2004

Environmental Pollution, Health Hazards and Quality of Life of Workers in Tobacco Industries: A Case Study

Saha, Nitai Kumar

University of Rajshahi

ENVIRONMENTAL POLLUTION, HEALTH HAZARDS AND QUALITY OF LIFE OF WORKERS IN TOBACCO INDUSTRIES: A CASE STUDY

THESIS SUBMITTED FOR THE DEGREE
OF
DOCTOR OF PHILOSOPHY
IN THE
INSTITUTE OF BIOLOGICAL SCIENCES
RAJSHAHI UNIVERSITY, BANGLADESH

BY

NITAI KUMAR SAHA

December, 2004

Institute of Biological Sciences
University of Rajshahi
Rajshahi-6205
Bangladesh

Dedicated

To my

Beloved Father and Mother

DECLARATION

I do hereby declare that the thesis entitled "Environmental Pollution, Health Hazards and Quality of Life of Workers in Tobacco Industries: A Case Study" submitted to the Institute of Biological Sciences, University of Rajshahi for the degree of Doctor of Philosophy (Ph.D) in Psychology is an original work of mine and no part of it has been submitted to any other University, Institute before for any other degree.

15.12.2004

December, 2004

(Nitai Kumar Saha)

মনোবিজ্ঞান বিভাগ
রাজশাহী বিশ্ববিদ্যালয়
রাজশাহী, বাংলাদেশ

Phone : 750041-9/4112
Department of Psychology
Rajshahi University
Rajshahi, Bangladesh

CERTIFICATE

This is to certify that the research work entitled "Environmental Pollution, Health Hazards and Quality of Life of Workers in Tobacco Industries: A Case Study" is a piece of original work of Nitai Kumar Saha done under our supervision in partial fulfillment of the requirement for Ph.D degree in Psychology.

We recommend the thesis for examination for the award of the degree of Ph.D in Psychology.

15.12.2004

MD. SHAMSUDDIN ELIAS
Assistant Professor
Department of Psychology
University of Rajshahi

15/12/04

DR. A.B.M. ZAHIRUL HAQUE
Professor
Department of Psychology
University of Rajshahi

ACKNOWLEDGEMENT

It is a privilege as well as an obligation to express my indebtedness to a number of individuals and institutions who helped me in many ways to prepare this thesis.

I am highly indebted to my research supervisor Dr. A.B.M. Zahirul Haque, Professor, Department of Psychology, University of Rajshahi, not only for unstinting allocation of his valuable time in formulating the research design, correcting and revising the write-up of the thesis, but also for the extraordinary love and affection I have received from him. He helped me by providing a lot of documents relevant to my research literature, without his active help and sincere cooperation it would not have been possible to complete this thesis in time.

I am extremely grateful to my co-supervisor Mr. Md. Shamsuddin Elias, Assistant Professor, Department of Psychology, University of Rajshahi, for his sincere help and cooperation in providing me with some useful books, articles and generous assistance in analyzing the data through computer. He helped me a lot by providing documents relevant to my research literature. Without his sympathy and sincere cooperation it would have been difficult for me to complete this thesis. My debts are unlimited to him.

I wish to acknowledge my deep gratitude to Mr. Nazrul Islam, Computer Programmer-Cum- System Analyst, Institute of Nutrition and Food Science, University of Dhaka and Mr. Md. Shohrab Hossain, Computer Programmer, University of Dhaka for their sincere help and cooperation in feeding and analyzing data in time.

I am grateful to the authorities of the polluted and non-polluted industries for providing me with the relevant information and giving me the opportunity to collect data of workers through questionnaire and interview. I acknowledge the spontaneous cooperation of the respondents for giving me the appropriate information.

I acknowledge the cooperation of Directorate of Environment, Central Library of Dhaka and Rajshahi University, Library of Institute of Biological Sciences, Rajshahi University, Seminar, Department of Psychology, Rajshahi University, Library of BANSDOC, Library of NIPSOM, Library of ICDDRB, Central Public Library, Dhaka, Science Library of Dhaka University for providing me with documentation and publication support.

Nitai Kumar Saha

ABSTRACT

The present study was an attempt to investigate the effect of Environmental Pollution on Health Hazards and Quality of Life of Workers in Tobacco Industries. The study was conducted on a sample of 540 workers-340 from polluted and 200 from non-polluted industries. Information was collected by using the following measuring instruments: The inventory for measuring Quality of Working Life (Sinha and Sayeed, 1980), The Inventory of Subjective Health (Dirken, 1967), General Health Questionnaire-12 (Goldberg, 1972) and The Interview Schedules-personal and health related questionnaire (Khaleque et al., 1988). The objectives of the study were: a) To study the effect of environmental pollution on health and quality of life of the workers in tobacco industries. b) To study the effect of health hazards on quality of life of workers in Tobacco industries & c) To study the gender effect on worker's health and quality of life in Tobacco industries. It was hypothesized that; 1) Significant difference would be found between the workers of the polluted and non-polluted industries in terms of their quality of working life, subjective health and mental health; 2) Workers' age will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries; 3) Workers' sex will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries; 4) Workers' marital status will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries; 5) Workers' job experience will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries; 6) Significant relationship would be found among the scores on quality of working life, subjective health and mental health of the workers of both polluted and non-polluted industries.

Major findings showed that there were significant differences between the workers of the polluted and non-polluted industries in terms of quality of working life, subjective health and mental health. Workers age, Sex, marital status and job experience have significant effect on their subjective health, mental health and quality of working life respectively. The study reveals the following facts: Both the male and female workers of the non-polluted industries have been enjoying better quality of life, subjective health and mental health than the workers of polluted industries. The male workers of the polluted industries have better quality of working life, subjective health and mental health. The workers of all ages in non-polluted industries have been enjoying better quality of working life, have relatively better subjective health and mental health conditions than those of the polluted industries. The older age group of workers (i.e. 30 years and above) perceived good quality of working life and subjective health. The younger workers of below 20 years of age have been enjoying better mental health. The unmarried workers have been enjoying better mental health. The workers having experience less than 10 years have been enjoying better quality of working life, have good subjective health and mental health. The result also showed that there were significant positive correlations between the scores on different scales- QWL, ISH and GHQ- for the workers of both the industries.

The findings of the study were almost in line with the hypothesis framed. Appropriate preventive measures have been recommended to reduce workplace pollution for improving quality of life and health condition of the workers.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER – 1

INTRODUCTION

INTRODUCTION

Bangladesh is a densely populated country in the world. A large proportion of the people are living below the poverty line, with an unenviable living condition and health status. Within the country, the problems of environmental pollution are most acute in the surrounding areas of Tobacco Industries in the Rangpur District. Tobacco workers are working in an unhygienic environment in their working place and they are suffering from various lungs diseases and some other types of diseases throughout the year. A large number of tobacco workers live in overcrowded and unhealthy environment where basic services and utilities are either absent or grossly inadequate. It is estimated that less than fifty percent of the tobacco workers' families have access to public water supply and less than one-fifth to hygienic sanitation. Most of the workers' houses are kancha huts made of bamboo, wooden boards or plastic. They always use kancha or open or hanging latrines and kancha drains for their toileting. The tobacco worker's families are compelled to live a much-below subsistence life, characterized by a deplorable habitat with little facilities of water, sanitation, environmental sanitation and hygienic facilities. So, it creates health hazards some times throughout the year or in continuous form, because of environmental pollution. This polluted environment also affects the quality of life of the workers' families as well as of the community people.

Industrial societies in the 19th to 20th centuries there was a massive increase in pollution of all kinds. Industrial effluents emissions are the major source of environmental pollution (WHO, *1977).* Sometimes accidental discharge of these effluents in large volume can cause acute poisoning of the surrounding areas resulting in large death tolls. Low dose exposure cause may not instantaneous death but still it can cause major damage to human health and well being (Kozlowski and Krasuki, *1979).*

Wastes may constituted of dangerous toxic chemicals, chemical compounds and organic materials. Repeated direct discharge of these unwanted toxic materials in excess in the environment from industries brings the failure of the self cleansing mechanism of the universe. There are some toxic wastes, which do not disappear by this mechanism and persist for long time and

cause damage to human health. The deterioration of environmental quality has existed as a serious problem under the ever-increasing impacts of exponentially increasing population and of industrialization without proper planning. Environmental contamination of air, water, soil and food has become a threat to the continued existence of many plant and animal communities of the ecosystem and many ultimately threaten the very survival of the human race.

On priority basis, the industrial world has been thinking the concept of quality of working life. From early seventies a good deal of studies has been done on quality of working life (Q W L). ''A programme that was launched at Tarrytown (New York) in 1977 by General Motors on Q W L was indeed a challenge and today it is rightly regarded as a milestone in Q W L movement. Tarrytown event has shown successfully - how the workers' have actively participated in maintaining industrial democracy, which is believed to be a necessary precondition for making industrial environment congenial to production as well as environment; and maintaining "industrial democracy" means maintaining quality of working life (Guest, 1979; Sayeed and Sinha, 1981)."(Haque, 1991)

Quality of working life reflects the relationship that exists between the workers and their working environment. The relationship between the workers and working environment determines how the workers are adjusted to their work. The quality of working life depends on various factors, such as workers' family life, social life, relationship with their coworkers and supervisors, their direct or indirect participation in the management of the organization, promotional facilities, job satisfaction and a host of others. (Haque, 1991)

Work place pollution is an important factor in industrial productivity, workers' health and quality of working life. The focal point of discussion here is to describe some important aspects of environmental pollution in relation to health hazards, such as workers' physical health, mental health and quality of working life.

Definition of Concepts

Environment:

The terms environment and habitat refer to a definable place where an organism lives, including both the physical and biological features of the place. The word environment comes from the French verb environner, to surround, and means surroundings or something that surrounds. It includes "all the conditions, circumstances, and influences surrounding and affecting an organism or group of organism". Environment is taken to mean all those, which are physical and chemical, organic and non-organic components of the atmosphere, lithosphere and ocean. Environment is the aggregate of external conditions that influences the life of an individual or population, specifically the life of men; environment ultimately determines the quality and survival of life. Organisms and environment are in a constant change. Some changes are very rapid others take thousand of years. The relationship between the physical environment (soil, water, and air) and organizational environment (plant and animal life) constitutes the study of ecology (Trivedi & Raj, 1992).

Environment is the sum of substances and forces external to the organism in such a way that it affects the organisms existence. In relation to man, the environmental constitutes of air, land, water, flora and fauna because these regulate the man's life. Environment is a multi dimensional system of complex inter-relationships in a continuing state of change. By environment we mean not only our immediate surrounding but also a variety of issue connected with human activity, productivity, basic leaving and its impact on natural resources such as land, water, atmosphere, forests, dams, habitat, health, energy resources, wild life etc. Like other animals, man depends on environment and becomes an environmental factor with respect to other members in an eco-system (Srivastava, 1995).

It is well known that the earth surface and the environment surrounding it are important to human health. The nature of the soil, air, water, temperature, barometric pressure, wind, sunshine, cloud, rainfall, humidity and latitude, must all in the last resort have determined man's health and welfare. By

controlling animal and vegetable lives, man supplied himself with the essential of life, including clothing, housing and food. The physical characteristics of the globe have determined his diet, and hence his health. Thus monsoons have favored rice growing, the trade winds have taken merchants and adventures across the oceans, carrying incidentally the seeds of new vegetation from one part to another, and old disease to new habitants (Kumar, 1987).

The environment effects our output of work, our mental alertness, our desire for change and many other attitudes and responses. A mean temperature of 40^0 F in winter and 60^0 F in summer, with a relative humidity of about 60% at noon, and high enough at night to precipitate dew, is the most stimulating for mind and body. To ensure his well being man has to produce an ecological balance between himself and his environment. This balance is constantly in danger of being upset from their own activities (Kumar, 1987).

Pollution:

The word pollution is derived from a Latin word "pulluere" which means "to soil" or "to defile". Pollution means an undesirable change in physical, chemical or biological characteristics of air, land, and water that may or will harmfully affect human, animal and plant life. Contamination of environment with impurities making it unfit for its intended use is known as pollution. Pollution may be defined as contamination of air, water or soil with undesirable amounts of material or heat. Heat is not a pollutant but change in heat means change in climatic condition. Pollution is deterioration of the quality of environment by the production of the quality of impurities. There are four main kinds of pollution as under:

a. Air pollution;
b. Land pollution;
c. Water pollution; and
d. Noise pollution.

Radiation has caused hazards in recent times this may be termed as radiation pollution (Srivastava, 1995).

Air is a gaseous mixture of oxygen 21%, nitrogen 78%, and inert gases 1%. Oxygen present in the air is essential for life and is known as the life supporting gas. When we breathed in air, air enters our lungs through the nose and windpipe. This is known as respiration. In the lungs exchange of gases takes place where oxygen is passed into the blood for oxidation of food and the waste gases are breathed out in the reverse direction. Nitrogen present in the air is also useful to us. When it is captured and converted into nitrogenous substances like nitrates in soil, the soil enriched. This is essential for the health growth of plants. Carbon dioxide present in the air is essential for plant life because plant absorb carbon dioxide from air and release oxygen into the air, which is essential for animal and human beings. Hence, we can say that plants and animals are dependent on each other and owe their existence to air, which is a great gift of nature (Srivastava, 1995).

The proportion of oxygen, nitrogen and other gases in air is fixed and definite. Any change in the proportion would affect the life of plant, man and animals. This change is brought about by man, industries, and vehicular traffic, domestic usages of fuel etc., release hazardous emissions. When these emissions are absorbed into the atmosphere the composition of air is changed. In the tobacco industries, tobacco dust polluted the environment of tobacco industries and it affects seriously the workers, who work in this circumstances. This polluted environment create health hazardous situation in the tobacco industries where tobacco workers engaged in works day and night, which affects directly on their life (Srivastava, 1995).

Pollution is a very pervasive phenomenon chemical or physical agents capable of adversely affecting man or other living organisms (pollutants) may be released directly or indirectly into any part of the environment: air, land, water, or biota - by a wide variety of possible mechanisms and routes.

A report by the ILO (1978) reveals that most of the studies on the problems of work place pollution, health and well being of workers have so far been

conducted in the developed countries and very few in the developing countries. But this does not mean that the problems of work place pollution and health hazards do not exist in the developing countries. For example, a report by the Environment Pollution Control Department (EPCD, 1985), Dhaka, Bangladesh reveals that about 500 industries (including tannery, paper and pulp, sugar, iron and still, fertilizer, jute, textile, tobacco and chemical industries), located at different parts of Bangladesh, are causing environmental pollution and contamination through discharges of pollutant wastes, such as toxic chemicals, poisonous gases, harmful solid and liquid wastes.

Air pollution:

The World Health Organization (WHO) has defined air pollution as "substances put into air by the activity of mankind in concentration sufficient to cause harmful effect to his health, vegetables, property or to interfere with the enjoyment of his property". When we think of the air pollution problem, however, we associate its source with some activity of man, whether it is farming, manufacturing, or just moving about in the world. Practically all air is contaminated to some extent or others, so some reasonable definition of the term air pollution is a pre requisite to an orderly discussion.

History of air pollution could be traced back to the industrial revolution and the discovery of steam engine, in the 18th century. Increased use of coal and the smoke and sulphur compounds emanating from it began to contaminate the atmosphere more and more. The first major air pollution study in the United States and very important study of Chicago was in 1912-1915, largely at the instigation of one Thomas Donn'ielly. He had a printing plant immediately adjacent to one of the main railroad terminals and found that on many days, his freshly printed works were rendered un-saleable by the layer of root that landed them. He tried to begin a movement to electrify the railroads before they entered Chicago, as New York had already done. Sensing a threat, the

local industries turned this into a major study of air quality in Chicago and all other aspect of problems. In the short run, in their study, the particulate coating of atmosphere was collected on filters and weighed (Srivastava, 1995).

Basically, air pollution is the presence of foreign substances in the air (Faith and Atkinson, 1972). An air pollution problem arises when the concentration of these substances interferes with the well being of people. A more specific definition of air pollution has been developed by the Engineers Joint council (Bishop, C.A.): Air pollution means the presence in the outdoor atmosphere of one or more contaminants, such as dust, fumes, gas, mist, odor, smoke, or vapor, in quantities of characteristics, and of duration, such as to be injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life and property.

A typical definition says that air pollution is the presence in the outdoor atmosphere of one or more substances, put there directly or indirectly by an act of man, in such an amount as to interfere with his health or welfare, or the full use and enjoyment of his property (Lynn, 1975).

Thousands of chemicals that we put into air can be classified in many ways for many purposes. Some are solid particles, ranging from simple carbonaceous black soot to complex organic compounds and heavy metals. There are wide variety of gases and some liquids. Most pollutants are emitted into the air directly from human activities, but some very important ones are formed in the air from other chemicals, often with sunlight providing the energy. Some are seasonal concerns, others year round problems, and some are greater problems in one part of the country than another.

Atmospheric pollutants may be classified broadly into two types: gases and particulate matters (liquid droplets and solid particles). The most widespread air pollutants are the various types of particulate matter sub-classified as dusts, fumes and mists.

Dusts are solid particles, of natural or industrial origin, usually formed by disintegration processes. Fumes are solid particles generated by the

inconvenienced by low atmospheric visibility; a large segment of general public is concerned with the possible health effects of polluted air.

The five most common effects of air pollution are visibility reduction, economic damage to property, annoyance to human senses, damage to health and substantive change in the ecology of the natural environment.

Limited Visibility

Reduction of visibility is the most widely noticed and probably least understood of all effects of air pollution. Smoke and dust clouds that are significantly dense to darken the sky will obviously limit visibility. Restricted visibility is actually caused by the forward scattering of light by minute solid or liquid particles. Smoke and industrial fumes all contain particles and thus restrict visibility of a person.

Economic Damage

Air pollution damage to property includes damage to materials, vegetation, and animals, as well as interference with production and services.

Material Damage

Air pollution damage materials chiefly by corrosion of metals, presumably from acidic compound in polluted atmosphere. The most important acid forming pollutant is sulphur dioxide (SO_2). It is released in greatest quantities by the combustion of Sulphur burning fuels. Temporary property damage results from the soiling of surfaces by pollutants. The most frequently encountered air contaminants toxic to vegetation are sulphur dioxide (502), hydrogen fluoride (H_2F_2), Chlorine (Cl_2), hydrogen chloride (Hcl), nitrogen oxides (NO, NO_2), hydrogen sulfide (H_2S), ammonia (NH_3), hydrogen cyanide (HCN), mercury vapor (Hg), ethylene (C_2H_4) etc.

Interference with production and services

It includes a variety of secondary effects occasioned primarily by other air pollution effects. Included would be automobile and air traffic delays caused by poor visibility, and a general lethargy in human activities because of the depressing nature of some effects.

Annoyance to the sense of people

This category of air pollution effects includes a multitude of reactions that can he generally divided into two classes: (i) eye, nose, and throat irritation; and (ii) odors. Just where annoyance stops and danger to health begins is controversial, but in this discussion annoyance will be limited to the two classes of effects mentioned. Headache, allergies, nausa, and similar effects will be classified as health effects. Eye irritation is probably the most exasperating of all effects of air pollution. Unfortunately, its extent has never been surveyed widely; only isolated newspaper reports are available. Two forms of atmospheric eye irritation are recognized:

- The emission of an irritating substance, such as teargas, into the atmosphere; and
- The formation of an eye irritant in the atmosphere by reaction of otherwise non-irritating pollutants. Cause and effects are easy to relate when known irritants escape. It some times happens that mixtures of unknown composition and of unsuspected irritability are released into the atmosphere.

The second type of eye irritants, those caused by atmospheric reactions, are becoming a major problem in urban communities. The photochemical reactions between certain organic materials and nitrogen dioxide (NO_2), chiefly from automobile exhaust, have been shown to be responsible for the high incidence of eye irritation.

Nose and throat irritation have often been reported as effects of air pollution. Odor is also a subjective response of people, but it is even more difficult to define than eye irritation. This is particularly true because an odor objectionable to one person may be pleasing to another. Other problems are the extreme sensitivity of the sense of smell, tremendous variations among individuals, and desensitization of the olfactory nerve by some substances. Despite the variations among people, there is fairly good agreement as to which odors is most objectionable. No one likes the odor of a slaughterhouse, a pigsty, an excited skunk, or a fish market. Similarly, industrial odors, such as hydrogen sulfide, mercaptans phenolic compounds, and compounds related to butyric acid, are objectionable to almost everyone. Another factor that must be considered is the persistence of an odor. Even a pleasant odor becomes tiresome when it continues for long periods of time. Common descriptions of odors include sulfurous (hydrogen sulfide and mercaptans), nitrogenous (decaying plant and animal life), oxidizing (Ozone and chlorine), nauseating, aldehydic, sweet, and aromatic, hair, flesh, hides etc.

Effects upon ground water

The most obvious adverse effects upon ground water results from the contamination of streams or lakes with sewerage. Besides the burden of excreta from an enlarged human and animal population, other sources of contamination is encountered the run off from industries of various kinds, laboratories and health care facilities, for example. The risk of communicable disease such as viral hepatitis from contaminated water is a serious one.

Damage to health

Of all air pollution effects, damage to health is undoubtedly foremost in most people's minds. Air is necessary for the survival of man. Five minutes without life supporting air is certain death. Potentially, air may also have life damaging properties if the balance between its important constituents, oxygen, nitrogen, and. carbon dioxide is sufficiently disturbed or if sufficient amount of contaminants are present. There is no such thing as absolutely "pure" or "clean" air, nor is there any such thing as an absolutely safe contaminant. At

some concentration in air any gas or aerosol will damage health, if through no other means than dilution of oxygen. The specific concentration at which a contaminant will damage health depend on how the world "health" is defined, the nature of the contaminant (pollutant), the length of time the air containing the specific pollutant (at a given concentration) is breathed or in contact with the receptor and the state of health of the receptor. Here in lies the problem of air pollution control. To some, health is the absence of disease. To others any deviation from an enjoyable state or being is a health effect. A further complication is the subjective nature of health, which is probably the reason for much of the emotional approach to matters concerning air pollution.

There is a large group of industries whose operations are essentially mechanical in nature but which produce some atmospheric contaminants. These include metal working and finishing, machinery construction, assembly plants for various mechanical consumer products, and a number of service industries. Assembly plants and metal finishing operations generally do not produce air pollutants except in a minor way from degreasing operations and applications of surface coatings.

Environmental Pollution

For the first time in his entire cultural history, man is facing one of the most horrible ecological crisis the problem of pollution of his environment which some time in past was pure, virgin undistributed uncontaminated and basically quite hospitable for him. "Environmental pollution may be defined as the unfavorable alteration of our surroundings, wholly or largely as a byproduct of man's actions, through direct or indirect effects of changes in energy patterns, radiation levels, chemical and physical constitution and abundances of organisms. These changes may affect man directly or through his supplies of water and of agricultural and other biological products, his physical objects or possessions or his opportunities for recreation and appreciation of nature" (Trivedi & Raj, 1992).

The most vital and controversial question left unanswered by this definition of environmental pollution has been the question of what constitutes an "unfavorable alteration". Any man made alteration of his environment probably is having unfavorable effects, at least in the opinion of some people, and unfavorable effects in the opinion of others, like those whose livelihood depends on an activity that produces pollution. The determination of the extent of the favorable versus unfavorable effects of benefits versus cost has been difficult just because it has been ultimately subjective, even though objective data may get involved in the determination. The affluent societies of the developed nations of the world have been likely to be more concerned about the unfavorable effects than those nations in which poverty and hunger are major unsolved problem (Trivedi & Raj, 1992).

Poverty, starvation, and pollution all reflect mankind's failure to design social and political institution, which are capable of properly assessing and controlling technological innovation. Serious problems of poverty and hunger exist in the advanced countries like USA, UK, USSR, etc, despite the progress of the last several decades, and the progresses that has been made has been accompanied by the aggravation of many existing environmental problems and the production of new ones (Trivedi & Raj, 1992).

