Do you think that you become sick due to some one's spell on you?
   1. Yes
   2. No
   3. Ind/DK

4.3 Do you feel that you become victim of these parasites due to some of your misdeeds?
   1. Yes
   2. No
   3. Ind/DK

4.4 Have you consulted any faith healer or some other magic man to relieve you of this evil?
   1. Yes
   2. No
   3. DK/Ind.
4.5 Do you think that there are some ways to cure these diseases other than those of the modern medicine?
1. Yes
2. No
3. DK

4.6 Do you follow the instruction of your physician?
1. Yes
2. To some extent
3. No

4.7 Do you think that doctor is correct when he says that if one family member suffers from parasitic intestinal disease, whole of the family becomes vulnerable?
1. Yes
2. No
3. Ind/DK

4.8 Do you consult the physician when you fall ill?
1. Yes
2. No
3. Ind/DK

4.9 Do you think that one should not go to physician for minor diseases?
1. Yes
2. No
3. Ind/DK

4.10 Do you feel that physician sometimes fool the people to extract money?
1. Yes
2. No
3. Ind/DK
4.11 Do you believe that many diseases are carried to man through cattles and other animals?
   1. Yes
   2. No
   3. Do not know

4.12 Do you believe that there are diseases thick can be caused by human feaces?
   1. Yes
   2. No
   3. Do not know