Environmental pollution does not discriminate between people and we are all threatened with a number of problems that go with it. However, for developing countries we do not have the resources for fighting the problem is worse, environmental degradation. As matters pertaining to the environment gather steam. It is time we all understand that care of the environment transcends national borders. In other words, it is our combined concern – a global concern and we must all units to fight it.

Scientists and environmentalist are loud in their warnings of the possible consequences of polluting our seas and other water sources as these plays a crucial role in maintaining the ecological balance. However, ordinary people

must also become aware. Once we understand the cumulative effects of our seemingly insignificant habit of dumping waste here and there are everywhere we might begin to clean up.

Let us start with wastes, which pose a threat an aquatic life. Already marine resources in the Bay are dwindling fast as pollution increases. A well-designed plan of action is necessary for environment friendly disposal of all the different types of waste so that our rivers and waterways can be free from thoughtless and indiscriminate dumping of toxic materials. This should include the dumping of wastes within our territorial waters by foreign ships.

Economic growth and environmental degradation need not go hand in hand if we are careful. There are laws intended to control hazardous wastes. What is missing is general awareness to stop them from finding their way down to the waters edge with predictable results. Some times the wastes coming from the factories are discernible for they tend to discolor the water, but there are also others that are not discernible and these can be extremely dangerous for they will catch you unawares. These substances include DDT, Mercury, Cadmium and Lead, all of which do maximum damage to the body when they contaminate surface and ground water. Environmental pollution has therefore to be tackle in the integrated manner and the first important step is to make people aware of the threat for unless we can do that, we shall not make very much headway.

Health

Hygienic standards used in occupational medicine were created for health protection. But we have no agreement as to what is "health" and how it can be measured. If anyone should say that only those are healthy who function perfectly in all parts, and that others who function less well are not healthy, he is over-simplifying the definition of health. Also it is clear that the real measure of health is not the Utopian absence of a disease, but the ability to function effectively within a given environment. And since the environment keeps

changing, good health is a process of continuous adaptation to the myriad microbes, irritants, pressures and problems which daily challenge man.

The definition by WHO is "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".

Man is a social animal; he cannot easily live for himself alone; there must be harmony with the social environment, so it can be further defined as below:

> Health is a state of feeling well in body, mind and spirit, together with a sense of reserve power; based upon normal functioning of the tissues, a practical understanding of the principles of healthy living, a harmonious adjustment to the environment (physical and psychological); it is a means to a richer life of service.

The preservation of health in the group has been defined by WHO as:

> "The science and art of preventing disease, prolonging life, and promoting health and efficiency through organized community efforts for the sanitation of the environment, the control of communicable infections, the education of the individual in personal hygiene the organization of medical and nursing services for the early diagnosis and preventive treatment of disease and the development of social machinery to ensure for every individual a standard of living adequate for the maintenance of health, so organizing these benefits as to enable every citizen to realize his birth-right of health and longevity.

The variety of health indices proposed from the time of Stonman and Falk (1936) until the present day is a sure sign that we have no ideal index of

health. The definition recommended by World Health Organization and based on a former proposition of Sigerist (1941) takes into account not only the absence of disease but also the individual's physical, mental and social well being. The suggestion of Sigerist was that health is something positive, a joyful attitude toward life and cheerful acceptance of the responsibilities that life put on the individual. In a review of methods of health measurement published by Sanders (1964), it is proposed that they should take into account the functional adequacy of an individual to fulfill the role, which a healthy member of his age and sex is expected to fulfill in his society.

We can extend this definition to include Frankl's (1975) theory, which stresses that an indispensable condition of health is to have a " will to meaning", or purpose in life, because the lack to it leads to psychosocial disturbances. However, in practice we have to apply a simpler criterion of health. Thus, health indicators described by Leowski (1978) are divided into indicators connected with life expectancy and mortality rate; indicators of mortality and disability and so-called indicators of positive health.

The choice of health indices depends upon the kind of epidemiological methods used. In retrospective studies we can use mortality statistics as shown by Selikoff (1972) in his study of asbestos dust and cancer. In prospective studies we must use indirect indices, such as the analysis of sickness absenteeism and the number of visits to the doctor. Although Taylor (1968) described cases, which he termed "resistant", where sickness absenteeism occurred regardless of health status, these are only isolated incidences. For commonly used methods of analysis, these indirect indices are usually sufficiently accurate.

In the past few years (WHO 1975 and 1977) two new terms have been introduced:

- The dose (uptake) effect relationship; indicating the relation between the uptake of a chemical and the magnitude of a qualitatively specified effect on an individual; and

- The dose (uptake) - response relationship; indicating the relation between the uptake of a chemical and the proportion of individuals with a quantitatively specified magnitude of a qualitatively specified effect in a group of subjects.

In spite of this extension of protective rules, listed hazards in most industrialized countries are usually limited to those chemical, biological and physical agents (such as toxic substances, bacterial matters, noise), which are known to be dangerous to health.

As stated in two recent WHO reports (1975, 1975), when health is considered not only as a lack of disease but also as a state of physical, mental and social well-being, parameters other than chemical arid physical hazards have to be taken into account to protect the workers.

An optimal state of health for workers is of primary concern for industry. In industrial organization the responsibility for the health of employees rests with employees, employers and. public authorities.

We have studied health as subjectively experienced and as reported in the form of health complaints for which it is not easy to observe concomitant objective symptoms. Because of this, it might be suggested that we should use the term "subjective health". Alternatively, it would be possible to use the term well being, but this term makes us think of positive health, whereas the complaints of our workers clearly have to with negative aspects of health. The term "subjective health" is somewhat vague and non-operational. So, we shall define subjective health operationally in terms of a measuring instrument (i.e. the Inventory of Subjective Health) used in this study: "Subjective health" is the sum of scores obtained by the Inventory of Subjective Health (ISH).

Mental health is concerned with the adjustments individuals make to situations and the factors, which influence these adjustments. The term mental health has an interesting history within the general areas of occu-

pational psychology, having played a more important role at the theoretical level than in empirical studies. The term, for example, features prominently in the writings of Argyris (1961, 1964), Herzberg (1968), and Warr and Wall (1975). Nevertheless it has not given rise to a distinct and coherent set of empirical studies directly concerned to identify its antecedents and determination.

This assertion requires qualification, since its accuracy depends upon how one view the concept of mental health. In practice two main uses of the term are evident in the occupational literature (Cf. Murrell, 1978). The first is the notion of positive mental health. (Argyris, 1951, Allport, 1958; Jahoda, 1958) which at an empirical level found its best-known expression in the work of Kornhauser (1965). This refers to behaviors, attitudes and feelings that represent an individual's level of personal effectiveness, success and satisfaction; it has no necessary connection with mental illness in a clinical sense. However, because of the rather vague and general nature of positive mental health thus defined, other authors concerned with this concept have drawn upon a wide range of empirical studies in order to examine its relevance as a dependent variable in occupational settings. In reviews by Cooper and Morshall (1976) and Kasl (1977), for example, one finds consideration given to studies which other author would categorize as pertinent to job satisfaction, role ambiguity and conflict, trust, stress, and so on.

The second use of the term mental health is associated more directly with clinical or medical usage, being defined in terms of the absence of mental illness. It is particularly with respect to this meaning of mental health that occupational psychologists have eschewed empirical research with but a few exceptions. For example, Fraser (1947) examined the incidence of neurosis in a large sample of factory workers and identified job characteristics as among the more important correlates; Erikson et al. (1973) found that status congruence was strongly related to the incidence of psychiatric disorder, as indexed by in patients, out patients and control among Navy ratings; and Arthur and Gunderson (1965) found that promotional lag was related to psychiatric illness.

Health Hazards

The human body is an exceedingly complex mechanism. Health life depends upon the continuous orderly operation of incompletely understood and highly intricate chemical and physical processes. Anything that interferes with any of these processes in any way may be injury in some degree. The human system has many defenses against the health hazards that ordinary living presents, but it has fewer defenses against the toxic substance used in industry. Furthermore, industrial processes may intensify familiar exposure, such as heat, radiant energy, non toxic dusts and the like, to such a degree that without suitable control measures the bodily defenses to combat ordinary exposures such as these are over come and injury results. Work with animal or vegetable products may involve exposure to harmful germs, insects or parasites. Occupational health hazards are usually classified as:

Chemical – for the most part these hazards are presented by substances that directly attack body tissues, as poisons and corrosive. They may be gases, vapors, liquids, solids or combinations of these.

Biological – these hazards include a long list of infective agents such as those causing anthrax, tuberculosis, pneumonia, and typhoid fever, such fungi as those causing athletes foot, and parasites such as that causing trichinosis.

Harmful Environmental Conditions or Exposures – these include radiant, energy, excessive noise, repeated vibration and shock, extreme temperature and humidity, rapid temperature change and abnormal air pressure (R.P.Blake, 1963).

Manner of Attack

Injury substances reach the body and cause injury by:

- Inhalation – breathing:
- Skin Contact – abortion through the skin, direct attack on the skin;
- Ingestion – swallowing.

Inhalation

Inhalation is by far the most important means by which injury substances enter the human organism. The great majority of occupational poisonings result from breathing air containing toxic substances in the form of gases, vapors, mists, dusts or fumes or mixtures of two or more of these.

Carbon monoxide, non toxic in the usual sense but commonly referred to as toxic because of its killing ability, is taken up by the red blood cells some 300 times more readily than oxygen and the victims soon succumbs to oxygen starvation. Carbon monoxide is formed whenever any carbonaceous substance is burned under conditions that prevent sufficient oxygen from reaching it to oxidize the entire carbon-to-carbon dioxide. These ever recurring as fixation from inadequately ventilated fuel burning devices of all sorts bespeak widespread ignorance and neglect of the seriousness of these hazards. It has been with us ever since men learned to make fire. Undoubtedly many cave men were victims of carbon monoxide (Blake, 1963).

In a sense, asphyxiation from breathing oxygen deficient air belongs under this heading. It is an ever-present hazard when men enter tanks, wells, silos or other closed places in which oxidation may have reduced the oxygen content of the air. The fermentation of vegetable matter is an oxidation process, hence the hazard of silos and wells. Many farmers have died in them (Blake, 1963).

Breathing dusts containing silica (SiO_2) is the cause of silicosis, a very serious and incurable disease of the lungs long known as miner's phthisis. The silica causes the gradual development of tissues resembling scar tissue thus progressively reducing lung's capacity. It also greatly reduces the normal defenses against tuberculosis. Asbestosis is a similar disease caused by breathing air containing asbestos dust. Substances that are or can become airborne are classified as dusts fumes, mists, vapors and gases (Blake, 1963).

Dusts

Solid particles fine enough to become airborne. In industry, dusts are formed mostly by crushing, grinding, abrading and handling operations and by rock drilling and blasting. Dusts do not tend to agglomerate except under electrostatic forces; they do not defuse in air but settle under the influence of gravity (Blake, 1963).

Fumes

Solid particles formed by condensation from the gaseous state, often including a chemical reaction, particularly oxidation. Particle size is an important difference between fumes and dusts; fumes being extremely fine. They are of course, formed as individual molecules but these agglomerate (Blake, 1963).

Mists

Airborne liquid droplets format by condensation from the gaseous state or by breaking up a liquid by splashing, foaming or atomizing (Blake, 1963).

Vapours

The gaseous form of substances that are normally in the liquid or solid state and which can be changed to these states either by increasing the pressure or by decreasing the temperature (Blake, 1963).

Gaseous

Normally formless fluids that occupy the space of enclosure and can be changed to the liquid or solid state only by both lowering the temperature and increasing the pressure (Blake, 1963).

Skin Contact

In the manufacturing industries, skin diseases (Dermatosis) accounts for the great majority of compensation claims for health injuries because so many of the chemicals used, processed or made can cause them. In a number of the heavily industrialized state such claims run about two thirds of the total.

The problem of prevention is continually being made more difficult, not only in the ever increasing use of such substances, but also by the continual creation of useful new ones. For example, the introduction and rapid increase in the use of epoxy resins brought numerous outbreaks of dermatosis due primarily to the amine hardeners or catalysts. An older example is finished by chrome plating particularly in the automobile industry. Contact with chromic acids or its salts can cause skin ulcers, dermatomes, or both.

Many solvents for example trichlorethylene dissolve the natural fats the normal skin has, causing it to become dry and chapped and reducing its normal resistance to bacterial infection. Bacterial agents can also gain entrance through minor abrasions and lacerations to cause bleeding or pain or both.

Corrosive chemicals, such as strong acids and alkalis, attack the skin directly. High concentration can almost instantly cause chemical burns resulting in tissue destruction and permanent scars or disfiguration.

A few toxic substances can poison by absorption through the skin. If the area of contact is large some of them, aniline, carbon disulfide and tetraethyl lead for example, can cause death unless quickly removed from the skin. Some substances can cause chronic injury by continued absorption of small amounts through the skin (Blake, 1963).

Ingestion

Chronic poisoning can occur if even very small amounts of certain substances are ingested daily. Among these are lead, arsenic, mercury, and some of the newer insecticides. When dealing with such substances as these, every precaution must be taken to prevent their entry into the digestive track. Frequent washing of the hands, especially before eating or smoking, is important. Food should never be kept nor eaten where such toxic substances are used or handled or processed. Chewing tobacco is likely to become contaminated. All who work with such substances should bathe at the end of each shift and make a complete change of clothing. The work clothing should be kept separate from the street clothing and laundered frequently (Blake, 1963).

Quality of Working Life

"Attempts have been made by different researchers to define quality of working life (QWL) in a number of ways. According to Sayeed and Sinha (1981), Taylor's (1973) and Spink's (1975) view points on QWL may be regarded as a basis for it's operational definition and these view points describe QWL as "the degree of excellence in work and working condition, which contribute to the overall satisfaction of the individual and enhances individual as well as organizational effectiveness". According to Sinha (1982), "the quality of working life refers to the relationship between a worker and his environment, adding the human dimension to the technical and economic dimensions within which work is normally viewed and designed".

While defining quality of working life as "the phenomenological experience of people at work", Taylor (1973) emphasized individual employee's perspective for QWL consideration. The quality of working life, according to Beinum

(1974), is "the quality of the content of relationship between man and his task". A somewhat wider definition of QWL has been put forward by Cohen (1980) in the following manner: an "intentionally designed effort to bring about increased labour management cooperation to jointly solve the problem of improving organizational performance and employee satisfaction". Sinha (1982) after examining various definitions of QWL put his own in the following way: "Quality of working life is the degree of excellence brought about work and working conditions which contribute to the overall satisfaction and performance, primarily at the individual level but finally at the organizational level".

In an attempt to define quality of working life operationally, Guest (1979) put it in the following way: "'Quality of working life' is a generic phrase that covers a person's feelings about every dimension of work including economic rewards and benefits, security, working conditions, organizational and interpersonal relationships, and its intrinsic meaning in a person's life"."(Haque, 1991)

Review of Related Literature and Theoretical Consideration

If the observations were made on subjects who were exposed to atmospheric pollutants under uncontrolled conditions and the patients visiting physicians to complain of symptoms supposedly caused by living in polluted areas are observed, these data will indicate beyond doubt a relationship between air pollution and disease, particularly pulmonary disease. Although there may not be adequate data to relate specific diseases to specific concentrations of pollutants, certain general relationships appear sound (Faith and Atkinson, 1972). Principal relationships are:

- Cardiovascular diseases are related to atmospheric pollution in that any pollutant placing sufficient stress on the pulmonary function may affect the heart.

- Chronic pulmonary disease (bronchitis, asthma, emphysema) is aggravated by sufficiently high concentrations of sulpherdioxide, nitrogen oxides, particulate matter, etc.

- Carbon monoxide ties up the hemoglobin in the blood to a sufficient amount to put additional stress on those suffering from cardiovascular and pulmonary diseases.

Chlorine is found in polluted atmosphere as the element itself, chlorine, as hydrogen chloride; as chlorine containing organic compounds, such as perchloroethylene, and as inorganic chloride. The principal effects of chlorine and its compounds are corrosion, by hydrogen chloride and salt nuclei, respiratory irritation; from chlorine (Haggord, 1924), possibly more deep seated respiratory effects from complex ammonium chlorides (Hemeon, 1955); and damage to vegetation from chlorine (Zimmerman, 1949).

Studies of people exposed by inhalation and/or ingestion to arsenical insecticides and by occupational inhalation of inorganic arsenic in copper smelter operations show greatly increased incidences of skin and internal turners (Lee and Fraunieni, 1969).

The most obvious way in which people are adversely affected by chemicals is acute poisoning. Acute toxic affects from chemical pollutants occur with considerable frequency as a result have dermal (skin) and inhalation exposures in the course of work (National Safety Council, 1972).

More subtle than direct acute poisoning are the indirect acute (and chronic) effects of community air pollutants, chiefly sulfur dioxide and particulates, on the incidence of common respiratory diseases. Although it is well recognized that these are primarily infectious conditions, increased frequencies of acute respiratory illnesses have been clearly associated with increased pollutant levels in both children and adults (Higgins and Ferris, 1975).

Results of a recent study indicating the magnitude of the excess of acute respiratory illnesses with higher pollutant levels for different family member groups in Chicago and New York (French et al., 1973).

Chronic toxicity can be any manifestation of an adverse health effect from a chemical or physical pollutant, which develops slowly overtime. This can occur either when the pollutant itself is poorly excreted and builds up to high concentration in sensitive organs with repeated exposure, or when single or separated exposures to the pollutant produce irreversible damage in small incremental steps. This type of toxicant is typified by heavy metals such as lead and mercury.

Because of the slow accumulation over mouths of exposure and the gradual onset of non-specific symptoms (gastric distress, irritability), lead and mercury toxicity is often unrecognized for long periods. Ultimate damage is generally to

the nervous system and the kidneys. Recent evidence has associated the childhood hyperactivity syndrome with increased body burdens of lead, in the absence of a previous history of frank poisoning (David, et al., 1972). Many kinds of dust present in the work environment cause long term debilitating lung diseases, called pneumoconiosis (Selikoff, 1972).

Similar conditions are asbestosis from asbestos, byssinosis from cotton, bagassosis from sugar cane, and silicosis from various silica containing dusts. A large number of deaths per year have been attributed to these occupational dust diseases (PSAC panel, 1975).

WHO made a review in 1976 of various health problems of workers in small industries based on field studies carried out in a number of countries. Workers were found to have a greater risk of suffering from toxic effects or fully developed occupational disease than those in large industrial concerns (WHO, 1976).

In 1975 a pilot study of health problems of small industries in the Republic of Korea (Cho and Lee, 1975) reported that among 3600 workers, employed in 60 small work places, the numbers exposed to potential health hazards were: 'to noise, 870 (24.2 per cent); siliceous dusts, 427 (11.9 per cent); lead, 268 '(7.4 per cent); organic solvents, 563 *(15.6* per cent); to various chemical substances - chlorine compounds, carbon monoxide, sulfur dioxide - 297 (8.3 per cent)'. Out of the 268 workers in lead smelter and accumulator factories, there were 112, or 41.8 per cent, with signs of lead poisoning. Furthermore, there were *56* suspected cases of intoxication by solvents/ such as benzene, toluene and xylene from the *563* workers exposed in rubber and machinery workshops; a prevalence of 9.9 percent. The overall prevalence of occupational diseases among 2630 workers, at risk was 480 or 18.2 per cent.

The chronic lung diseases that is widely prevalent in the population as occupational and community air pollutants also exacerbate a whole bronchitis, emphysema, and asthma such effects often interact with the effects of weather conditions, which also affect the severity of chronic respiratory illnesses (Cohen, et al., 1972).

Tobacco chewing with lime or with betel quid is practiced in India and other South Asian countries. Habit of chewing tobacco is prevalent in India since the last quarter of 19th century, and the association of oral cancer with tobacco chewing was reported by Niblock as early as in 1902, followed by subsequent reports of Fells in 1908 and by Orr in 1933. Since tobacco chewing is practiced in all parts of the countries and by all sections of society the association of oral cancer with tobacco chewing has been confirmed by several epidemiological studies conduced by Khanolkar, Wahi, Jussawalla and Deshpande and Sanghvi (1981). These study have proved beyond doubt that tobacco chewing with lime or betel quid is causally associated with cancer or pharyngeal cavity. They have also proved that people with combined habits of chewing and smoking are at greater risk than those having a single habit.

The grim findings of the royal college of physicians are confirmed by the 1979 report of the United State's surgeon general on smoking and health. The report reached the conclusion that cigarette smokers have overall cancer mortality rates substantially greater than those of nonsmokers. Overall cancer death rates of male smokers are approximately double than that of nonsmokers and are increasing steadily.

Many cancers are environmental in origin. In a number of studies the role of environmental pollution contributing to the variation in cancers has been identified. For example, the high incidence of cancer of the oral cavity is related to the chewing of betel nuts and tobacco leaves, the high incidence of liver cancer is related to dietary contamination with aflatoxin, the high incidence of gastric cancer has been associated with high dietary intake of fish (Lijinsky and Epstein, 1970; Wparwin, 1974).

It has been suspected for several decades that heavy tobacco smoking is directly and causalty related to chronic lung diseases, especially cancer. After reviewing 29 retrospective epidemiologic studies on lung cancer, generally

substantiating the causative role of smoking, it has been found unambiguously that the incidence of lung cancer was positively correlated with cigarette smoking (Public Health Service, 1964).

There are also many studies, which demonstrate the contributory role of urban air pollution in lung cancer, in addition to the identification of numerous classes of chemical carcinogens in polluted urban air. These studies have shown that there is an excess of lung cancer deaths in smokers living in polluted urban areas, when contrasted with those living in non polluted rural areas (National Academy of Sciences, 1972); Hueper, 1972).

It is evident from a number of studies that air pollution episodes sulfur oxides and particulate matters have severe acute effects, molding fatalities, especially among the aged, and persons with respiratory handicaps. At lower, i.e. less acute, exposures over longer periods of time, it can also cause, or significantly contribute to, a variety of chronic lung and respiratory ailments, including emphysema, chronic bronchitis, and lung cancer (Anon, 1969; Anon, 1969).

In another study Anon (1970) found that acute levels of hydrocarbons and nitrogen oxides cause severe eye irritation, a very noticeable haze, and the aggravation of a number of symptoms and difficulties of respiratory patient.

Another major pollutant is carbon monoxide, a material with specific biochemical toxicity. It reacts with the blood's hemoglobin, reducing its ability to carry oxygen to the body tissues and thereby affect human health (Cavender, Kircher, and Hoffman, 1973).

Research on water pollution (Evans and Jacobs, 1981; Rotton, Freyk Barry, Milligan and Fitzpatrick, 1979; Rotton, Yoshikawa, and. Kaplan, 1979; Coughlin, 1976; Bruvold and Ward, 1970; Bruvold, 1968) has suggested that

chemical in drinking water might also hamper cognitive efficiency and impair task performance.

In spite of the under-reporting there is evidence that the major groups of occupational diseases occur frequently. They include the pneumoconiosis and obstructive respiratory diseases caused by dust; intoxications by various pesticides; poisoning by metal, particularly lead, and by solvents; occupational dermatitis; acute and chronic effects of respiratory irritant gases vaporous; and noise-induced hearing loss (WHO, 1979).

A number of studies revealed that sodium nitrate increases the aggressiveness and impairs the motor activity of mice (Schuval and Gruener, 1977); sodium fluoride has been linked with allergenic reactions (Waldbott, 1962; WHO 1970). Further, a closely related substance (hydrogen fluoride) reduces the visual thresholds of humans and increases the response latencies of rats (National Academy of Science, 1971).

A pilot survey on the health problems of industrial workers conducted by the National Institute of Occupational Health (NIOH) (1984), showed that the workers of the polluted industries are more prone to suffer from health problem like indigestion, loss of appetite, abdominal pain, lethargy and depression and their bio rhythms get disturbed. The NIOH warn that if these problems are not attended properly at an early stage they might lead to peptic ulcers and insomnia.

Vaernes et al. (1988) examined a group of 127 workers for health complaints, subjective experience of their work environment, psychological defense strategies, and immunological factors. They found that the main health complaints were sleep disturbance and gastrointestinal problems. The workers also complained about allergies, breathing difficulties, tension, anxiety and depression due to the adverse working environment.

The combination of industrial hazards may be more harmful to health than the sum of their individual effects. The exposure to bad working conditions, to chemical or physical noxious agents, may lead to specific occupational diseases and which, in turn, affect workers' health (Rey, 1979).

After a broad investigation of such symptoms as headache, general fatigue, anxiety, feelings of depression, and bad temper, Rey (1960) treated these symptoms as more an index of workers ill health.

Jonsson and Hensson (1977) were able to demonstrate increased systolic and diastolic arterial pressures in industrial workers who had been exposed to work place pollution for a long period of time, in comparison with control subjects.

Working conditions, both physical and social, have been found to influence job satisfaction significantly. The results of a number of studies indicate that working condition particularly physical aspect is ranked by the workers variously from 2nd to 9th in terms of its importance to their job satisfaction (Harrell, 1958).

Similarly, several other investigators have shown that work environment serves as an important determinant of job satisfaction (Zaleznik et al., 1958; Gurin et al., 1960; Curran arid Stanworth, 1981).

Although cigarettes are the predominant cause of lung cancer, some increased risk also results from pipe and/ or cigar smoking. Smokers of other type of tobacco, particularly in Asia (e.g. bidis in India), also appear to be at an increased risk of lung cancer. At present it is not possible to determine whether prolonged *bidi* smoking increases the risk of lung cancer to the same extent, as does prolonged smoking of cigarettes. (WHO, 1987)

Tobacco smoking (particularly of cigarettes) is an important cause of bladder cancer and cancer of the renal pelvis. The proportion of these diseases attributable to smoking in most countries with a history of prolonged cigarette usage is of order of 50% in men and 25% in women. The relationships of risk with duration and intensity of smoking are similar to those for lung cancer, although the risks are lower. Pipe and / or cigar smoking probably also increased the risk of bladder cancer, but at lower levels than the risk caused by cigarette smoking (WHO, 1987).

Representative population data from 3,010 Ss (aged 15 yrs. And older) were used to compare the quality of life status of different smoking categories with never smokers. Significant differences in mean quality of life scores, as measured by the SF-36 health status questionnaire, were observed between never smokers, as the reference group, ex-smokers, all smokers, and light, moderate and heavy smokers. Heavy smokers also scored significantly lower than both other groups of smokers, scoring as low as the 29th percentile of the population on the general health dimensions. (Wilson, David, Parsons, Jacqueline & Wakefield, Melanie, 1999).

J.Z.Ayanian, P.D.Cleary, and Thomson, Scott, 1999 found that most smokers don't perceive themselves as being at increased risk for experiencing a heart attack for developing cancer.

The review of the literature reveals that the environmental pollution is directly related to the workers health, occupational stress, fatigue, job and life satisfaction. It seems that the exposure to bad working conditions, to chemical or physical noxious agents, may lead to specific occupational diseases and which, in turn, affect workers health, well being, and job satisfaction (Rey, 1960; Weintraub, 1973; Quinnet et. al., 1974; Hennigan and Worthan, 1975; O'Toole, 1976; Jonsson and Henssou, 1977; Beehr and Newman, 1978; Rey, 1979; Evans and Jacobs, 1981; National Institute of occupational Health. (U.S.A.), 1984; Khaleque et. al., 1987; Vaernes, 1988).

It is a matter of great concern that environment of Bangladesh is being polluted persistently due to various reasons: over population, haphazard growth of industries, lack of public awareness, improper disposal of effluent and garbage, indiscriminate use of pesticides, insecticides etc.

Bangladesh is not an industrially developed country. Nevertheless, there is an increasing trend of industrial pollution, and the level of industrial pollution in some specific regions is significant, which has created localized environmental problems (Quaderi, 1982).

The pattern of industrial pollutions, environmental quality requirements and regulations in Bangladesh are quit different from those of the developed countries. In Bangladesh the industrial processes are back dated, neither the wastes are recycled nor treated prior to the disposal in the environment Poor housekeeping, and less efficient industrial process produce more wastage, and the level of pollutional discharge caused by a particular industry is much higher than that in the developed countries (EPD0, 1985). The management of many industrial enterprises is totally unaware of the modern waste treatment procedures. They have been found to dump liquid and semi solid effluent into adjacent rivers, nearby lakes, swamps, dug wells, and even in irrigation canals. The factories that deal with chemicals were found to discharge highly toxic effluents in the air and water and such wastes have been detected to cause severe air pollution and water contamination (EPCD, 1980).

The use of contaminated water and inhalation of polluted air can create problems for health and well being for the workers of those industries and residents of the surrounding areas. But very few studies on this problem have so far been conducted in Bangladesh.

"As we already know the concept of quality of working life (QWL) is of recent origin. The term 'quality of working life' which refers to a relationship between the worker and the working environment is believed to be first coined by Louis Davis in the first international conference on quality of working life held at Arden House, New York in September 1972 (Bharadwaj, 1983; Rahman, 1984).

A look in the quality of working life movement in the international level by researchers (Ganguli, 1979; Pomonis and Baumgratel, 1980) brings out the following factors as responsible for undertaking QWL improvement programme in the industrially developed western countries:

- An increased feeling of dissatisfaction and alienation on the part of blue—collar and white—collar employees as well as many managerial personnel about their jobs and organizations even when works were made easy and less dangerous;

- Social scientists' realization that capitalist industrialization has raised the material standard of living of the working class at the cost of environmental pollution, occupational stress, accidents etc.

- Declining trend of labour productivity in the face of energy crisis;

- Absence of generalized feeling of well being and satisfaction though there were economic affluence and material accomplishment; and

- The increasing recognition of the importance of the individual's perception of 'quality of working life' in physical and mental health as well as family and community well being.

While commenting on the premise, which led to the launching of QWL, programme in the western world Pomonis and Baumgratel (1980) wrote:

> "The 'movement' is in a sense a reform movement within the western industrial capitalist system a reform designed to reduce alienation, to increase the productivity maintaining motivational involvement of the working population, and at a public policy level to enhance the health and well being of the individual I the western society". "(Haque, 1991)

Nadler and Lawler III (1983) after examining different hypotheses suggested a definition what they call a 'working definition' of quality of working life (QWL), as "quality of working life is a way of thinking about people, work and organizations. Its distinctive elements are:

- A concern about the impact of work on peoples as well as organizational effectiveness; and
- The idea of participation in organizational problem solving and decision making".

Two important aspects of QWL seem to be emerging out of their definition:

- QWL effort should not focus on how QWL make people do their work better but on how work help to make people feel, better. Here the focus is not on the productivity but on the outcome of the individual.
- The important aspect of QWL should be workers' participation in the decision making process of the organization. (Haque, 1991)

"Nadler and Lawler III (1983) in their attempt to define QWL operationally delineated the following four aspects as characteristic features of QWL activities:

- In QWL activity there should be a process of participative problem solving. People of all levels in the organization should be involved in the decision making process of the organization.

- The second concern for QWL activity should be about the restructuring of work of the individuals and "work restructuring may include such things as job enrichment, the use of autonomous work groups, or the design of complete technical systems and sets of jobs and procedures particularly in the development of new high involvement plants" (Nadler and Lawler III, 1983).

- The third type of activity should concern about reward system. As we know reward plays an important role in ensuring motivation, effort and performance of the worker; so, something should be done for creating innovative reward system that promotes congenial atmosphere in the organization. To achieve this end Scanlon plan may be applied with appropriate variation; and Scanlon plan means dividing the benefits due to cost saving innovations among the workers.

- The fourth type of QWL activity should concern about improving the conditions of work environment. "(Haque, 1991)

"Professor Walton (1973) in his paper "Quality of Working Life: What Is It?" expressed his observation on QWL which draws our attention. He observed that QWL concept was being used more and more "to describe certain environmental humanistic values neglected by industrialized societies in favor of technological advancement, industrial productivity and economic growth. Within business organizations, attention has been focused on the quality of human experience in the work place. At the same time many firms have questioned their viability in increasingly competitive world markets. These dual concerns have created a growing interest in the possibilities of redesigning the nature of work. Many current organizational experiments seek to improve both productivity for the organization and the quality of working life for its members". Walton (1973) considered the following points as central to both research and action programme with QWL:

How should the quality of working life be conceptualized?

How can QWL be measured?

What are the criteria of QWL and how are they related?

How is each related to productivity and are these criteria uniformly salient for all employee groups?

According to Walton (1973), quality of working life is a comprehensive and broad term and this has a relevance for certain legislation like child labour laws, fair labour standard Act. It has relevance for unionization movement seeking job security, due process at the work place and economic gains for the worker. It endorses the notion held by psychologists in the 1950s that "a positive relationship existed between morale and productivity and that improved human relations would lead to enhancement of both. Finally, the concept is broader than any of the attempts at reform in the 1960s such as the drive for equal opportunity and the numerous job enrichment schemes. Walton (1973) further suggested that any reform movement associated with quality of working life "must include recently emphasized human needs and aspirations, such as the desire for a socially responsive employer'.

Walton (1973) proposed eight major criteria for the quality of working life. The criteria are as follows:

1) Adequate and fair compensation;
2) Safe and healthy working conditions;
3) Immediate opportunity to use and develop human capacities;
4) Future opportunity for continued growth and security;
5) Social integration in the work organization;
6) Constitutionalism in the work organization;
7) Work and the total life space; and
8) The social relevance of work life.

It is worthwhile to examine in short: the nature of these criteria and see how they are parts of quality of working life:

- Adequate and fair compensation: People work primarily for earning a living. So, how the pay they receive meets their objective will affect

their quality of working life. We say pay should be adequate and fair; but the problem is that adequacy of compensation is a relative term and it is difficult to find an objective standard for judging the adequacy of compensation. "Fairness in compensation, on the other hand has various operational meanings. Job evaluation specifies relationships between pay and factors such as training required, job responsibility, and noxiousness of working conditions. By other approaches, supply and demand for particular skills or community averages determines the fair level of compensation. Another standard of fairness relates to ability to pay; more profitable firms should pay more". (Walton, 1973).

- Safe and healthy working conditions: We all agree that workers should not be put to risky working conditions. Workers are protected by legislation, union action and employer concern against exposing them to noxious physical condition or hourly arrangement that are detrimental to their health. Concerns about workers' safety and healthy conditions have gradually raised standards of satisfactory working conditions over the years. Some of the improved conditions are reasonable hours of work beyond which extra payment (remuneration) is required, physical working conditions that minimize risk of illness and injury, age limits imposed in respect of certain jobs which seem to be dangerous to the welfare of persons below (or above) a certain age.

- Immediate opportunity to use and develop human capacities: As a result of industrial revolution work has lost much of its meanings and it has become fragmented, deskilled and stereotyped. So, there is little scope for the employees to develop their skills and knowledge. Certain questions regarding job qualities that follow are:

  "Autonomy: Does the work permit substantial autonomy and self-control relative to external controls?

Multiple skills: Does the work allow one to exercise a wide range of skills and abilities rather than merely repeat the same narrow skill?

Information and perspective: Is one allowed to obtain meaningful information about the total work process and the results of his own action, so that he can appreciate the relevance and consequences of his actions?

Whole Task: Does one's work embrace a whole task or is it some fragment of a meaningful task?

Planning: Does one's work include planning as well as implementation of activities?" (Walton, 1973).

The above questions are pertinent considerations for the workers; because these have direct bearing on their ego involvement, self-esteem and challenge they receive from their work.

- Future opportunity for continued growth and security: Workers look forward to career opportunities. Most of the industrial jobs being repetitive and stereotyped workers pick them up within months or years and reach nearly the peak of their earnings gradually. If there is no scope for further advancement they may lose their enthusiasm and interest in their work. In order to ensure workers' commitment to work the following aspects should be taken care of

  Development: Arrangement should be made so that workers feel encouraged to maintain and expand their capabilities.

  Prospective application: Workers should have the hope that they can apply their acquired knowledge and skills in future work assignments.

Advancement opportunities: There should be available positions so that workers can move to those positions on the basis of their merit.

Security: Workers should enjoy security in respect of employment and income.

- Social integration in the work organization: Workers social organization has a bearing on his work and career. So, the nature of relationships, the workers maintain with one another serves as another important dimension of quality of working life. Worker's identity pattern and feeling of self esteem are influenced by the following factors of his work place:

  "Freedom from prejudice: Acceptance of the worker for work related traits, skills, abilities, and potential without regard to race, sex, creed, and national origin, or to life styles and physical appearance.

  Egalitarianism: The absence of stratification in work organizations in terms of status symbols and/or steep hierarchical structures.

  Mobility: The existence of upward mobility as reflected, for example, by the percentage of employees at any level who potentially could qualify for higher levels.

  Supportive primary groups: Membership in face-to-face work groups marked by patterns of reciprocal help, socio-emotional support, and affirmation of the uniqueness of each individual.

  Community: The sense of community in work organizations that extends beyond face-to-face work groups.

  Interpersonal openness: The way members of the work organization relate to one another their ideas and feelings'. (Walton, 1973).

- Constitutionalism in the work organization: This is about the worker's rights and the ways of protecting his rights in the work place. One of the union's aims is to protect employees from whimsical or arbitrary decisions of the employers; but workers should also have the right to seek justice from any rational body if any decision of union affects workers well being. Some of the important aspects of constitutionalism that affect worker's quality of working life are right to personal privacy, free speech, equitable treatment in all matters of employment, due process in work place expressed through 'rule of law' rather than rule of personal caprice, proper official procedure and access to justice.

- Work and total life space: Worker's experience in situation play an important role in determining the other spheres of his life like his family life. Doing overtime frequently and for long hours may have serious effect on a family life. Besides, frequent transfers (where families uprooted from their networks of friends, relatives and local affiliations) have both psychological and social consequences. There should be a balanced relationship between work and other spheres of life (total life space). Work is balanced when its schedule and demands are such that they do not take up much of leisure and family time.

- The social relevance of work life: Employees are likely to be concerned by whether the organization is behaving sensibly in respect of its products, waste disposal, marketing channels, advertising techniques, relation with other organizations and countries. These are ethical considerations, which have bearings on workers' quality of working life.

Singh (1982) while reviewing literature on quality of working life pointed out that its definitions are rather vague. Works in quality of working life area have different connotations like new forms of work organization, industrial democracy, job redesign etc. He referred to the ILO's Directory of Institutions (1981) engaged in improving quality of working life (QWL), which considered the following areas as concerns of QWL:

- Hours of work and arrangements of working time.
- Work organization and job content.
- Impact of new technologies on working conditions.
- Working conditions of women, young workers, older workers and other special categories.
- Work related welfare services and facilities.
- Shop floor participation in the improvement of working conditions.

Although quality of working life (QWL) approach has concern for both organizational performance and employee satisfaction (Cohen, 1980) latter part i.e. 'employee satisfaction' has been emphasized by many working in QWL. "However, most people engaged in these activities have shied away from 'performance' and have stressed only 'happiness at work' as the qualifying criteria (hoping on the side that the increased happiness will result in a higher productivity)" (Singh, 1982).

After reviewing the literature on quality of working life Boisvert and Theriault (1977) had listed a number of views on QWL which ranged from a global approach like role of work in one's life to a restricted approach like job content. Singh (1982) examined the above views and suggested that 'concern for quality of life' (QL) which includes concern for leisure, care and rest should be added to the Boisvert and Theriault's QWL concept to make its meaning still wider. He maintained, "Any conscious effort aimed at improving working conditions work content, and its attendant conditions like safety, security, wages and benefits can legitimately qualify as QWL activity" (Singh, 1982;). He further maintained that most work in India on quality of working life has the restricted view concerned with job and job content only. QWL activity should have concern not only for life at work but also for life outside work; because the two cannot be separated.

Earlier when there was no formal organizational procedures a worker enjoyed considerable amount of freedom in respect of time for his work, applying his skill and knowledge in doing his work and selecting his own method in doing the work. But with the advent of industrial revolution and technological advancement work became fragmented and repetitive. It took away much of the freedom of the worker. The worker became a robot to work only with his hands without the right to ask the meaning of the work he was assigned. Thus the new system imposed what Singh (1982) called 'Time Discipline', 'Task Discipline' and 'Method Discipline' on the worker. As a result the worker developed a sense of alienation.

> "The process of alienating man from work became almost complete when technology assumed a position of pre-eminence. Man today is asked to be more subservient to technology than the reverse. Net result of all this is a surrender of human dignity and freedom at work, dehumanization of the work place, jobs and organizations with segmented tasks and a high concern for specialization". (Singh, 1982;).

The concept of quality of working life seems to be vague because researchers working on quality of working life looked at it from different angles and tried to assign different meanings on it. Perhaps for these differences of opinion among the researchers on quality of working life Carlson (1978) claimed, "quality of work life is essentially an individual Concept". It was in this context Seashore (1975) announced that much of the research and theorizing in the quality of work life has been pursued primarily on the assumption that it is the individual's own personal satisfaction or dissatisfaction rather than any objective criteria that defines his quality of work life. De (1975) viewed quality of working life as "... an indicator of how free the society is from exploitation, injustice, inequality, oppression and restriction on the continuity of growth of man leading to his development to the fullest".

Researchers working on quality of working life came up with different dimensions of it and here again we have the problem of differences of opinion among them. Walker (1975) held that a person's quality of working life should involve the task, the physical work environment and the social environment within the plant, the administrative pattern of the organization and the relationship between life within and out side the job.

Boisvert (1977) after reviewing relevant literature on quality of working life identified the following dimensions as important components of QWL:

1) Control over work;
2) Extent of use of one's judgment;
3) Importance of decisions made;
4) Learning opportunities;
5) Use of skills and abilities;
6) Control over criteria of work adequacy;
7) Feedback on performance;
8) Challenge in the job;
9) Work variety;
10) Interaction with co-workers;
11) Recognition at work;
12) Possibilities for taking pride in one's work;
13) Possibilities for relating work to final product;
14) Extent of preparation on the job for a desirable work future; and
15) Participation in organizational decision-making.

The survey on quality of working life conducted by Carlson (1978) in General Motors dealt with the following 16 dimensions:

1) Employee commitment: feelings of loyalty to General Motor: a commitment to and concern for the future of the organization.
2) Absence of developing apathy: a measure of employee concern and ambition regarding their work.
3) On the job development and utilization: opportunity for the employee to learn and apply skills and abilities in a meaningful and challenging way.
4) Employee involvement and influence: the extent to which employees feel involved in decision-making.
5) Advancement based on merit: the extent to which management is interested in the progress of the individuals and rewards people on the basis of ability, performance and experience.
6) Career goal progress: making progress in the achievement of career objectives and the belief that there are opportunities for further progress.
7) Relations with supervisor: the working relationship with one's supervisor as reflected in fairness, honesty, and mutual respect.
8) Work group relations: the way employees in a work group provide mutual support and encouragement.
9) Respect for the individual: the feeling of being treated as an adult with respect and dignity.
10) Confidence in management: belief that management is aware of and concerned about employee problems and interests.
11) Physical working environment: conditions affecting employee's health, comfort and convenience.
12) Economic well being: receiving adequate financial rewards and having income protection.

13) Employee state of mind: whether the employee feels upset or depressed while at work.

14) Absence of undue job stress: the relative absence of excessive work demands and pressures, which might interfere with doing the job well.

15) Impact on personal life: the spillover effect of the job on employee's personal lives.

16) Union management relations: the extent to which the union and management recognize mutual goals and are working together.

Joseph (1978) studied the relationship between job attitudes and quality of working life. He viewed quality of working life along four dimensions growth, mastery, involvement and self-control. Singh (1979) suggested that quality of working life concept should be understood along the following 7 dimensions:

1) Adequate and fair compensation;
2) Safe and healthy working condition;
3) Security and growth opportunity;
4) Opportunity to use and develop creativity;
5) Respect for individual's personal rights;
6) Work and family life; and
7) The social relevance of work.

According to Ganguli (1979) security, safe and healthy working condition, conditions of work, adequate compensation, work-organization, opportunity for growth and social integration in work organization are important considerations for QWL activity. Singh and Maggu (1980), in their effort to study the corporate quality of working life, viewed QWL concept as composed of factors like human growth, exciting work place, creativity and innovativeness, concern for people, and democratization of work process.

Sinha and Sayeed (1980) in their attempt to develop an inventory for measuring quality of working life considered Carlson's (1978) working dimensions of quality of working life. They thought Carlson's dimensions to be theoretically exhaustive in the Western context and decided to add some other dimensions which they considered to be applicable in Indian settings. Thus initially they proposed an 18-dimension QWL concept. But finally they decided to drop one dimension (job stress) from their list of QWL dimensions; because 'job stress' dimension lacked the required extent of reliability. The following are the different dimensions of QWL along with their operational definitions' as proposed by Sinha and Sayeed (1980):

1. Economic Benefits (EB): Receiving adequate monetary income and financial rewards.
2. Physical Working Conditions (PWC): Conditions affecting physical comfort and convenience on and at the job.
3. Mental State (MS): Feeling of depression or being upset at work.
4. Career Orientation (CO): Progressing for career objectives and having opportunities for progress.
5. Advancement on Merit (AM): The extent to which rewards and punishment are based on merit.
6. Job Stress (JS): Absence of excessive pressures and undue work demands, which might hamper with the job.
7. Effect on Personal Life (EPL): Effect of job on personal life. The hangover effect on the individual, which may be either positive or negative.
8. Union Management Relations (UMR): The relationship between union and management, consideration of each other's point of view.
9. Self Respect (SR): The feeling of being treated as an adult with respect and due dignity.
10. Supervisory Relationship (RS): The relationship with supervisor and mutual understanding.

11. Intra-group Relations (IGR): The way workers in a group interact.
12. Apathy (A): The workers' concern and ambition for work.
13. Confidence in Management (CM): Belief that the management is aware of and concerned about workers' problems and interests.
14. Meaningful Development (MD): Opportunity to learn more and apply skills and abilities meaningfully and in a challenging way.
15. Control, Influence and Participation (CIP): The extent to which workers are involved in decision-making, their influence and control.
16. Employee Commitment (EC): Loyalty to the company and concern for it's future.
17. General Life Satisfaction (GLS): Fulfillment of 'life' needs apart from the work situation, i.e. in family, in society and so on.
18. Organizational Climate (OC): The organizations or industry's outlook and approach in the interest of the worker for the betterment of the industry.

Monga and Maggu (1981) attempted to study the individual and organizational health of the public sector in India as influenced by 'quality of work life'. They viewed quality of working life in terms of the following dimensions:

> Decision-making authority, growth & development, job security, organizational prestige, feeling of worthwhile accomplishment, pay & allowances, promotional avenues, and recognition & appreciation.

Ghosh and Kalra (1982) in their study on quality of working life wanted to see how different factors of it (QWL) are influenced by certain variables of the worker like age, income, qualifications, experience etc. They selected 12 factors from Carlson's 16 dimensions QWL concept and added 3 new dimensions to it. Thus their 15-dimension QWL concept comprised the following factors:

1) Advancement based on merit;
2) Employee commitment;
3) Opportunities to use one's own capacities;
4) Job security;
5) Employee state of mind;
6) Safe and healthy working conditions;
7) Union management relations;
8) Physical working environment;
9) Employee welfare;
10) Relations with supervisor;
11) Work group relations;
12) Adequate financial compensation;
13) Employee involvement on the job;
14) Absence of undue job stress; and
15) Standing of the organization in the society.

From the survey of QWL literature it is evident that QWL being a relatively new concept most of the work done in this area are rather theoretical dealing mainly with its proper identity, its dimensions and its measuring methods. In Bangladesh no substantial amount of work has been done on QWL. However, a good deal of empirical studies has been done in India. Joseph (1978) tried to study the relationship between job attitudes and QWL. He obtained data from 96 skilled and semiskilled technicians in a public sector enterprise. QWL of the technicians were measured in terms of four dimensions- growth, mastery, involvement and self-control. And job attitudes were measured in terms of work, pay, promotion, coworkers and supervision. In short the findings are as follows:

- Attitude towards the nature of work is closely related to QWL. The more one considers one's work to be interesting, challenging and achieving the higher would be one's quality of work life;
- Co-workers play a role to make QWL high or low; and
- Attitudes towards supervision and pay seem to be least related to quality of working life.

Singh and Maggu (1980), in their empirical study, tried to examine the existing state of the perceived quality of work life in the Indian industries. They operationalized quality of work life in terms of human growth, exciting work place, creativity and innovativeness, concern for people and democratization of work process. They collected data from 251 managerial level employees from 42 organizations spread all over India. The findings clearly indicated that the overall perceived quality of work life in Indian industries was poor. While this finding was common across all the work dimensions studied, the quality of work life is perceived to be poorest in the area of democratization of work culture.

Sayeed and Sinha (1981) in their attempt to study quality of working life in relation to job satisfaction and performance gathered data from 184 employees working in high QWL organization (N = 94) and low QWL organization (N = 90). The results indicated a positive relationship between QWL dimensions and job satisfaction in both the types of organization. However, QWL dimensions showed consistently low relationship with self and supervisor rated performance.

"Co relational analysis has clearly demonstrated that there exists a strong relationship between QWL dimensions and job satisfaction. The relationship of QWL dimensions with performance measure does not show as strong a relationship as in the case of job satisfaction. Only a few of the dimensions correlated positively and significantly (Sayeed & Sinha, 1981;).

Ghosh and Kalra (1982) in an attempt to see how different dimensions of QWL (they considered 15 dimensions of QWL see P. 30) were influenced by variables like age, income, qualifications, experiences etc. collected data from 70 junior and middle level managers of public and private sector organization (Junior: 28; Middle: 48). They found significant perceptual differences only in cases of employee welfare; advancement based on merit, absence of undue

job stress and union management relations. It was also revealed that 'employee welfare' was influenced by age and income, 'advancement based on merit' was influenced by education and experience, 'absence of undue job stress' was influenced by professional/non-professional categories and 'perception of union-management relations' differed according to professional/non-professional categorization of respondents."(Haque, 1991)

Very few studies on environmental pollution, health hazards and quality of life of workers in different industries have so far been conducted in Bangladesh. So, the present study was an attempt to investigate the effects of environmental pollution, health hazards and quality of life of the tobacco industrial workers.

Purposes of the Study

The case study was undertaken to know the effects of environmental pollution, health hazards and quality of life of workers in Tobacco Industries to find out the key problems, how to overcome the problems, what type of intervention is needed for overcoming the problems, and who will be the appropriate persons/organizations/institutions in this regards for gradual improvement of tobacco worker's quality of life. The case study was undertaken the following purpose:

1. To find out the environmental and health problems faced by the workers in Tobacco Industries.
2. To know about the quality of life of workers in Tobacco Industries.
3. To know the mental health conditions of the workers in Tobacco Industries.
4. To know the awareness level of the workers about the negative effect of environmental pollution.
5. To know the awareness level of the workers about the effect of health hazards on their life.
6. To make recommendations for overcoming the problems faced by the workers in Tobacco Industries.

Objectives of the Study

The general objective of the research was to study the effect of environmental pollution, health hazards and quality of life of workers in tobacco industries.

The specific objectives of the study were as follows:

1. To study the effect of environmental pollution on health and quality of life of the workers in Tobacco Industries.
2. To study the effect of health hazards on quality of life of workers in Tobacco Industries.
3. To study the gender effect on workers' health and quality of life in Tobacco Industries.

Hypotheses

1. Significant difference would be found between the workers of the polluted and non-polluted industries in terms of their quality of working life, subjective health and mental health.

2. Workers' age will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

3. Workers' sex will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

4. Workers' marital status will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

5. Workers' job experience will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

6. Significant relationship would be found among the scores on quality of working life, subjective health and mental health of the workers of both polluted and non-polluted industries.

Significance of the Study

Bangladesh is a densely populated country in the world. A large proportion of the people of our country are living below the poverty line. Environment of our country are polluted in many ways. The industries of Bangladesh are the main source of environmental pollution. Tobacco Industries are the kind of industry, which have been polluting work places, as well as environment of the surrounding areas. Country's main bidi producing industries are located in

greater Rangpur, Kushtia and Mymensingh. According to Bangladesh Institute of Labour Studies there are about .4 million workers engaged in bidi industries in which many women workers are involved in bidi production.

Haragach in Rangpur is an important area for bidi industries. This area has 33 bidi making industries in which 60,000 people are working, of them 30,000 are male, 20,000 women and 10,000 are child labourer. Tobacco workers are working in an unhygienic environment and they are suffering from various lungs diseases through out the year. Tobacco creates serious health and environmental hazard. Continuous inhalation of tobacco dust creates many diseases. Passive smoking also creates lung diseases of tobacco workers. Risk of lungs cancer, heart disease, bronchitis, pneumonia and respiratory illnesses of workers are increasing day by day. Passive smoking is also contributing to this effort.

Work place pollution is an important factor in industrial productivity, workers' health and quality of working life. The problem of workers' adjustment to their work situation is reflected through their quality of working life and health conditions. So, knowledge of quality of working life and health condition is vital towards understanding their problems with their work place and also towards adopting suitable policies for making them happier with their work situation.

It is important to know how tobacco industries affect workers' health and well being. If tobacco workers could know the causes of how they are being affected physically and mentally they could be able to overcome the problems. They could also be able to make aware their fellow colleagues, family members and community people about the consequences of the polluted work places. If it is possible to make the information available to the planners of relevant department of government and non-government organizations who can them take appropriate actions to improve the situations.

So, it is necessary to undertake a study to know the effect of environmental pollution on health hazards and quality of life of workers' in tobacco industries, so that appropriate remedial measures can be taken for gradual improvement of tobacco workers' quality of life. Very few studies on environmental pollution, health hazards and quality of life of workers in different industries have so far been conducted in Bangladesh. So, the present study was an attempt to investigate the effect of environmental pollution, health hazards and quality of life of tobacco industrial workers.

CHAPTER – 2

METHODOLOGY

METHODOLOGY

A total of 31 different Tobacco (Polluted) industries and 6 different non-polluted industries, as categorized by the Environment Directorate, Govt. of Bangladesh, were selected as the study place. All these industries were located in Rangpur Region.

All the workers working at these different industries were treated as the population of the present study. 14 Tobacco industries out of the 31 polluted industries and 3 non-polluted industries out of 6 respectively have been selected at random for collection of data. These 14 Tobacco industries represent around 50% of the total tobacco workers. The existing ratio of male and female workers was 60:40. A sample size of 340 workers - 210 male and 130 female - were selected at random from the above said 14 tobacco industries.

To investigate the effect of pollution on workers quality of working life and health condition a control group of workers were also selected from three different non-polluted industries. The control group comprises 200 workers, 120 male and 80 female (Male-Female Ratio was 60:40).

As a whole, a total of 540 workers were included in the sample.

The nature of sample can be seen in the following table:

Table – 1: Nature and Size of Sample

Type of Industries	Male	Female	Total	Ratio Male: Female
Polluted	210	130	340	60:40
Non-Polluted	120	80	200	60:40
Total	330	210	540	60:40

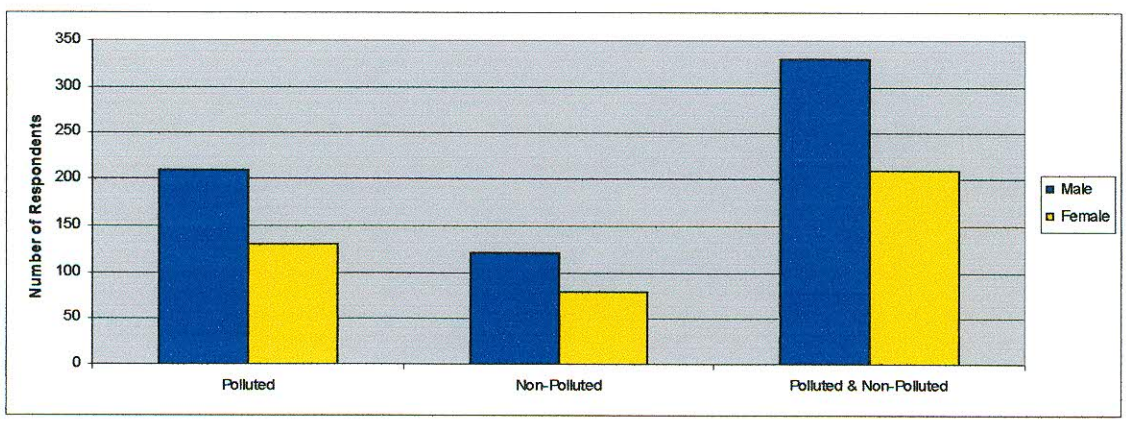

Fig. A : Distribution of sample on the basis of types of industries and sex of the workers

Population: The term population identifies all tobacco workers in Rangpur region working in 31 Tobacco Industries. They are the population of the case study. The number of tobacco workers may vary in relation to time/market demand/pick time/ lean time and may also vary in seasons/environmental disaster etc. Three non-polluted industries of Rangpur Region have been taken as control group of the study.

Sample: The required sample size depends on two key factors: i) the degree of accuracy required for the sample; and ii) the extent to which there is variation in the population in regard to the key characteristics of the case study. The Researcher needs to decide how much error he is prepared to tolerate. In this study the appropriate sample size depends on various factors relating to the subject under investigation like the time aspect, the cost aspect, the degree of accuracy desire, the types of people or situation being studied, the purpose, etc.

Considering the above factors as well as on scientific basis for 95 per cent confidence interval that the results in the population will be the same as the sample plus or minus the sampling error, the researcher decided that the sample size for polluted industries will be 340 tobacco workers (210 male workers and 130 female workers) and 200 workers (120 male and 80 female) of non-polluted industries as control group for the study. The size of the sample was based on an appropriate statistical method.

Sampling: Simple random sampling is the basis of all statistically representative sampling methods. It is appropriate when the population to be sampled is relatively homogeneous and can be sampled from a single list. The most important feature of this approach is that each element of the population has precisely the same probability of being selected as a member of the study sample. This sampling technique is used for the case study, to study the effect of environmental pollution, health hazards and quality of life of

workers in Tobacco industries of Rangpur Region. Same sampling technique has applied for selecting non-polluted industries of the same region as control group.

At first, the researcher selected 14 tobacco industries from Rangpur region through simple random sampling out of 31 tobacco industries, then random number tables were used to select 340 tobacco workers in which 210 male workers and 130 female workers, from the list of all workers of the said 14 tobacco industries in each of the 14 sampled tobacco industries. The variation of male: female ratio due to actual number of male: female tobacco workers.

Through application of simple random sampling 200 workers have selected from 3 non-polluted industries out of 6. The variation of male: female ratio due to actual number of male: female workers.

Sampling is a statistical confidence level that is deemed sufficient to generalize to the entire population and the technical requirement of the statistical procedure being used.

Collection of data

The case study was based on a range of techniques of data collection. Triangulation of techniques such as a combination of interviews through questionnaire, observation and document analysis were used to gather data. The researcher has the intention to collect cross-sectional data/information for intensive analysis regarding the problems of tobacco workers, emphasizing personal and environmental factors in the working place. So that he can put forward stronger arguments in favor of his findings.

Indicators, related survey instruments and purpose

Sl No	Description of Indicators	Tools/Questionnaire	Remarks
01.	Age, sex, job experience, marital status, education level, wage etc.	Personal Information Questionnaire	Common for all tools/questionnaire
02.	Quality of Working Life	Inventory for Measuring QWL (Quality of Working Life)	For evaluating working environment
03.	Physical Health	Inventory of Subjective Health	For identifying physical problems
04.	Mental Health	General Health Questionnaire	For identifying mental problems
05.	Personal and Health Related Information	The Interview Schedule	For identifying personal and health related information

Interviews

The researcher has verbally interacted with the sampled tobacco workers face-to-face with open-ended and structured questionnaires in a formal or informal way, listening to respondent's answers and recording them. Flexibility allowed by the researcher to pursue unanticipated lines of inquiry and to probe into issues for depth of understanding. The researcher has facilitated interview session in every working day from 8:00 hours to 13:00 hours. Each subject was interviewed personally and on an average each subjects required one and a half hours for completing the questionnaire.

Observation

The researcher has observed sampled tobacco workers during their working period in the working place at tobacco industries for observing their real working environment. Recorded descriptive information on context and observed changes; what goes on; who is involved; what happens; when and where; and how events occur. It requires explanation but equally explanations need to be tested against the facts. It is not enough simply to collect facts. Nor it is sufficient simply to develop explanation without testing them against facts. The emphasis based on theories of observations and evaluating them against further observations may seem to be common sense.

Measuring Instruments

The following measuring instruments were used to collect data/information of the case study:

1. Inventory of Subjective Health (I.S.H), Dirken, 1967

Dirken developed this inventory of subjective health in 1967. It was used to assess the complaints of the subjects regarding health. The original inventory consists of 58 questions concerning health complaints of various types, to which subject's answer yes or no. Out of 58 questions, 48 questions are used to complete a score for an inverse approximation of general health. The other 10 items serve to stimulate concentration during the filling out of the form and to prevent the effects of irrelevant response-set. Possible range of scores varies from 0 to 48. All scores were assumed to form an index of ISH.

About 2,500 workers from several industries were investigated for standardization and validation of this inventory (Dirken, 1967). This inventory has been found significantly correlated with absenteeism and medical diagnoses and also with neuroticism as measured by the inventory of Wilde (1963). Dirken has found the internal consistency co-efficient of 0.91 for this inventory, 1967 in a group of 1,782 manual workers.

Khaleque and Rahman's in 1983 adapted version in Bengali of this inventory was used in the present investigation. The Bengali version of the scale has got 56 items instead of original 58 items. This Bengali adapted version of the inventory was used to assess the complaints of the subjects regarding health. The researcher has used this Bengali version of the scale for the case study

2. General Health Questionnaire–12 (GHQ-12), Goldberg, 1972

General Health Questionnaire-12 was used in the case study to assess mental health of the tobacco workers. Goldberg developed this scale in 1972. GHQ is a self-administered screening test for detecting minor psychiatric disorders in the general population. It covers recent levels of self-confidence, depression, sleep- loss, problem-solving and similar features and is available in 60, 30, 20, and 12 item versions.

Banks et al. in 1980 used GHQ-12 as an indicator of mental health in occupational studies. They also reported that GHQ-12 is psychometrically sound in all cases, with a Likert scoring method providing a more acceptable distribution of scores than the more commonly deployed GHQ score for use in parametric analysis. The GHQ-12 is not sensitive to differences in age, job level or marital status. Banks et al. (1980) mentioned that though (Goldberg in 1972) primary purpose of this scale was to identify cases but this can provide a useful estimate of the severity of psychiatric illness for use in the study of employment related and occupational problems.

The scale consists of 12 items with four point Likert type scaling. Responses ranges from definitely yes (3) to definitely no (0). Reverse process of scoring was adapted in case of negatively framed statement. Khaleque and Siddique did the Bengali adaptation of this scale in 1984 and this scale was used in the case study.

3. The Interview Schedule (Personal and Health Related Questionnaire-Khaleque et al., 1988)

This scale was developed by Khaleque et al. in 1988 and consists of 24 general questions concerning personal and health aspects of worker's life, to which subject's answer yes or no., pass opinion, real practice in life, and also 7-point rating scale. The researcher also used this scale in the case study.

4. Inventory for Measuring QWL (Sinha and Sayeed Scale, 1980).

"The inventory developed by Sinha and Sayeed (1980) for measuring Q W L had 85 items. Each item had a 7-point scale. A subjects' response could be anywhere on this scale-the scale range being from minimum 1 to maximum 7. The items were either in question or statement or quotation forms and the subjects were to encircle an appropriate numeral (1 to 7) furnished on the right side of each item according to their agreement or disagreement, satisfaction or dissatisfaction, feeling positively or negatively with the statement. The numerals encircled were added to give the total or overall Q W L score. Three items of the inventory (item number 56, 57 and 60) were negative and their scoring was reversed. Thus the higher the total score, the higher the perceived Q W L of the subject was.

Sinha and Sayeed's inventory for measuring Q W L was developed in India. Sinha and Sayeed (1980) tried their Q W L query based on 18 dimensions, which have much in common with other earlier investigators (Carlson, 1978). Sinha and Sayeed identified their dimensions of Q W L through standard psychometric procedures. So, their inventory could be regarded as a precise tool for measuring quality of working life. The 18 dimensions of Q W L identified by Sinha and Sayeed along with their definitions are as follows:

1. Economic Benefits (EB): Receiving adequate monetary income and financial rewards.
2. Physical Working Conditions (PWC): Conditions affecting physical comfort and convenience on and at the job.
3. Mental State (MS): Feeling of depression or being upset at work.
4. Career Orientation (CO): Progressing for career objectives and having opportunities for progress.

5. Advancement on Merit (AM): The extent to which rewards and punishment are based on merit.
6. Job Stress (JS): Absence of excessive pressures and undue work demands, which might hamper with the job.
7. Effect on Personal Life (EPL): Effect of job on personal life. The hangover effect on the individual, which may be either positive or negative.
8. Union-Management Relations (UMR): The relationship between union and management, consideration of each other's point of view.
9. Self-Respect (SR): The feeling of being treated as an adult with respect and due dignity.
10. Supervisory Relationship (RS): The relationship with supervisor and mutual understanding.
11. Intra-group Relations (IGR): The way workers in a group interact.
12. Apathy (A): The workers' concern and ambition for work.
13. Confidence in Management (CM): Belief that the management is aware of and concerned about workers' problems and interests.
14. Meaningful Development (MD): Opportunity to learn more and apply skills and abilities meaningfully and in a challenging way.
15. Control, Influence and Participation (CIP): The extent to which workers are involved in decision-making, their influence and control.
16. Employee Commitment (EC): Loyalty to the company and concern for it's future.
17. General Life Satisfaction (GLS): Fulfillment of 'life' needs apart from the work situation, i.e., in family, in society and so on.
18. Organizational Climate (OC): The organizations or industry's outlook and approach in the interest of the worker for the betterment of the industry.

It should be noted that although initially Sinha and Sayeed identified 18 dimensions for Q W L in the final analysis they dropped one dimension (job stress) for its lack of required extent have inter item correlation and reliability.

Sinha and Sayeed (1980) in developing their inventory for measuring Q W L used samples (N = 184) from two different organizations one as they called high Q W L organization and the other low Q W L organization. Alpha coefficients and split-half reliabilities of the sub-scales were found to be varying from .51 to .93 and .46 to .91 respectively. And for the overall Q W L inventory alpha coefficient and split-half reliability were found to be .97 and .93 respectively. Thus for the combined samples the reliability of the inventory was found to be moderately high to extremely high values. The validity of the inventory was determined on the basis of known group method and the investigator's claimed that their Q W L inventory had a good amount of discriminatory power as to discriminate between high and low Q W L organizations.

'Evidence on the validity of the scale has been gathered by means of known group method. Prior identification of the two organizations which were considered to be high and low on the overall Q W L provided support for the validity of the scale", (Sinha and Sayeed, 1980;). "(Haque, 1991). Adapted version in Bengali (Haque, 1991) of the scale was used for measuring quality of working life.

CHAPTER – 3

RESULTS

RESULTS

This chapter deals with the results and analysis of the data. Results of statistical analysis of the data are presented in the following tables:

Table-1: Health information of the workers

Types of Information	Polluted Industry	Non-Polluted Industry
The workers who live within the polluted area	93.5%	9.7%
The workers who are regular smokers	57.6%	20.0%
The workers who are non-smokers	42.4%	80.0%
The workers who took sick leave during the last one year	38.2%	58.0%
The workers who consulted doctors during last one year	39.4%	38.0%
The workers who feel seriously ill during last one year	20.0%	22.0%
The workers who were hospitalized during the last one year	13.2%	3.0%
The workers with pre-service records of ill health	100.0%	38.5%
The workers with in-service records of ill health	66.5%	20.5%

Table-1 shows that 93.5% of the workers of polluted industry are living in the polluted area and only 9.7% of the workers of non-polluted industry are living in the polluted area, 57.6% of the workers of the polluted industry are regular smokers in comparison to 20.0% of the non-polluted industry. During the last one year 39.4% of the workers of polluted industry had to consult doctor, 38.2% took sick leave, 20.0% fell seriously ill, 13.2% were hospitalized, 100.0% with pre-service records of ill health, 66.5% with in-service records of ill health. On the other hand, for the workers of the non-polluted industry these percentages were 38.0, 58.0, 22.0, 3.0, 38.5 and 20.5 respectively.

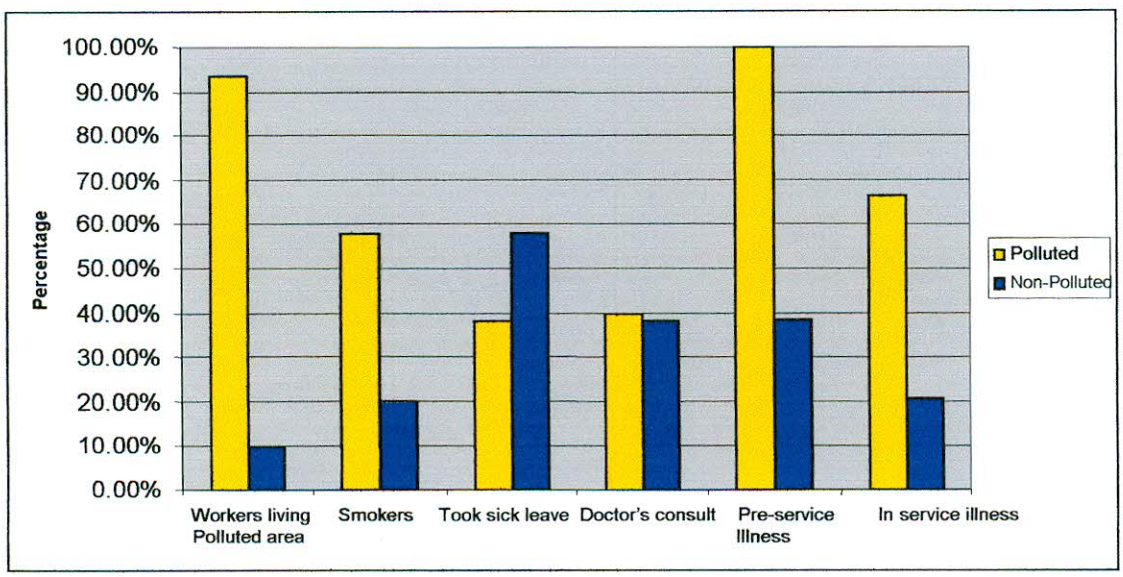

Fig. B: Showing percentage of workers of polluted and non-polluted industries on different aspects

Table–2: The workers perception of health problems and risk factors.

Type of health problems and risk factors	Polluted Industries	Non-Polluted Industries
The respondents who perceive their job factor (raw materials) as harmful to health.	97.4%	81.0%
The respondents who perceive their work place environment as harmful to health.	97.4%	82.0%
The respondents who perceive their home environment as harmful to health.	88.8%	18.0%
The respondents who think that transport problem is a health risk factor.	5%	41.0%
The respondents who think that insufficient nutritious food is a health risk factor.	100%	88.5%
The respondents who think that anxiety and tension is a health risk factor.	100%	97.5%
The respondents who think that job related fatigue is a health risk factor.	100%	83.0%
The respondents who consider health care facilities insufficient.	100%	97.5%
The respondents who think that job dissatisfaction is a potential health risk factor.	100%	83.5%

This table reveals that majority of the respondents of polluted industries consider unhygienic work place and home environment, insufficient health care facilities and used raw materials as some of the important sources of their health problem as compared to the respondents of the non-polluted industries. Moreover, insufficient nutritious food, anxiety and tension, fatigue and job dissatisfaction are some of the health risk factors as perceived by the majority respondents of polluted industries than that of the non-polluted industries.

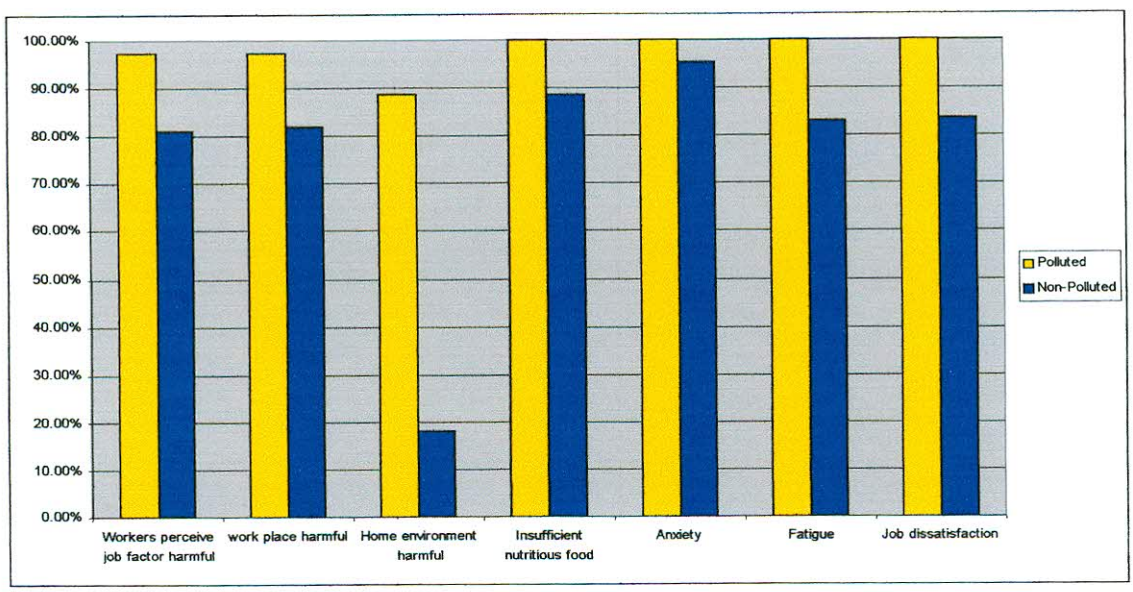

Fig. C: Percentage of the workers' perception of health problems and risk factors.

Table-3: t-ratio between the scores of the workers of polluted and non-polluted industries on quality of working life

Types of Industry	N	X	SD	t	df	p
Polluted	340	161.59	10.10	58.884	538	.000
Non-Polluted	200	262.47	28.73			

The results in Table-3 show that the mean score of quality of life of the workers of non-polluted industries is significantly higher than that of the polluted industries This difference indicates the higher level of quality of life in the workers of non-polluted industries than those of the polluted ones.

Table-4: t-ratio between the scores of the workers of polluted and non-polluted industries on subjective health complaints

Types of Industry	N	X	SD	t	df	p
Polluted	340	28.25	5.00	30.267	538	.000
Non-Polluted	200	13.92	5.81			

The results of the above Table-4 reveal that the mean score of subjective health complains of the workers of the polluted industries are significantly higher than that of the non-polluted industries. That means the workers of the polluted industries suffer more from health problem than those of the non-polluted industries.

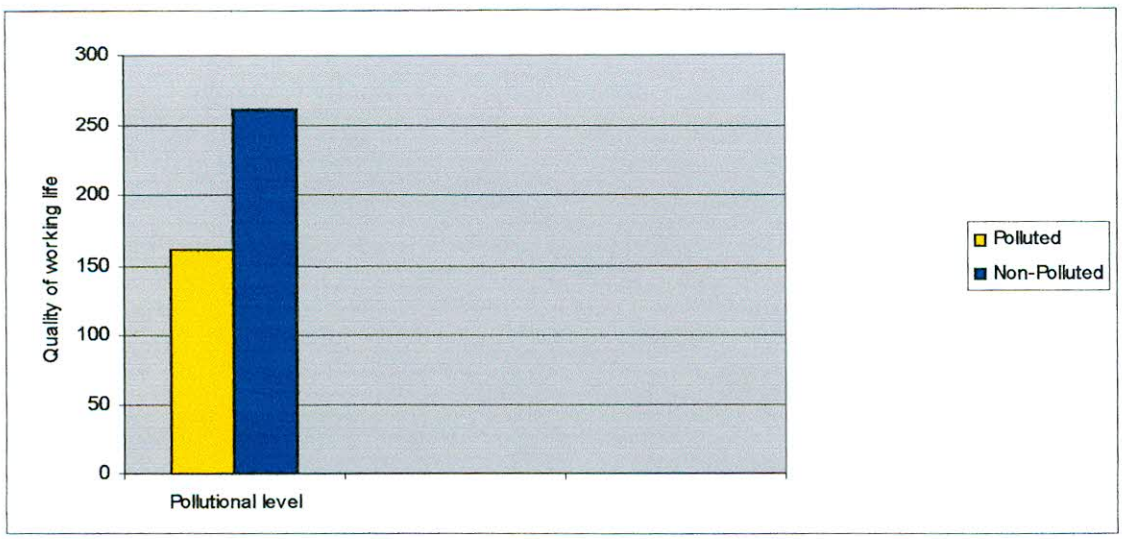

Fig. D: Mean scores of workers on quality of working life.

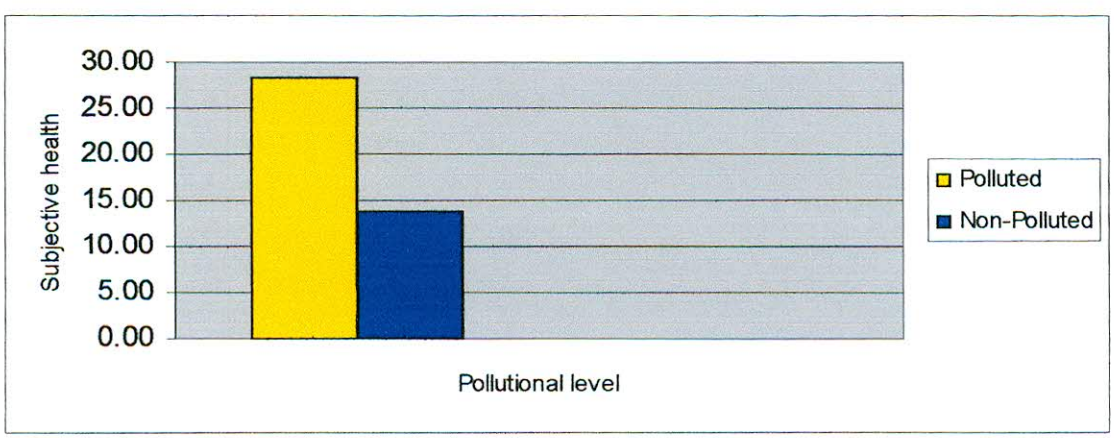

Fig. E: Mean scores of workers on subjective health.

Table-5: t-ratio between the scores of the workers of polluted and non-polluted industries on mental health complaints

Types of Industry	N	X	SD	t	df	p
Polluted	340	15.16	3.69	28.018	538	.000
Non-Polluted	200	24.44	3.75			

The above table shows that the difference between the two groups of workers in terms of mental health complaints is statistically significant. The workers of the polluted industries suffer more from psychological disturbances than those of the non-polluted industries.

Table-6: Percentage of respondents who live in their place for twenty years and below and the respondents who live in for more than 20 years

Nature of Industry	Type of information	Twenty years and below	More than twenty years
Polluted	Period of living in a particular place	29.41%	70.59%
Non-polluted	Period of living in a particular place	64.0%	36.0%

Table-6 shows that 29.41% workers of the polluted industries have been living within the industrial areas for twenty years and below and 70.59% of workers have been living within the industrial areas for more than twenty years.

The Table-6 also shows that 64.0% workers of non-polluted industries have been living within the industrial areas for twenty years and below and 36.0% of workers have been living within the industrial areas for more than twenty years.

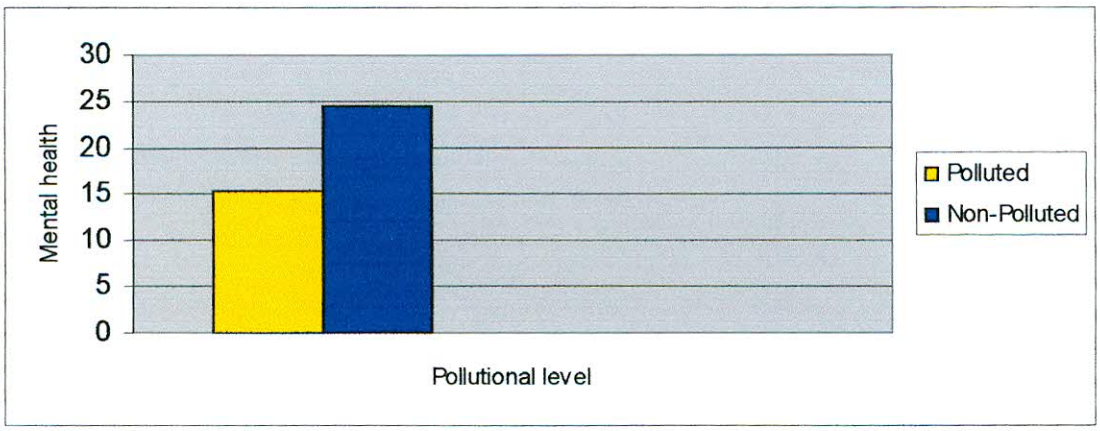

Fig. F: Mean scores of workers on mental health.

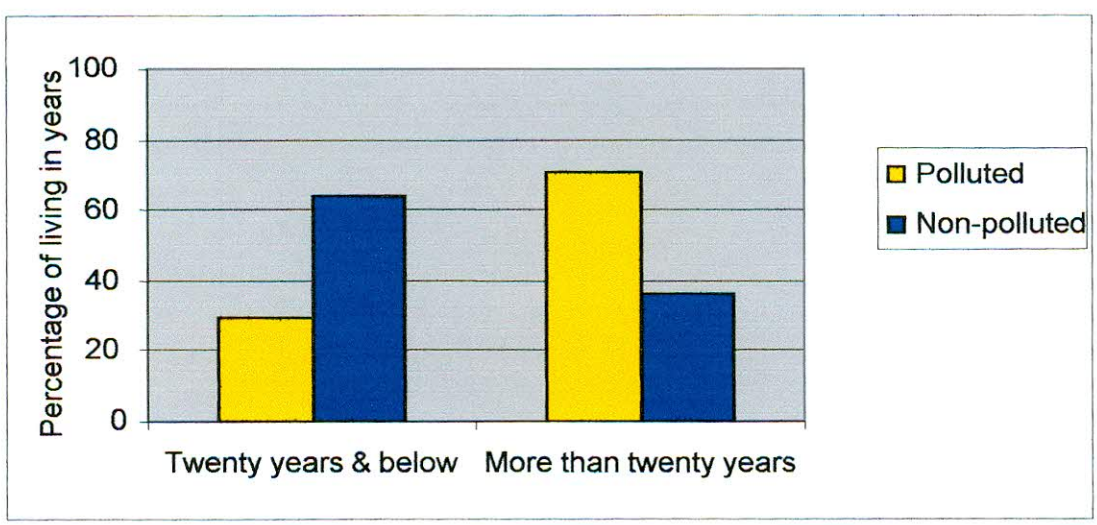

Fig. G: Percentage showing the workers living in years a particular place.

Table-7A: Difference between the scores on quality of working life of the respondents of the polluted industries who perceive their work place unhygienic and the respondents who perceive it hygienic

Types of perception	N	Mean	SD	t	df	Sig. (2-tailed)
Unhygienic	326	161.35	10.19	2.08	338	.038
Hygienic	14	167.07	5.39			

The above table shows significant difference between the scores on quality of working life of the respondents who perceive their working place unhygienic and the respondents who perceive it hygienic. The mean indicates that the workers who perceive their work place hygienic is living a relatively higher quality of working life than those who perceive their working place unhygienic.

Table-7B: Difference between the scores on quality of working life of the respondents of the non-polluted industries who perceive their work place unhygienic and the respondents who perceive it hygienic

Types of perception	N	Mean	SD	t	df	Sig. (2-tailed)
Unhygienic	95	262.60	28.07	.061	198	.952
Hygienic	105	262.35	29.44			

The above table shows no difference between the scores on quality of working life of the respondents who perceive their working place unhygienic and the respondents who perceive it hygienic.

Table 7C: F-ratio obtained from the scores on quality of working life of the workers of Polluted and non-polluted industries taking hygienic condition of work place as a variable

Sources of variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	3462.185	.000
Work Environment	65.551	1	65.551	.177	.674
Pollution × Work Environment (2 way-interaction)	376.499	1	376.499	1.017	.314
Error	198406.123	536	370.161		
Total	22854606.0	540			

The results of the above table show that the effect of pollution was statistically significant but the effect of work environment and the two-way interaction were not significant. Thus the results indicate that the pollution have significant effect on their quality of working life but the perceived work environment does not have significant effect on the quality of working life.

Though, the workers of the polluted industries-who perceived their work place hygienic and who do not perceive it hygienic –differ significantly in terms of their quality of working life.

Table-8A: Difference between the scores on subjective health questionnaire of the respondents of the polluted industries who perceive their work place unhygienic and the respondents who perceive it hygienic

Types of perception	N	Mean	SD	t	df	Sig. (2-tailed)
Unhygienic	326	28.44	4.69	3.52	338	.000
Hygienic	14	23.71	8.88			

The findings of the above table show that the difference between the scores on subjective health questionnaire of the respondents who perceive their working place unhygienic and the respondents who perceive hygienic was significant. This difference indicates that the workers who perceive their working place unhygienic are affected more by health problems than the workers who perceive their working place hygienic.

Table-8B: Difference between the scores on subjective health questionnaire of the respondents of the non-polluted industries who perceive their work place unhygienic and the respondents who perceive it hygienic

Types of perception	N	Mean	SD	t	df	Sig. (2-tailed)
Unhygienic	95	13.35	5.96	.144	198	.886
Hygienic	105	13.97	5.70			

The findings of the above table show that there is no significant difference between the scores on subjective health questionnaire of the respondents who perceive their working place unhygienic and the respondents who perceive it hygienic.

Table 8C: **F-ratio obtained from the scores on subjective health questionnaire of the workers of Polluted and non-polluted industries taking hygienic condition of work place as a variable.**

Sources of variation	SS	DF	MS	F	Sig.
Pollution	25876.799	1	25876.799	931.107	.000
Work Environment	52.369	1	52.369	1.884	.170
Pollution × Work Environment (2 way-interaction)	248.722	1	248.722	8.950	.003
Error	14896.214	536	27.791		
Total	325264.000	540			

The results in the table-8C show that the effect of pollution and the effect of two-way interaction were statistically significant but the effect of work environment was not significant. The result indicates that though the pollution and two-way interaction has significant effect but the work environment does not have significant effect on their subjective health.

Though the workers of the polluted industries who perceive their work place hygienic and who do not perceive it hygienic- differ significant in terms of their subjective health.

Table-9A: Difference between the scores on general health questionnaire of the respondents of the polluted industries who perceive their work place unhygienic and the respondents who perceive it hygienic

Types of perception	N	Mean	SD	t	df	Sig. (2-tailed)
Unhygienic	326	15.17	3.74	.241	338	.810
Hygienic	14	14.93	2.37			

It is evident from Table-9A that there is no significant difference between the scores on general health questionnaire of the respondents who perceive their working place unhygienic and the respondents who perceive it hygienic.

Table-9B: Difference between the scores on general health questionnaire of the respondents of the non-polluted industries who perceive their work place unhygienic and the respondents who perceive it hygienic

Types of perception	N	Mean	SD	t	df	Sig. (2-tailed)
Unhygienic	95	24.31	3.67	.464	198	.643
Hygienic	105	24.55	3.84			

It is evident from Table-9B that there is no significant difference between the scores on general health questionnaire of the respondents who perceive their working place unhygienic and the respondents who perceive it hygienic.

Table 9C: F-ratio obtained from the scores on general health questionnaire of the workers of Polluted and non-polluted industries taking hygienic condition of work place as a variable.

Sources of variation	SS	DF	MS	F	Sig.
Pollution	10828.735	1	10828.735	782.510	.000
Work Environment	1.297	1	1.297	.094	.760
Pollution × Work Environment (2 way-interaction)	2.543	1	2.543	.184	.668
Error	7417.418	536	13.838		
Total	204994.000	540			

The results in the table-9C indicate that pollution have an adverse affect on workers mental health. However, the work environments as well as the interaction of pollution and the perceived work environment have no significant effect on the mental health of the workers.

Table-10A: Difference between the scores on quality of working life of the respondents of the polluted industries who are smokers and who are non-smokers

Smoking habit	N	Mean	SD	t	df	Sig. (2-tailed)
Non-smokers	144	162.28	11.14	1.08	338	.281
Smokers	196	161.08	9.26			

It is evident from Table-10A that there is no significant difference between the scores on quality of working life of the respondents who are smokers and the respondents who are non-smokers.

Table-10B: Difference between the scores on quality of working life of the respondents of the non-polluted industries who are smokers and who are non-smokers

Smoking habit	N	Mean	SD	t	df	Sig. (2-tailed)
Non-smokers	160	256.02	25.89	7.086	198	.000
Smokers	40	288.25	25.05			

The result of the above table reveals significant difference between the respondents who are smokers and the respondents who are non-smokers. The table shows a higher quality of working life for the workers who are smokers than the respondents who are non-smokers.

Table 10C: F-ratio obtained from the scores on quality of working life of the workers of Polluted and non-polluted industries taking smoking habit as a variable.

Sources of variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	4150.591	.000
Smoking Habit	7550.954	1	7550.954	24.455	.000
Pollution × Smoking Habit (2 way-interaction)	25798.236	1	25798.236	83.553	.000
Error	165498.983	536	308.767		
Total	22854606.0	540			

It is evident from the above table that the effect of pollution and smoking habit and the interaction effect were statistically significant. It may be concluded that the non-smoking workers have maintained a better quality of life than those of the smoking ones. The work place pollution and smoking habits also have significant interaction effect that may adversely affect the quality of life of the workers.

Though the workers of the polluted industries-who are smokers and who are non-smokers do not differ significantly in terms of quality of working life.

Table-11A: Difference between the scores on subjective health questionnaire of the respondents of the polluted industries who are smokers and who are non-smokers

Smoking habit	N	Mean	SD	t	df	Sig. (2-tailed)
Non Smokers	144	28.80	4.51	1.74	338	.083
Smokers	196	27.85	5.31			

The finding shows that there is no significant difference between the scores on subjective health questionnaire of the workers of polluted industries in terms of smoking habit.

Table-11B: Difference between the scores on subjective health questionnaire of the respondents of the non-polluted industries who are smokers and who are non-smokers

Smoking habit	N	Mean	SD	t	df	Sig. (2-tailed)
Non Smokers	160	15.09	4.52	6.225	198	.000
Smokers	40	9.23	7.80			

The finding shows that there is significant difference between the scores on subjective health questionnaire. It indicates that the respondents who are non-smokers have a poor subjective health than the respondents who are smokers.

Table 11C: F-ratio obtained from the scores on subjective health questionnaire of the workers of Polluted and non-polluted industries taking smoking habit as a variable.

Sources of variation	SS	DF	MS	F	Sig.
Pollution	25876.799	1	25876.799	989.135	.000
Smoking Habit	617.985	1	617.985	23.622	.000
Pollution × Smoking Habit (2 way-interaction)	557.002	1	557.002	21.291	.000
Error	14022.318	536	26.161		
Total	325264.000	540			

The results of the above table reveal that the effect of pollution, the effect of smoking habit and 2-way interaction were statistically significant. It indicates that subjective health is directly related to the level of pollution as well as smoking habit. The work place pollution and smoking habits also have significant interaction effect that may adversely affect the subjective health of the workers.

Though smoking habit do not affect the workers of the polluted industries in terms of their subjective health.

Table-12A: Difference between the scores on general health questionnaire of the respondents of the polluted industries who are smokers and who are non-smokers

Smoking habit	N	Mean	SD	t	df	Sig. (2-tailed)
Non Smokers	144	14.60	3.24			
				2.44	338	.015
Smokers	196	15.58	3.94			

The result of the above table reveals significant difference between the respondents who are smokers and the respondents who are non-smokers. The mean indicates that the respondents who are smokers have good mental health than the respondents who are non-smokers.

Table-12B: Difference between the scores on general health questionnaire of the respondents of the non-polluted industries who are smokers and who are non-smokers

Smoking habit	N	Mean	SD	t	df	Sig. (2-tailed)
Non Smokers	160	23.84	3.33			
				4.738	198	.000
Smokers	40	26.83	4.40			

The result of the above table reveals significant difference between the respondents who are smokers and the respondents who are non-smokers. The mean indicates that the respondents who are smokers have good mental health than the respondents who are non-smokers.

Table 12C: F-ratio obtained from the scores on general health questionnaire of the workers of Polluted and non-polluted industries taking smoking habit as a variable.

Sources of variation	SS	DF	MS	F	Sig.
Pollution	10828.735	1	10828.735	822.586	.000
Smoking Habit	272.072	1	272.072	20.668	.000
Pollution × Smoking Habit (2 way-interaction)	93.145	1	93.145	7.076	.008
Error	7056.041	536	13.164		
Total	204994.000	540			

It may be observed from the above table that the effect of pollution, smoking habit and the effect of 2-way interaction were statistically significant. It indicates that mental health is directly related to the level of pollution as well as smoking habit. The work place pollution and smoking habits also have significant interaction effect that may adversely affect the mental health of the workers.

Table–13A: Difference between the scores on quality of working life of the respondents of the polluted industries who took frequent (More than five times) sick leave during last one year and the respondents who took infrequent (up to five times) sick leave

Types of Sick	N	Mean	SD	t	df	Sig. (2-tailed)
Infrequent	103	165.07	9.03	.098	128	.922
Frequent	27	165.26	8.91			

The table-13A reveals that there is no significant difference between the scores on quality of working life of the respondents who took frequent sick leave during last one year and the respondents who took infrequent sick leave.

Table–13B: Difference between the scores on quality of working life of the respondents of the non-polluted industries who took frequent (More than five times) sick leave during last one year and the respondents who took infrequent (up to five times) sick leave

Types of Sick	N	Mean	SD	t	df	Sig. (2-tailed)
Infrequent	104	264.26	27.86	.690	114	.492
Frequent	12	258.42	27.15			

The Table-13B reveals that there is no significant difference between the scores on quality of working life of the respondents who took frequent sick leave during last one year and the respondent who took infrequent sick leave.

Table 13C: F-ratio obtained from the scores on quality of working life of the workers of Polluted and non-polluted industries taking frequency of sick leave as a variable.

Sources of variation	SS	DF	MS	F	Sig.
Pollution	595329.333	1	595329.333	1463.430	.000
sick leave	107.427	1	107.427	.264	.608
Pollution × sick leave (2 way-interaction)	260.655	1	260.655	.641	.424
Error	98446.617	242	406.804		
Total	11706316.0	246			

It is evident from the results in the table 13C that the effect of work place pollution was significant but the effect of frequency of sick leave and the 2 –way interaction were not significant. It indicates that the work place pollution is directly related to the quality of life of the workers, but the frequency of sick leave and 2-way interaction do not have significant effect on quality of working life of the workers.

Table–14A: Difference between the scores on subjective health questionnaire of the respondents of the polluted industries who took frequent (More than five times) sick leave during last one year and the respondents who took infrequent (up to five times) sick leave

Types of Sick	N	Mean	SD	t	df	Sig. (2-tailed)
Infrequent	103	26.95	5.42			
				3.463	128	.001
Frequent	27	31.00	5.34			

The findings show that there is significant difference between the scores on subjective health questionnaire of the respondents who took frequent sick leave during last one year and the respondents who took infrequent sick leave. The mean indicates that the workers who took frequent sick leave have poor subjective health than the respondents who took infrequent sick leave.

Table–14B: Difference between the scores on subjective health questionnaire of the respondents of the non-polluted industries who took frequent (More than five times) sick leave during last one year and the respondents who took infrequent (up to five times) sick leave

Types of Sick	N	Mean	SD	t	df	Sig. (2-tailed)
Infrequent	104	13.43	6.25			
				.218	144	.828
Frequent	12	13.83	3.35			

The findings show that there is no significant difference between the scores on subjective health questionnaire of the respondents who took frequent sick leave during last one year and the respondents who took infrequent sick leave.

Table 14C: F-ratio obtained from the scores on subjective health questionnaire of the workers of polluted and non polluted industries taking frequency of sick leave as a variable:

Sources of variation	SS	DF	MS	F	Sig.
Pollution	12567.279	1	12567.279	385.170	.000
Sick leave	257.103	1	257.103	7.880	.005
Pollution X sick leave (2- way interaction)	95.259	1	95.259	2.920	.089
Error	7895.953	272	32.628		
Total	129722.00	246			

The results of the above table show that the effect of pollution and the effect of frequency of sick leave were statistically significant but the two-way interaction effect was not significant. Thus the results indicate that both pollution and the frequency sick leave enjoyed by the workers have significant effect on their perceived heath.

Though the workers of non-polluted industries who took frequent sick leave and who took infrequent sick leave do not differ significantly in terms of their subjective health.

Table–15A: Difference between the scores on general health questionnaire of the respondents of the polluted industries who took frequent (more than five times) sick leave during last one year and the respondents who took infrequent (up to five times) sick leave

Types of Sick	N	Mean	SD	t	df	Sig. (2-tailed)
Infrequent	103	14.49	3.92	.051	128	.959
Frequent	27	14.44	2.74			

The result shows that there is no significant difference between the scores on general health questionnaire of the respondents who took frequent sick leave during last one year and the respondents who took infrequent sick leave.

Table–15B: Difference between the scores on general health questionnaire of the respondents of the non-polluted industries who took frequent (more than five times) sick leave during last one year and the respondents who took infrequent (up to five times) sick leave

Types of Sick	N	Mean	SD	t	df	Sig. (2-tailed)
Infrequent	104	24.61	3.90	1.262	114	.210
Frequent	12	26.17	5.34			

The result shows that there is no significant difference between the scores on general health questionnaire of the respondents who took frequent sick leave during last one year and the respondents who took infrequent sick leave.

Table 15C: F-ratio obtained from the scores on general health questionnaire of the workers of polluted and non-polluted industries taking frequency of sick leave as a variable

Sources of variation	SS	DF	MS	F	Sig.
Pollution	6491.183	1	6491.183	432.162	.000
Sick leave	7.879	1	7.879	.525	.470
Pollution X sick leave (2- way interaction)	18.369	1	18.369	1.223	.270
Error	3634.898	242	15.020		
Total	102063.000	246			

It may be seen from the above table that the effect of work place pollution was significant but the effect of frequency of sick leave and the tow-way interaction were not significant. The result indicates that pollution adversely affect the mental health of the workers but no effects of the frequency of sick leave and the two-way interaction were found.

Table–16A: Difference between the scores on quality of working life of the respondents of the polluted industries who suffered from serious illness during last one year and the respondents who did not suffer from serious illness

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
No illness	272	161.16	10.39			
				1.57	338	.116
Illness	68	163.31	8.74			

The table-16A reveals that there is no significant difference between the scores on quality of working life of the respondents who suffered from serious illness during last year and the respondents who did not suffer from serious illness.

Table–16B: Difference between the scores on quality of working life of the respondents of the non-polluted industries who suffered from serious illness during last one year and the respondents who did not suffer from serious illness

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
No illness	156	258.90	25.10			
				3.391	190	.001
Illness	44	275.11	36.59			

The Table-16B reveals that there is significant difference between the scores on quality of working life of the respondents who suffered from serious illness during last year and the respondents who did not suffer from serious illness. The result indicates that the workers who suffer from serious illness during last one year, perceived a higher quality of life than the respondents who did not suffer from serious illness.

Table 16C: F-ratio obtained from the scores on quality of working life of the workers of polluted and non-polluted industries taking illness as a variable:

Sources of variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	3623.395	.000
Illness	5110.007	1	5110.007	14.448	.000
Pollution x illness (2- way interaction)	4159.460	1	4159.460	11.760	.001
Error	189578.706	536	353.692		
Total	22854606.0	540			

It may be observed from table 16C that the effect of pollution, effect of illness and the effect of interaction were statistically significant. It implies that the quality of life of the workers is directly related to the level of pollution as well as illness and there also existed a relationship between the joint effect of pollution and illness and the level of qualify of life of the workers.

Though the workers of polluted industries who suffered from serious illness and who did not suffer serious illness-do not differ significantly in terms of quality of working life.

Table–17A: Difference between the scores on subjective health questionnaire of the respondents of the polluted industries who suffered from serious illness during last one year and the respondents who did not suffer from serious illness

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
No illness	272	27.78	4.80			
				3.56	338	.000
Illness	68	30.15	5.37			

Significant difference was found between the scores on subjective health questionnaire of the respondents who suffered from serious illness and the respondents who did not suffer from serious illness. The result indicates that the workers who suffered from serious illness during last one year, perceived a poor subjective health than the respondents who did not suffer from serious illness.

Table–17B: Difference between the scores on subjective health questionnaire of the respondents of the non-polluted industries who suffered from serious illness during last one year and the respondents who did not suffer from serious illness

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
No illness	156	14.47	5.23			
				2.569	198	.011
Illness	44	11.95	7.24			

Significant difference was found between the scores on subjective health questionnaire of the respondents who suffered from serious illness and the respondents who did not suffer from serious illness. The result indicates that the workers who suffered from serious illness during last one year, perceived good subjective health than the respondents who did not suffer from serious illness.

Table 17C: F-ratio obtained from the scores on subjective health questionnaire of the workers of polluted and non-polluted industries taking illness as a variable

Sources of variation	SS	DF	MS	F	Sig.
Pollution	25876.799	1	25876.799	945.168	.000
Illness	20.590	1	20.590	.752	.386
Pollution X illness (2- way interaction)	502.117	1	502.117	18.340	.000
Error	14674.598	536	27.378		
Total	325264.000	540			

It is evident from the above table that the effect of pollution and the two-way interaction effect were statistically significant. The effect of illness, however, was not found significant. It may be concluded from the above table that pollution adversely affect the health of the workers. The joint effect of work place pollution and illness also found to have significant adverse effect on the subjective health of the workers.

Illness seemed to have no relationship with subjective health of the workers. Though the workers of the polluted and non-polluted industries who suffered from serious illness and who did not suffer from serious illness-differ significantly in terms of their subjective health.

Table–18A: **Difference between the scores on general health questionnaire of the respondents of the polluted industries who suffered from serious illness during last one year and the respondents who did not suffer from serious illness**

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
No illness	272	15.49	3.80			
				3.32	338	.001
Illness	68	13.85	2.91			

Significant difference was found between the scores on general health questionnaire of the respondents who suffered from serious illness during last one year and the respondents who did not suffer from serious illness. The mean indicates that the workers who suffered from serious illness during last one year perceived poor mental health than the respondents who did not suffer from serious illness.

Table–18B: **Difference between the scores on general health questionnaire of the respondents of the non-polluted industries who suffered from serious illness during last one year and the respondents who did not suffer from serious illness**

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
No illness	156	23.99	3.50			
				3.203	198	.002
Illness	44	26.00	4.24			

Significant difference was found between the scores on general health questionnaire of the respondents who suffered from serious illness during last one year and the respondents who did not suffer from serious illness. The mean indicates that the workers who suffered from serious illness during last one year perceived good mental health than the respondents who did not suffer from serious illness.

Table 18C: F-ratio obtained from the scores on general health questionnaire of the workers of polluted and non-polluted industries taking illness as a variable

Sources of variation	SS	DF	MS	F	Sig.
Pollution	10828.735	1	10828.735	813.199	.000
Illness	4.572	1	4.572	.343	.558
Pollution X illness (2- way interaction)	279.196	1	279.196	20.967	.000
Error	7137.490	536	13.316		
Total	204994.000	540			

The above table revealed that the effect of pollution and the effect of interaction were statistically significant. The effect of illness however was not found significant. It implies that the work place pollution is directly related to the mental health of the workers. The work place pollution and illness also have significant interaction effect that may adversely affect the mental health of the workers.

Illness seemed to have no relationship with the mental health of the workers. Though the workers of the polluted and non-polluted industries who suffered from serious illness and who did not suffer from serious illness-differ significantly in terms of their mental health.

Table–19A: Difference between the scores on quality of working life of the respondents of the polluted industries who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
Not admitted	295	161.67	10.25			
				.356	338	.722
Admitted	45	161.09	9.19			

It is found from Table-19A that there is no significant difference between the scores on quality of working life of the respondents who admitted in the hospital for serious illness during last one year and the respondents who did not admit in hospital.

Table–19B: Difference between the scores on quality of working life of the respondents of the non-polluted industries who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
Not admitted	194	262.73	29.03			
				.718	198	.474
Admitted	6	254.17	15.46			

Significant difference was also not found in case of workers of non-polluted industries.

Table 19C: F-ratio obtained from the scores on quality of the working life of the workers of polluted and non-polluted industries taking admission in hospital as a variable

Sources of variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	3462.138	.000
Admission	116.483	1	116.483	.315	.575
Pollution × Admission (2- way interaction)	322.915	1	322.915	.872	.351
Error	198408.775	536	370.166		
Total	22854606.0	540			

The results in the table-19C indicate that the work place pollution has an adverse affect on workers quality of life. However, admission in hospital for serious illness, as well as the effect of interaction of pollution and admission has no significant effect on the quality of life of the workers.

Table–20A: Difference between the scores on subjective health questionnaire of the respondents of the polluted industries who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
Not admitted	295	28.13	4.96			
				1.145	338	.253
Admitted	45	29.04	5.22			

Table-20A shows that there is no significant difference between the scores on subjective health questionnaire of the respondents who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital.

Table–20B: Difference between the scores on subjective health questionnaire of the respondents of the non-polluted industries who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
Not admitted	194	13.77	5.77			
				1.977	198	.049
Admitted	6	18.50	5.61			

Table-20B shows that there is significant difference between the scores on subjective health questionnaire of the respondents who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital. The result indicates that the workers who admitted in hospital have poor subjective health than the respondents who did not admit in hospital.

Table 20C: F-ratio obtained from the scores on subjective health questionnaire of the workers of the polluted and non-polluted industries taking admission in hospital as a variable

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	25876.799	1	25876.799	922.540	.000
Admission	89.199	1	89.199	3.180	.075
Pollution × Admission (2- way interaction)	73.569	1	73.569	2.623	.106
Error	15034.537	536	28.050		
Total	325264.000	540			

The results of the above table show that the effect of pollution was statistically significant but neither the effect of admission nor the effect of 2-way interaction in hospital for seines illness during last one year was significant. That is to say that levels of pollution has significant negative effect on workers health. Admission in hospital, on the other hand, plays no significant role on their perceived health.

Though the workers of non-polluted industries who admitted in hospital for serious illness and who did not admit in hospital differ significantly in terms of their subjective health.

Table–21A: Difference between the scores on general health questionnaire of the respondents of the polluted industries who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
Not admitted	295	15.37	3.84			
				2.73	338	.007
Admitted	45	13.78	2.07			

It can be seen from Table-21A that there is significant difference between the scores on general health questionnaire of the respondents who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital. The result indicates that the workers who admitted in hospital have poor mental health than the respondents who did not admit in hospital.

Table–21B: Difference between the scores on general health questionnaire of the respondents of the non-polluted industries who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital

Group of respondents	N	Mean	SD	t	df	Sig. (2-tailed)
Not admitted	194	24.47	3.77			
				.729	198	.467
Admitted	6	23.33	3.14			

It can be seen from Table-21B that there is no significant difference between the scores on general health questionnaire of the respondents who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital.

Table 21C: F-ratio obtained from the scores on general health questionnaire of the workers of polluted and non-polluted industries taking admission in hospital as a variable

Sources of variation	SS	DF	MS	F	Sig.
Pollution	10828.735	1	10828.735	793.530	.000
Admission	105.781	1	105.781	7.752	.006
Pollution × Admission (2- way interaction)	1.069	1	1.069	.078	.780
Error	7314.409	536	13.646		
Total	204994.000	540			

The results of the above table show that the effect of pollution and the effect of admission in hospital for serious illness were significant but the 2-way interaction effect was not significant. Thus the results indicate that both pollution and admission in hospital have significant effect on their mental health.

Though the workers of non-polluted industries who admitted in hospital for serious illness and who did not admit in hospital do not differ significantly in terms of mental health.

Table-22: F-ratio obtained from the scores on quality of working life of the workers of polluted and non-polluted industries taking subjective health as a variable

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	3502.185	.000
Subjective Health	2706.385	1	2706.385	7.396	.007
Pollution x Subjective Health (2 way interaction)	1.796	1	1.796	.005	.944
Error	196139.992	536	365.933		
Total	22854606.0	540			

The results of the above table show that the effect of pollution and the effect of subjective health were statistically significant but the effect of two-way interaction was not significant. Thus the results indicate that both pollution and subjective health of the workers have significant effect on their quality of life.

Table-23: F-ratio obtained from the scores on quality of working life of the workers of polluted and non-polluted industries taking mental health as a variable

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	3469.947	.000
Mental Health	784.801	1	784.801	2.125	.146
Pollution x Mental Health (2 way interaction)	101.099	1	101.099	.274	.601
Error	197962.273	536	369.333		
Total	22854606.0	540			

The results in the Table-23 indicate that the work place pollution have an adverse affect on workers quality of life. However, the mental health, as well as the interaction of pollution and mental health has no significant effect on the quality of life of the workers.

Table-24: Summary of the 2 ways ANOVA for quality of working life of the workers of polluted and non-polluted industries in terms of age (Below 20 years, 20-29 years, 30 & above)

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	3535.967	.000
Age	2614.677	2	1307.338	3.607	.028
2 way interaction	2692.252	2	1346.126	3.714	.025
Error	193541.244	534	362.437		
Total	22854606.0	540			

It may be observed from Table-24 that the effect of pollution, effect of age and the effect of interaction were statistically significant. It implies that the quality of life of the workers is directly related to the level of pollution as well as age level and there also existed a relationship between the joint effect of pollution and age and the level of the quality of working life.

Table-25: Summary of the 2 way ANOVA for subjective health complaints of the workers of polluted and non-polluted industries in terms of age (Below 20 years, 20-29 years, 30 & above)

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	25876.799	1	25876.799	922.328	.000
Age	169.695	2	84.847	3.024	.049
2 way interaction	45.721	2	22.861	.815	.443
Error	14981.889	534	28.056		
Total	325264.000	540			

The results of the above table show that the effect of pollution and the effect of age were statistically significant but the two-way interaction effect was not significant. Thus the results indicate that both pollution and age level of the workers have significant effect on their perceived health.

Table-26: Summary of the 2-way ANOVA for mental health complaints of the workers of polluted and non-polluted industries in terms of age (Below 20 years, 20-29 years, 30 & above)

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	10828.735	1	10828.735	806.267	.000
Age	126.975	2	63.488	4.727	.009
2 way interaction	122.287	2	61.143	4.553	.011
Error	7171.996	534	13.431		
Total	20499.000	540			

It is evident from the above table that the effects of pollution, age level and the effect of interaction were statistically significant. The result indicates that the mental health of the workers was adversely affected by age level and work place pollution.

Table-27: Summary of the 2-way ANOVA for quality of working life of the workers of polluted and non-polluted industries in terms of sex

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	5035.193	.000
Sex	22053.712	2	22053.712	86.648	.000
2 way interaction	40370.960	2	40370.960	158.615	.000
Error	136423.501	536	254.521		
Total	22854606.0	540			

It may be observed from table-27 that the effect of pollution, effect of sex and the effect of interaction were statistically significant. It implies that the quality of life of the workers is directly related to the level of pollution as well as sex and there also existed a relationship between the joint effect of pollution and sex and the level of quality of working life.

Table-28: Summary of the 2-way ANOVA for subjective health complaints of the workers of polluted and non-polluted industries in terms of sex

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	25876.799	1	25876.799	1051.944	.000
Sex	1145.172	1	1145.172	46.554	.000
2 way interaction	867.054	1	867.054	35.247	.000
Error	13185.079	536	24.599		
Total	325264.000	540			

The results of the above table show that the effect of pollution, effect of sex and the effect of interaction were statistically significant. It implies that the perceived health of the workers is directly related to the levels of pollution as well as sex and there also existed a relationship between the joint effect of sex and pollution and the perceived health of the workers.

Table-29: Summary of the 2-way ANOVA for mental health complaints of the workers of polluted and non-polluted industries in terms of sex

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	10828.735	1	10828.735	899.181	.000
Sex	559.126	1	559.126	46.428	.000
2 way interaction	407.143	1	407.143	33.808	.000
Error	6454.989	536	12.043		
Total	204994.000	540			

It is evident from the above table that the effect of pollution, sex and the effect of interaction were statistically significant. The result indicates that the mental health of the workers was adversely affected by sex and work place pollution.

Table-38A: Inter-correlation of the scores of different scales for male workers of polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .258**	-.037
Subjective Health Questionnaire	--------	- .021

*** Correlation is significant at the .01 level (2 –tailed)*

The correlation between quality of working life and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationships between the variables were not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was not significant but these variables were found to be negatively correlated.

The correlation between mental health and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-30: Summary of the 2-way ANOVA for quality of working life of the workers of polluted and non-polluted industries in terms of marital status

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	1281564.580	1	1281564.575	3455.662	.000
Marital Status	7.425	1	7.425	.020	.888
2 way interaction	60.154	1	60.154	.162	.687
Error	198780.594	536	370.859		
Total	22854606.000	540			

The results in the table-30 indicate that the work place pollution has an adverse affect on workers quality of life. However, the marital status as well as the effect of interaction of pollution and marital status has no significant effects on the quality of life of the workers.

Table-31: Summary of the 2-way ANOVA for subjective health complaints of the workers of polluted and non-polluted industries in terms of marital status

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	25876.799	1	25876.799	914.534	.000
Marital Status	30.386	1	30.386	1.074	.301
2 way interaction	.766	1	.766	.027	.869
Error	15166.154	536	28.295		
Total	325264.000	540			

The results in the table-31 indicate that the work place pollution has an adverse affect on workers health. However, the marital status as well as the effect of interaction of pollution and marital status has no significant effect on the subjective health complaints of the workers.

Table-32: Summary of the 2-way ANOVA for mental health complaints of the workers of polluted and non-polluted industries in terms of marital status

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	10828.735	1	10828.735	820.270	.000
Marital Status	175.631	1	175.631	13.304	.000
2 way interaction	169.680	1	169.680	12.853	.000
Error	7075.947	536	13.201		
Total	204994.000	540			

It is evident from the above table that the effect of pollution, marital status and effect of interaction were statistically significant. The results indicate that the mental health of the workers was adversely affected by marital status and work place pollution.

Table-33: Summary of the 2-way ANOVA for quality of working life of the workers of polluted and non-polluted industries in terms of job experience (below 10 years, 10-19 years, 20 years and above)

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	1281564.58	1	1281564.575	3471.521	.000
Job experience	1204.899	2	602.449	1.632	.197
2 way interaction	509.093	2	254.547	.690	.502
Error	197134.181	534	369.165		
Total	22854606.00	540			

It may be seen from the above table that the effect of pollution was statistically significant, but neither the effect of job experience nor the effect of 2-way interaction was significant. That is to say that levels of pollution has significant negative effect on the quality of life of the workers. The present job experience, on the other hand plays no significant role in the quality of life of the workers.

Table-34: Summary of the 2-way ANOVA for subjective health complaints of the workers of polluted and non-polluted industries in terms of job experience (below 10 years, 10-19 years, 20 years and above)

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	25876.799	1	25876.799	921.442	.000
Job experience	193.047	2	96.523	3.437	.033
2 way interaction	7.975	2	3.987	.142	.868
Error	14996.283	534	28.083		
Total	325264.000	540			

The results of the above table show that the effect of pollution and the effect of job experience were statistically significant but the 2-way effect of interaction was not significant. Thus the results indicate that both pollution and job experience of the workers has significant effect on their perceived health.

Table-35: Summary of the 2-way ANOVA for mental health complaints of the workers of polluted and non-polluted industries in terms of job experience (below 10 years, 10-19 years, 20 years and above)

Sources of Variation	SS	DF	MS	F	Sig.
Pollution	10828.735	1	10828.735	796.320	.000
Job experience	127.082	2	63.541	4.673	.010
2 way interaction	32.589	2	16.294	1.198	.303
Error	7261.587	534	13.598		
Total	204994.000	540			

The results of the above table show that the effect of pollution and the effect of job experience were statistically significant but the 2-way effect of interaction was not significant. Thus the results indicate that both pollution and job experience of the workers have significant effect on their mental health.

Table-36: Inter-correlation among the scores of different scales for the workers of polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .254**	.094
Subjective Health Questionnaire	-------	- .082

*** Correlation is significant at the .01 level (2 –tailed)*

It is evident from Table-36 that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The result in the table-36 reveals that the correlation between quality of working life and mental health was not significant but these variables was found to be positively correlated.

The table also shows that the correlation between mental health and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

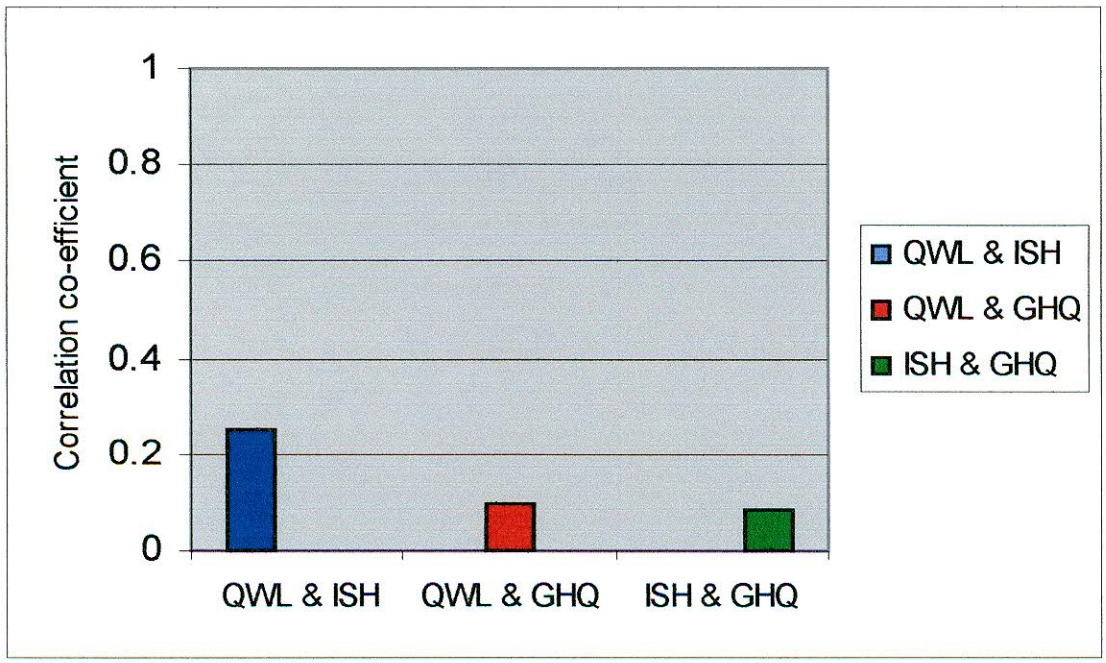

Fig. H : Inter-correlation between different variables for the workers of polluted industries

Table-37: Inter-correlation among the scores of different scales for the workers of the non-polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .713**	.591**
Subjective Health Questionnaire	-------	- .573**

*** Correlation is significant at the .01 level (2 –tailed)*

The correlation between quality of working life and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was found significant and these variables were found to be positively correlated.

The correlation between mental health and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

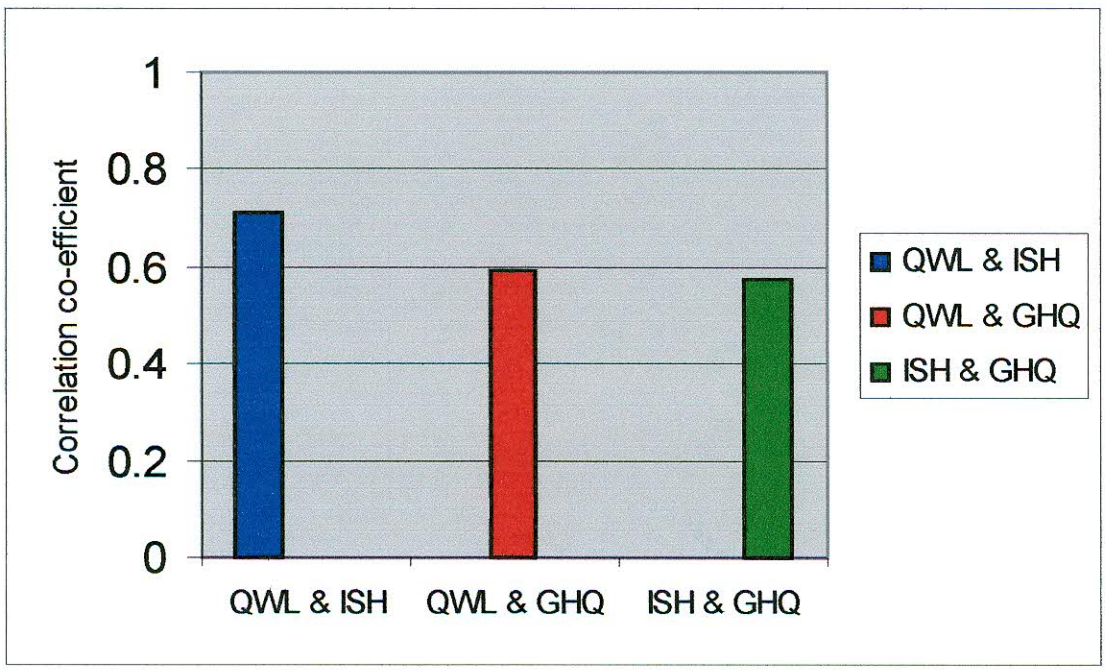

Fig.I : Inter-correlation between different variables for the workers of non- polluted industries

Table-38B: Inter-correlation of the scores of different scales for male workers of the non-polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .609**	.411**
Subjective Health Questionnaire	--------	- .437**

*** Correlation is significant at the .01 level (2 –tailed)*

The correlation between quality of working life and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was found significant and these variables were found to be positively correlated.

The correlation between mental health and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-39A: Inter-correlation of the scores of different scales for female workers of polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .281**	.291**
Subjective Health Questionnaire	-------	- .200*

*** Correlation is significant at the .01 level (2 –tailed)*

** Correlation is significant at the .05 level (2 –tailed)*

The correlation between quality of working life and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was found significant and these variables were found to be positively correlated.

The correlation between mental health and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-39B: Inter-correlation of the scores of different scales for female workers of non-polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .019	-.008
Subjective Health Questionnaire	-------	- .486**

*** Correlation is significant at the .01 level (2 –tailed)*

The correlation between quality of working life and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was not significant but these variables were found to be negatively correlated.

The correlation between mental health and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-40A: Inter-correlation of the scores of different scales for the workers of polluted industries in terms of age (below 20 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .602**	.257
Subjective Health Questionnaire	-------	- .404**

*** Correlation is significant at the .01 level (2 –tailed)*

The correlation between quality of working life and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was not significant but these variables were found to be positively correlated.

The correlation between mental health and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-41A: Inter-correlation of the scores of different scales for the workers of polluted industries in terms of age (20 to 29 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .144	.204*
Subjective Health Questionnaire	-------	- .037

** Correlation is significant at the .05 level (2 –tailed)*

It was found that correlation between the workers in regards to quality of working life and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was found significant and these variables were found to be positively correlated.

Table-41A also shows that the correlation between mental health and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationships between the variables were not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-42A: Inter-correlation of the scores of different scales for the workers of polluted industries in terms of age (30 years and above)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .203*	-.089
Subjective Health Questionnaire	-------	- .058

** Correlation is significant at the .05 level (2 –tailed)*

Table-42A shows that there was significant relationship between the workers in regards to quality of working life and subjective health questionnaire. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was not significant but these variables were found to be negatively correlated.

The above table also shows that the correlation between mental health and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-40B: Inter-correlation of the scores of different scales for the workers of non-polluted industries in terms of age (below 20 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .765**	.464*
Subjective Health Questionnaire	-------	- .372

*** Correlation is significant at the .01 level (2 –tailed)*

** Correlation is significant at the .05 level (2 –tailed)*

The correlation between quality of working life and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was found significant and these variables were found to be positively correlated.

The correlation between mental health and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-41B: Inter-correlation of the scores of different scales for the workers of non-polluted industries in terms of age (20 to 29 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .785**	.561**
Subjective Health Questionnaire	-------	- .596**

*** Correlation is significant at the .01 level (2 –tailed)*

The result in the table-41B reveals that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The table-41B also shows the correlation between quality of working life and mental health was found significant and variables were positively correlated.

It is evident from table-41B that the correlation between mental health and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-42B: Inter-correlation of the scores of different scales for the workers of non-polluted industries in terms of age (30 years and above)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .639**	.649**
Subjective Health Questionnaire	-------	- .583**

** *Correlation is significant at the .01 level (2 –tailed)*

The result in the table-42B reveals that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The table-42B also shows the correlation between quality of working life and mental health was found significant and variables were positively correlated.

It is evident from table-42B that the correlation between mental health and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-43A: Inter-correlation of the scores on different scales for married workers of polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .173**	.027
Subjective Health Questionnaire	-------	- .033

*** Correlation is significant at the .01 level (2 –tailed)*

It is evident from Table-43A that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The result in the table-43A reveals that the correlation between quality of working life and mental health was not significant but these variables was found to be positively correlated.

The table also shows that the correlation between mental health and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-43B: Inter-correlation of the scores on different scales for married workers of non-polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .715**	.586**
Subjective Health Questionnaire	-------	- .566**

*** Correlation is significant at the .01 level (2 –tailed)*

The result in the table-43B reveals that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The table-43B also shows the correlation between quality of working life and mental health was found significant and variables were positively correlated.

It is evident from table-43B that the correlation between mental health and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-44A: Inter-correlation of the scores on different scales for unmarried workers of polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .518**	.273*
Subjective Health Questionnaire	--------	- .321**

*** Correlation is significant at the .01 level (2 –tailed)*

** Correlation is significant at the .05 level (2 –tailed)*

The result in the table-44A reveals that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The table-44A also shows the correlation between quality of working life and mental health was found significant and variables were positively correlated.

It is evident from table-44A that the correlation between mental health and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-44B: Inter-correlation of the scores on different scales for unmarried workers of non-polluted industries

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .705**	.611**
Subjective Health Questionnaire	--------	- .594**

*** Correlation is significant at the .01 level (2 –tailed)*

The result in the table-44B reveals that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The table-44B also shows the correlation between quality of working life and mental health was found significant and variables were positively correlated.

It is evident from table-44B that the correlation between mental health and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-45A: Inter-correlation of the scores on different scales for the workers of polluted industries in terms of experience (below 10 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .701**	.485**
Subjective Health Questionnaire	--------	- .450**

*** Correlation is significant at the .01 level (2 –tailed)*

The result in the above table reveals that there was significant correlation between quality of working life and subjective health. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was found significant and variables were positively correlated.

It is evident from table-45A that the correlation between mental health and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-46A: Inter-correlation of the scores on different scales for the workers of polluted industries in terms of experience (10-20 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .149*	.029
Subjective Health Questionnaire	--------	- .047

** Correlation is significant at the .05 level (2 –tailed)*

The findings show that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The findings also show that the correlation between quality of working life and mental health was not significant and variables were positively correlated.

The correlation between mental health and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-47A: Inter-correlation of the scores on different scales for the workers of polluted industries in terms of experience (above 20 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .232*	.079
Subjective Health Questionnaire	--------	- .113

** Correlation is significant at the .05 level (2 –tailed)*

The findings show that the correlation between quality of working life and subjective health was significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The findings also show that the correlation between quality of working life and mental health was not significant and variables were positively correlated.

The correlation between mental health and subjective health was not significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-45B: Inter-correlation of the scores on different scales for the workers of non-polluted industries in terms of experience (below 10 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .725**	.567**
Subjective Health Questionnaire	--------	- .583**

*** Correlation is significant at the .01 level (2 –tailed)*

The result in the above table reveals that there was significant correlation between quality of working life and subjective health. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was found significant and variables were positively correlated.

It is evident from table-45B that the correlation between mental health and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-46B: Inter-correlation of the scores on different scales for the workers of non-polluted industries in terms of experience (10-20 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	- .694**	.646**
Subjective Health Questionnaire	--------	- .556**

*** Correlation is significant at the .01 level (2 –tailed)*

The result in the above table reveals that there was significant correlation between quality of working life and subjective health. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on quality of working life indicate better quality of working life and low scores on subjective health indicate better subjective health and vice versa.

The correlation between quality of working life and mental health was found significant and variables were positively correlated.

It is evident from table-46B that the correlation between mental health and subjective health was found significant. Though, due to the reverse scoring pattern of the scales, the sign of correlation co-efficient (r) was negative, but the relationship between the variables was not negative. It means that high scores on general health questionnaire indicate better mental health and low scores on subjective health indicate better subjective health and vice versa.

Table-47B: Inter-correlation of the scores on different scales for the workers of non-polluted industries in terms of experience (above 20 years)

Scales	Subjective Health Questionnaire	General Health Questionnaire
Quality of working life	X	X
Subjective Health Questionnaire	X	X

Non-polluted industries have no workers of above 20 years of experience. So it is not possible to compare.

Table–48: Percentage of the workers of the polluted and non-polluted industries with in-service record of ill health

Type of disease	Workers of Polluted Industries	Workers of Non-Polluted Industries
1. Cold and fever	.3%	5.0%
2. Headache	21.2%	14.0%
3. Body pain & grip up one's loins,	8.8%	1.0%
4. Gastric, Dysentery, Pain in the bowel.	20.3%	0.5%
5. Lung pain, respiration problem	8.8%	0.0%
6. Irregular Menstruation	2.4%	0.0%
7. Eye disease	2.9%	0.0%
8. Ear disease	1.8%	0.0%
9. No disease	33.5%	79.5%

This table shows that .3% of respondents suffered from cold and fever, 21.2% headache, 8.8% body pain & grip up one lions 20.3% gastric, dysentery, pain in the bowel, 8.8% lung pain, respiration problem 2.4% irregular menstruation, 2.9% eye, 18.0% ear disease and 33.5% has no diseases.

The table also shows that 5.0% of the respondents of non-polluted industries suffered from cold and fever, 14.0% headache, 1.0% body pain and grip up one lions, 0.5% gastric, dysentery, pain in the bowel but 79.5% has no diseases.

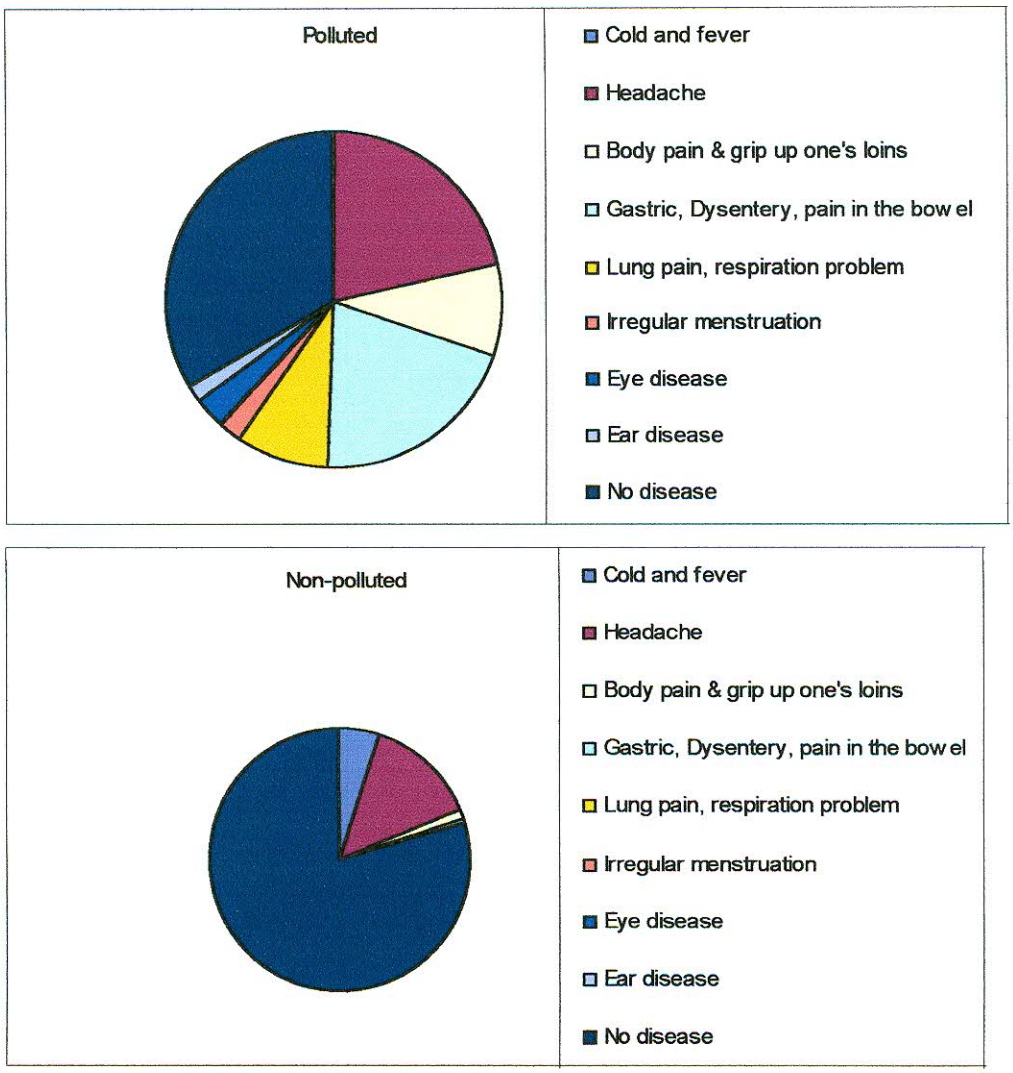

Fig. J : Showing percentage of workers of polluted and non-polluted industries on different types of disease.

CHAPTER – 4

DISCUSSION

Since mental health of the workers is highly associated with the adjustments they make to situations and the factors which influences these adjustments, there is well-founded reason that the mental health of the workers will be adversely affected by the chronic toxic effects of the polluted working environment (US Department of Health, 1967).

It is evident from the results that majority of the workers of the polluted industries are characterized by different type of illness, frequent hospitalization and doctor consultation and post-service records of ill health than the workers of the non-polluted industries (see table no. 1).

The workers of the polluted industries lead a significantly low quality of working life than those of the non-polluted industries (see table nos 22 & 23). The findings of this study further reveal that subjective health has significant adverse effect on quality of life of the workers of the polluted industries (table no. 22).

The workers perceived hygienic conditions significantly influence the quality of life, subjective health of the workers of the polluted industries (Table nos, 7A & 8A). The results also show that the workers who perceive their work place hygienic are living a relatively higher quality of working life, have better subjective health conditions than those who perceive their work-place unhygienic.

Smoking habit of the workers of the polluted industries does not have any adverse effect on their subjective health conditions (table no. 11A). It may be mentioned here that the workers-both smokers and non-smokers of the polluted industries are continuously inhaling the tobacco dust and bad odour from the air. They are exposed to and their health is being affected by so many pollutants in their work place that it does not make any difference whether a worker is smoker or not. That is why the health conditions of the workers smokers & non-smoker were found almost the same. But the workers of the polluted and non-polluted industries with smoking habit differ

significantly in terms of subjective health, quality of working life and mental health (table nos 10C, 11C, 12C). It may be concluded that the non-smoking workers, particularly of the non-polluted industries (10B, 11B, 12B) have maintained a better quality of life, subjective health and mental health than those of the smoking ones (table nos 10C, 11C, 12C). As a result, overall difference between the workers with smoking habits for both the industries was found significant.

The workers who took frequent sick leave, suffered from serious illness, admitted in hospitals, having post-service records of illness were found to have perceived a poor subjective health and mental health than the workers who did not have such problems (table nos 14A, 14C, 17A, 17B, 18A, 18B, 20B, 21A & 21C).

A number of studies provide evidence in favour of the findings that the respiratory illness (Higgings and Ferris, 1973; Freanch et al 1973; Selikoff, 1972; Chen et al, 1972; Anon 1967; Anon 1970) and Cardiovascular diseases (David et al, 1972; Filley, 1972; Jonsson and Hensson, 1977) are aggravated with the increased levels of pollutants. The findings also support the view that the health, well being, job satisfaction and quality of life of the workers is directly related to and depended upon the levels of pollution of their working environment (Faith and Atkinson, 1972; National safety council of American, 1972; US department of Health, 1967; Khaleque et al 1987).

It was also found that 66.5% workers of the polluted industries had records of post service illness and suffered from the diseases like cold and fever, headache, body pain & grip up one's loins, gastric, dysentery, pain in the bowel, lung pain, respiratory problem, irregular menstruation, eye and ear diseases etc, one or several times in the year (see table no. 48).

A pilot survey on the health problems of industrial workers conducted by the National Institute of Occupational Health (NIOH) (1984), showed that the workers of the polluted industries are more prone to suffer from health

problems like indigestion, loss of appetite, abdominal pain, lethargy and depression and their bio-rhythms get disturbed. The NIOH warns that if these problems are not attended properly at an early stage they might lead to peptic ulcers and insomnia.

Vaernes et al. (1988) examined a group of 127 workers for health complaints, subjective experience of their work environment, psychological defense strategies, and immunological factors. They found that the main health complaints were sleep disturbance and gastrointestinal problems. The workers also complained about allergies, breathing difficulties, tension, anxiety and depression due to the adverse working environment.

It may be concluded that the workers of the polluted and non-polluted industries show significant differences in terms of quality of working life, subjective health and mental health. The study revealed that the workers of the non-polluted industries having better quality of working life than that of the polluted industries. It indicates that the workers of the polluted industries suffer more from subjective health problems than that of the non-polluted industries. It was also found that the workers of the polluted industries suffer more from mental health problems than that of non-polluted industries, which is fully consistent with the hypothesis - 1 framed.

Hypothesis – 2: Workers' age will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

The result showed that the workers age level has significant effect on their quality of working life, subjective health and mental health (see table nos 24-26). It was found that workers of all ages in non-polluted industries have been enjoying better quality of working life, have relatively better subjective health and mental health conditions than those of the polluted industries.

It was observed that the older age-group of workers, i.e. 30 years and above has perceived good quality of life and subjective health in comparison to the younger group i.e below 30 years (Appendix table 24--25). The older age-group might have developed some sort of body resistance because of longtime exposure to polluted environment. That is why they might have perceived their work environment differently.

The younger age-group of workers, below 20 years of age has been enjoying better mental health in comparison to the older age-group (Appendix Table No. 26). It may be the cause that most of them are unmarried or recently married and have minimum responsibilities for the family, rather they have the scope to contribute to their parental families. They were satisfied as because they have been earning in the early age. Workers of older age-group (20& above) were not satisfied with their job because of their inability to meet up their raising family expenditure by their low income. Jeseph (1979) in his study on quality of working life, however, found no correlation between age levels of workers and their perceived quality of working life.

It may be concluded from the above findings that workers age have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries. The findings of the study were fully in line with the hypothesis - 2 framed.

Hypothesis – 3: Workers' sex will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

The findings also revealed that workers' sex has significant effect on their subjective health, mental health and quality of working life respectively (table nos 27-29).

Both the male and female workers of the non-polluted industries have been enjoying better quality of life, subjective health and mental health than the

workers of the polluted industries. The male workers have better quality of life, subjective health and mental health than the female workers. The causes of difference between the male and female workers' conditions may be explained in the way that the female workers have to work under a lot of pressure. Most of them have got early married, have number of children, lack of nutritious food, insufficient health care facilities and hand to mouth socio-economic conditions. Most of them have either divorced, separated or abandoned. As a result, they all have ill health and have been suffering from many diseases. That is why they have to survive with poor subjective and mental health conditions and a poor quality of life than the male workers.

It may be concluded from the above findings that workers' sexes have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries. The findings of the study were fully in line with the hypothesis - 3 framed.

Hypothesis – 4: **Workers' marital status will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.**

The present study provides evidence that the workers marital status has significant effect on their mental health but not on their quality of working life and subjective health (see table nos 30-32). It also indicates that the unmarried workers have been enjoying better mental health in comparison to the married workers. The unmarried workers have been enjoying better mental health because of their low family burden and scope of contributing to their parental families at an early age. Both the married and unmarried workers of the non-polluted industries have been enjoying better quality of working life, subjective health and mental health than the workers of polluted industries.

It may be concluded from the above findings that workers' marital status has significant effect on mental health of the workers of polluted and non-polluted industries. The findings of the study were partly in line with the hypothesis - 4 framed.

Hypothesis – 5: **Workers' job experience will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.**

The result of the study showed that the workers job experience has significant effect on subjective health and mental health but there is no effect on quality of life (table nos 33-35).

The workers having experience less than 10 years have been enjoying better quality of working life, have good subjective health and mental health conditions than the workers having experience more than 10 years (table nos 33-35).

It may be concluded that the findings of the study were not fully in line with the hypothesis - 5 framed.

Hypothesis – 6: **Significant relationship would be found among the scores on quality of working life, subjective health and mental health of the workers of both polluted and non-polluted industries.**

The present study provides evidence of significant interrelationship between the scores on different scales for the workers of polluted and non-polluted industries (table nos. 36, 38A, 39A, 40A, 41A, 42A, 43A, 44A, 45A, 46A & 47A for polluted industries and 37, 38B, 39B, 40B, 41B, 42B, 43B, 44B, 45B & 46B for non-polluted industries).

The results indicate that the workers having good quality of working life also have good subjective health, the workers having poor quality of working life also have poor subjective health (table nos. 36, 38A, 39A, 40A, 41A, 42A, 43A, 44A, 45A, 46A & 47A for polluted industries and 37, 38B, 39B, 40B, 41B, 42B, 43B, 44B, 45B & 46B for non-polluted industries).

The results also revealed that the workers having good mental health also have good subjective health, the workers having poor mental health also have poor subjective health (table nos. 36, 38A, 39A, 40A, 41A, 42A, 43A, 44A, 45A, 46A & 47A for polluted industries and 37, 38B, 39B, 40B, 41B, 42B, 43B, 44B, 45B & 46B for non-polluted industries); and the workers having good quality of working life also have good mental health and the workers having poor quality of working life also have poor mental health (table nos. 36, 38A, 39A, 40A, 41A, 42A, 43A, 44A, 45A, 46A & 47A for polluted industries and 37, 38B, 39B, 40B, 41B, 42B, 43B, 44B, 45B & 46B for non-polluted industries).

Some inconsistent findings were also observed where negative relationships were found between quality of working life and mental health conditions of the workers (table 38A, 39B, 42A).

It was evident from the present study that the work place pollution is significantly associated with the workers subjective health, mental health and quality of working life. Majority of the respondent of the polluted industries consider job condition and its related factors, job factor (raw materials), working environment and home environment as harmful to health as compared to the respondent of the non-polluted industries. Cent percent respondents of the polluted industries have passed their opinion that factors like insufficient nutritious food, anxiety and tension, fatigue, insufficient health care facilities, and job dissatisfaction are the most important health risk factors that has tremendous negative effect on their subjective health, mental health and quality of working life (table no. 2).

In a study, U.S. Department of Health, found significant correlation between environmental pollution and physical or mental diseases, such as mental disorders, nervous system diseases, and arthritis (Dept. of Health, 1967).

Findings of some other researchers also revealed that the environmental pollution is directly related to the workers health, occupational stress, fatigue, job and life satisfaction. It seems that the exposure to bad working conditions, to chemical or physical noxious agents, may lead to specific occupational diseases and which, in turn, affect workers health, well being, and job satisfaction (Rey, 1960; Weintraub, 1973; Quinnet et. al., 1974; Hennigan and Worthan, 1975; O'Toole, 1976; Jonsson and Henssou, 1977; Beehr and Newman, 1978; Rey, 1979; Evans and Jacobs, 1981; National Institute of occupational Health. (U.S.A.), 1984; Khaleque et. al., 1987; Vaernes, 1988).

Almost 95% of the tobacco workers live in the surroundings areas of the tobacco industries. For that reason both the work place and the home environment of the workers are almost equally polluted. They live in such an adversely affected environmental for long decades.

Besides pollution, other factors which have been found to affect the workers health and well-being are pre and post service records of illness, lack of medical facilities, malnutrition, working and living conditions, exposure to chemical and physical noxious agents, work related fatigue, job stress and job dissatisfaction (table no.2).

This study provides us with clear evidence concerning the adverse effects of work place pollution on the physical health, well-being, mental health and quality of working life of the workers.

Discussion on Observational Findings

Problems of environmental pollution are most acute in the surrounding areas of tobacco (polluted) industries. Tobacco workers have been working in an unhygienic environment that is why they have been suffering from various lungs diseases either very often or in continuous basis. A large number of tobacco workers have been living in overcrowded and unhealthy environment where basic services and utilities have been either absent or grossly inadequate. It is estimated that less than fifty per cent of the tobacco workers' families have access to public water supply and less than one-fifth to proper sanitation.

The workers live in kancha huts made of bamboo, wooden boards or plastic; use kancha roads, kancha or open or hanging latrines and kancha drains. The tobacco workers' families have been compelled to live a much-below subsistence life which is characterized by a deplorable habitat with very little facilities of water, sanitary, environmental sanitation and hygienic facilities. It creates health hazards some times in the year or in the continuous form.

The people in general and the tobacco workers' families in particular, have very poor concepts about the relationship between environmental pollution, health hazards and quality of life. The situation in tobacco industrial areas is very deplorable and even inhuman. Most of the tobacco workers' families have literally no latrines, only a few have pit or hanging latrines. They often defecate in open fields, in the bushes, near the roadsides, in the drains or on the canal/river sides or in the crops fields.

Some significant gender variations as well as variation between adult and working children regarding wages and benefits were also observed. Female and child workers were being deprived of getting equal facilities.

So that the environmental conditions have affected the tobacco workers, their family members in particular women and children, have most often the victims of such an unhygienic environment. The various lung diseases and skin

diseases are most prevalent among the tobacco workers, mostly among the working children and women. These diseases are the effects of unsafe and unhygienic environment. This environment affects the social life of the tobacco workers and surrounding community people.

The researcher has visited some bidi factories and observed a very unhealthy condition that prevails all around. Many female and child workers have already been suffering from various kinds of diseases. The factory owners, when find any body sick or ill remove them from service. The measurable and deplorable conditions observed in the polluted industries and the surrounding area were not found in the non-polluted industries of the same area.

One thing with mentioning here is that the scores of all the tobacco workers on different scales have been found to be below average. It indicates that the workers have been maintaining poor subjective health, mental health and quality of working life.

It may be concluded on the basis of study findings that the environmental pollution has adverse effect on workers subjective health, mental health and quality of working life.

CHAPTER – 5

SUMMARY AND CONCLUSION

SUMMARY

The problems of environmental pollution are most acute in the surrounding areas of Tobacco Industries in the Rangpur District. Tobacco workers are working in an unhygienic environment in their work place and they are suffering from various lungs diseases and some other types of diseases throughout the year. A large number of tobacco workers live in overcrowded and unhealthy environment where basic services and utilities are either absent or grossly inadequate.

The tobacco workers' families are compelled to live a much-below subsistence life, characterized by a deplorable habitat with very little facilities of safe water, sanitation, environmental sanitation and hygienic facilities. So, it creates health hazards very frequently throughout the year or in the continuous form, because of environmental pollution. This polluted environment also affects the quality of working life, physical health and mental health of the workers, their families and also the community people.

Work place pollution is an important factor in industrial productivity, workers' health and quality of working life. The present study was aimed to study the effect of Environmental Pollution on Health Hazards and Quality of Life of Workers in Tobacco Industries.

The objectives of the study were as follows:

1. To study the effect of environmental pollution on health and quality of life of the workers in Tobacco Industries.
2. To study the effect of health hazards on quality of life of workers in Tobacco Industries.
3. To study the gender effect on worker's health & quality of life in Tobacco Industries.

The following hypotheses were formulated:

1. Significant difference would be found between the workers of the polluted and non-polluted industries in terms of their quality of working life, subjective health and mental health.

2. Workers' age will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

3. Workers' sex will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

4. Workers' marital status will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

5. Workers' job experience will have significant effect on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

6. Significant relationship would be found among the scores on quality of working life, subjective health and mental health of the workers of both polluted and non-polluted industries.

To conduct the study a total of 540 workers, 340 from polluted industries and 200 from non-polluted industries were selected randomly.

Following measuring instruments were used to collect data:

1. Inventory for Measuring Quality of Working Life (Sinha and Sayeed, 1980.)
2. Inventory of Subjective Health (I.S.H), Dirken, 1967.
3. General Health Questionnaire–12 (GHQ-12), Goldberg, 1972.
4. The Interview Schedule – Khaleque et al., 1988.

The case study was based on a range of techniques of data collection. Triangulation of techniques such as a combination of interviews through questionnaire, observation and document analysis were used to gather data. The researcher has the intention to collect cross-sectional data / information from polluted and non-polluted industries for intensive analysis regarding the problems of tobacco workers, emphasizing personal and environmental factors in the working place, so that he can put forward stronger arguments in favour of his findings.

The major findings of the study were as follows:

1. Significant differences were found between the workers of the polluted and non-polluted industries in terms of quality of working life, subjective health and mental health (table nos. 3,4 & 5, 24-35, 7C, 8C, 9C, 10C, 11C, 12C, 13C, 14C, 15C, 16C, 17C, 18C, 19C, 20C, 21C). Results reveal the higher level of quality of life in the workers of non-polluted industries than those of the polluted industries. It is also found that the workers of the polluted industries suffer more from health problem and psychological disturbances than those of the non-polluted industries.
2. Majority of the workers of the polluted industries are characterized by different type of illnesses, frequent hospitalization & doctors consultation and post service records of ill health than the workers of the non-polluted industries (table no.1).
3. The workers of the polluted industries show a significantly low quality of working life than those of the non-polluted industries (table nos. 22 & 23).
4. Subjective health has significant adverse effect on quality of life of workers of the polluted industries (table no. 22).
5. Workers perceived hygienic conditions significantly influence the quality of working life and health conditions of the workers of polluted industries (table nos. 7A and 8A).
6. Smoking habit of the workers of the polluted industries does not have any adverse effect on their subjective health conditions (table nos. 11A). But the workers of polluted and non polluted industries with smoking habit differ significantly in terms of subjective health, quality of working life and mental health (Table nos. 10C, 11C, 12C)
7. The workers who took frequent sick leave, suffered from serious illnesses were admitted in hospitals, have post service records of illnesses were found to have perceived a poor subjective health and mental health than the workers who did not have such problems (table nos. 14A, 14C, 17A, 17B, 18A, 18B, 20B, 21A and 21C).

8. It was found that 66.5% workers of the polluted industries had records of post service illnesses and suffered from the diseases like cold and fever, headache, body pain & grip up one's loins, gastric, dysentery, pain in the bowel, lung pain, respiratory problem, irregular menstruation, eye & ear diseases etc. one or several times in a year (table no.48).

9. Workers age, sex, marital status and job experience have significant effect on their subjective health, mental health and quality of working life respectively (table nos. 24-35). The study reveals the following facts: Both the male and female workers of the non-polluted industries have been enjoying better quality of life, subjective health and mental health than the workers of polluted industries. The male workers of the polluted industries have better quality of working life, subjective health and mental health. The workers of all ages in non-polluted industries have been enjoying better quality of working life, have relatively better subjective health and mental health conditions than those of the polluted industries. The older age group of workers, i.e. 30 years and above perceived good quality of working life and subjective health than the younger age groups. The workers with below 20 years of age have been enjoying better mental health than the workers of older age-groups. The unmarried workers have been enjoying better mental health than the married ones. The workers having experience less than 10 years have been enjoying better quality of working life, have good subjective health and mental health than the workers of more experienced groups.

10. Significant positive interrelationships were found between the scores on different scales - QWL, ISH and GHQ for the workers of the polluted and non-polluted industries (table nos. 36, 38A, 39A, 40A, 41A, 42A, 43A, 44A, 45A, 46A & 47A for polluted industries and 37, 38B, 39B, 40B, 41B, 42B, 43B, 44B, 45B & 46B for non-polluted industries).

The results indicate that the workers having good quality of working life also have good subjective and mental health. The workers having poor quality of working life also have poor subjective health and mental health.

11. Majority of the respondents consider job condition and its related factors, job factor (raw materials), working environment and home environment as harmful to health. Cent percent respondents of the polluted industries have passed their opinion that insufficient nutritious food, presence of anxiety and tension, fatigue and insufficient health care facilities were the major health risk factors (table no 2).

12. Since the tobacco workers are the permanent inhabitants of the factory area they are more affected people than the workers of the non-polluted industries who live in a non-polluted area (table no. 6).

The researcher's observational findings are presented as follows:

1. Problems of environmental pollution are most acute in the surrounding areas of tobacco (polluted) industries.
2. Tobacco workers have been working in an unhygienic environment that is why they have been suffering from various lungs diseases either very often or in continuous basis.
3. A large number of tobacco workers have been living in overcrowded and unhealthy environment where basic services and utilities are either absent or grossly inadequate.
4. It is estimated that less than fifty percent families of the tobacco workers' have access to public water supply and less than one-fifth to proper sanitation.
5. The workers live in kancha huts made of bamboo, wooden boards or plastic; use kancha roads, kancha or open or hanging latrines and kancha drains.
6. The tobacco workers' families are compelled to live a much-below subsistence life, which is characterized by a deplorable habitat with

very little facilities of water, sanitary, environmental sanitation and hygienic facilities. It creates health hazards occasionally in the year or frequently.

7. The people in general and families of the tobacco workers' in particular, have very poor concept about the relationship between environmental pollution, health hazards and quality of life.

8. The situation in tobacco industrial areas is very deplorable and even inhuman. Most of the tobacco workers' families have literally no latrines, only a few have pit or hanging latrines. They often defecate in open fields, in the bushes, near the roadsides, in the drains or on the canal/river sides or in the crops fields.

9. Various lung diseases and skin diseases are prevalent among the tobacco workers, mostly among the working children and women. These diseases are the effects of unsafe and unhygienic environment. This environment affects the social life of the tobacco workers and surrounding community people.

10. The measurable and deplorable conditions observed in the polluted industries and the surrounding areas were not found in the non-polluted industries of the same area.

CONCLUSIONS

The researcher draws the following conclusions based on the findings of the study. It indicates that significant differences have been found between the workers of the polluted and non-polluted industries in terms of quality of working life, subjective health and mental health. The study revealed higher level of quality of working life, subjective health and mental health of the workers of the non-polluted industries than that of the polluted industries. Workers age, sex, marital status and job experience also were found to have important bearing on quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries.

There exist a significant relationship among the variables–quality of working life, subjective health and mental health of the workers of polluted and non-polluted industries. The workers having good quality of working life also have good subjective health and good mental health. The workers having poor quality of working life also have poor subjective health and mental health.

On the basis of his findings the researcher recommends that appropriate measures should be taken to protect environmental pollution in the work place; so that good subjective health, mental health and quality of working life of workers can be ensured.

Recommendations:

The nation should think about the future generation of mankind in a spirit of intergenerational equity. It is the responsibility of the policy makers to preserve a healthy environment for future generation.

Time has come:

1. To take appropriate measures to control work-places pollution.
2. To strengthen the movement against environmental pollution, health hazards, tobacco use and passive tobacco use.

3. To advocate for stopping environmental pollution & health hazards and ensure tobacco free work places.
4. To strengthen anti-tobacco campaign/movement within the community involving various community groups/members of the civil society.
5. To design and develop local initiatives for environmental protection and development.

It is necessary to initiate awareness raising and motivational activities by the environmental activist of the surrounding areas of Tobacco Industries in the form of:

1. Establishing and strengthening environment protection network as local level initiatives for environment protection and development;
2. Creating awareness among the people on environment preservation, health & hygiene and quality of life of the workers and community people;
3. Developing information education and communication materials on environment issues to support the local initiatives for raising awareness on environment protection and development;
4. Organizing environment resource center at community level for raising awareness and advocacy programme.

To protect the workers from occupational health hazards and to ensure their quality of working life, it is essential to create a pollution free environment. So, a holistic and integrated effort should be taken by the concerned individuals and authorities to build a healthy and liveable social environment. The Environment Pollution Control Authority should enforce strict measures against any violations of the effluent quality standard. The management of the polluting industries should be urged to ensure an appropriate healthy environment for the workers of the industry and the people living within the surrounding areas of the industry.

REFERENCES

ALLPORT, G.W. (1958), Personality: Normal and Abnormal, *Sociological Review*, 6, 167-180.

ALLUISI, E.A. (1975). Optimal uses of Psychobiological, Sensorimotor, and Performance measurement Strategies. *Human Factors*, 1975, 17, 3O9-32O.

ANON. 1969. *Air Quality Criteria for Particulate Matter* (Department of Health, Education, and Welfare Publ. AP-49). Government Printing Office, Washington, D.C.

ANON. 1969. *Air Quality Criteria for Sulfur Oxides* (Department of Health, Education, and Welfare Publ. AP-50). Government Printing Office, Washington, D.C.

ANON. 1970. *Air Quality Criteria for Photochemical Oxidants* (Department of Health, Education, and Welfare Publ. AP-63). Government Printing Office, Washington, D.C.

ARGYRIS, C. (1964). *Integrating the Individual and the Organization.* New York: Harper.

ASHRAF, M.S. Socio-political consciousness among industrial workers: An area study. *Indian Journal of Industrial Relations,* 1975, 11(1), 41-51.

BAKER, D.B., & KARASEK, R.A. (1995). *Occupation stress.* In B.S. Levy & D.H. Wegman (Eds.), Occupation health: Recognizing and preventing work-related disease (3rd ed., pp. 381-405). Boston: Little, Brown.

BANKS, 0. *The attitudes of steel workers to technical change.* Liverpool: Liverpool University Press, 1960.

BEACH, D.S. *Personnel: the management of people at work.* New York: McMillan Publishing Co., 1980.

BEEHR, T.A. & NEWMAN, J.E. (1978). Job stress, employee health, and organizational effectiveness: A facet analysis, model and literature review. *Personnel Psychology,* 31, 665-699.

BEEHR. T.A. Perceived situational moderators of the relationship between subjective rate ambiguity. *Journal of Applied Psychology*, 61, 35-40.

BHARADWAJ, S.B.L. Quality of working life: Perspectives, dreams and realities. *Paper presented at the National symposium on quality of working life,* held in Hyderabad (India), July 25-26, 1983.

BHIDE. S. V. *Advances in Toxicology and Environmental Health;* Jagmandar Book Agency, New Delhi; 331-340.

BLAKE, R.P. *Industrial Safety.* Third edition. Prentice- Hall Inc. Engle wood Clifts N.J. U.S.A. 1963

BLUM, M.L. AND NAYLOR, J.C. *Industrial Psychology: Its theoretical and social foundations.* New York: Harper and Row, 1968.

BOISVERT, M.P. AND THERIAULT, R. Importance of individual differences in intervention and design for improving quality of working life. *Commercials de Montreal,* 1977, 223-239.

BOISVERT, M.P. The quality of working life: An analysis. *Human Relations,* 1977, 30(2), 155-160.

BRAYFIELD, A.G., & CROCKETT, W.H. Employee Attitudes and Performance. *Psychological Bulletin,* 1955, 52, 396-428.

BRAYFIELD, A.H, AND ROTHE, H.F. An index of job satisfaction. *Journal of Applied Psychology,* 1951, 35, 307-311.

BRUVOLD, W.H. & WARD, P-C. Public attitude towards use of reclaimed waste water. *Water and Sewage works*, 1970, 120, 120-122.

BRUVOLD, W.H. Scales for rating the taste of water. *Journal of applied Psychology.,* 1968, 52, 245-253.

CAPLAN, R.D. (1972). *Organizational stress and individual stress:* A social psychological study of risk factors in coronary heart disease among administrators, engineers and scientists. Ph.D. dissertation, Ann Arbor. University of Michigan.

CAPLAN, R.D., & JONES, K.W. (1975) Effects of work-load, role ambiguity, and Type-A Personality on anxiety, depression and heart rate, *Journal of Applied Psychology.,* 60, 6, 713-719

CAPLAN, R.D., COBBS, S., FRENCH, J.R.P., HARRISON, R.V., and PINNEAU, S.R. (1975). *Job Demands and Workers Health.* US Department of Health, Education and Welfare, Publication No. (NI0SH) 75-160

CARLSON, H.C. Measuring the quality of work life in General Motors - (An interview). *Personnel,* 1978, 55 (November-December), 21-26.

CAVENDER, J.H., KIRCHER, D.S., and HOFFMAN, A.J. 1973. Nationwide Air pollutant Emission Trends. 1940-1970 *(Environmental Protection Agency Publ. AP-115).* Government Printing Office, Washington, D.C.

CHERNS, A. Perspectives on the quality of working life. *Journal of Occupational Psychology,* 1975, 48, 155-168.

CHEW P.K. 'How to handle hysterical factor workers.' *Occupational Health and Safety,* 47 (2) 50-54.

CHICHESTER-CLARK, R. On the quality of working life. *Personnel Management,* 1973, 5, 26-29.

CHO, K.S AND LEE, T.J. (1975) 'Une surveillance pilot en medicine du travail; problems des petites industries en Coree du Sud, ACS.' *Cahiers dev medicine Inter-Professionelle,* 57 (1), 11-12.

CHO, K.S. AND LEE, S.H. (1978) 'Occupational health hazards of mine workers,' *Bulletin of the World Health Organization,* 56 (2) 205-218.

CLEGG, C.W. and WALL, T.D., 1981. A note on some scales for measuring aspects of psychological well being at work. *Journal of Occupational Psychology,* 54, 221-225.

COHEN - ROSETHAL, E. Should unions participate in quality of work life activities? *Quality of working life - The Canadian Scene,* 1980, 1(4), 7-12.

COHEN, A.A., et al. 1972. Asthma and air Pollution from a coal-fueled power plant. Amer. *Journal of public health.,* 62: 1181.

COOPER, C.L. and. MARSHALL, J. (1976). Occupational Sources of Stress: A review of the literature relating to coronary heart disease and mental ill health. *Journal of occupational psychology,* 49, 11-28.

COUGHLIN, R.E. (1976). The Perception and valuation of water quality: A review of research methods and finding. In K.H. Craik & E.H. Zube (Eds.) *perceiving environmental quality: Research and applications,* N.Y; Plenum Press.

COX.T. and MACKAY, C.J. (1979). The impact of repetitive work. In R. sell and P. Shipley (Eds) *Satisfactions in work design,* London; Taylor & Francis.

CPNIRM. D. Kpn Wprler Omcpmgriemce Consequences for health. *Journal of Health and Social Behavior,* 1975, 16,198-212.

CURRAN, J., and STNWORTH, J. A new looks at job satisfaction in the small firm. *Human Relations,* 1981,34,343-365.

DAVID, O., et al. 1972. *Lead and hyperactivity.* Lancet 2:900.

DAVIS, L.E. AND CHERNS, A. (Eds.) *The quality of working life* (Vol. I): problems, prospects and the state of the art. New York: The Free Press, 1975.

DAVIS, L.E. Job satisfaction research: The post-industrial view. *Industrial Relations,* 1971, 10, 176-193.

DE, N.R. Quality of working life: the Indian Scenario. *National Labour Institute Bulletin,* 1975, 1(5), 1-10.

EPCD, 1980. *Tentative industrial effluent quality standard of Bangladesh.* Environment pollution control department, Dhaka, Bangladesh.

EPCD, 1986. *Industrial pollution and polluting industries in Bangladesh.* Environment pollution control department, Dhaka, Bangladesh.

EPSTEIN, S.S. 1974, Environmental determinants of human Cancer. *Cancer Research.* 34: 2425.

ERIKSON, J., EDWARDS, D and GUNDERSON, E.K. *(1973).* Status congruency and mental health, Psychological Reports, 33, 395-401.

EVANS, G.W., and JACOBS, S.V. Air pollution and Human behavior *Journal of Social Issues*, 1981, 37, 95-125.

FAITH, W.L. and ATKINSON, A.A. (1972). *Air pollution (2nd Eds.)* JOHN WILEY AND SONS, Inc.

FILLEY, G. F. 1972. The effects of chronic respiratory disease on the function of the lungs and heart. In. *Environmental Factors in Respiratory Disease* (D.H.K. Lee, ed.). Academic Press, Inc., New York.

FOURNET, G.P., DISTEFANO, M.K., and MARGARET, W.P. Job satisfaction: Issues and problems. *Personnel Psychology.* 1966,19, 165-183.

FRANK, V.E., 1975. The Unconscious Goal, (New York).

FRANKENHAUSER, M. (1975) Sympathetic adrenomedullary activity: behavior and the psychosocial environment. In. P.H. VENABLES and M.J. Cherilstil (Eds.), *Research in Psychophysiology,* New York: Wily.

FRASER,R. (1947). The incidence of neurosis among factory workers. *Industrial Health Research Board, Report No 90.* London HMSO.

FRENCH J.G., et al.1973. The effect of sulfur dioxide and suspended sulfates on acute respiratory disease. *Archives of Environmental Health* 27.

FRENCH, J.R.P. ROGERS, W., and COBB, S. (1974). Adjustment as person-environment fit. In G.V. Coelko, D.A Hamburg, and J.E. Adams (Eds.) *Coping and Adaptation.* New York: Basic Books.

FRENCH, J.R.P.Jr. (1976). *Job demands and worker health:* Introduction. Paper presented at the 8th Annual Convention of the America Psychological Association, Washington, D.C.

FURNHAM, A., *&.* SCHAEFFER, R. Person-environment fit, Job satisfaction: Issues and mental health. *Journal of Occupational Psychology,* 1984, 57, 295-307.

GANGULI,O.N. Humanization of work. *Industrial Relations,*1979, 29(1), 23-26.

GARDELL, B. Alimentation and mental health in modern industrial environment. In L.Levi (Ed.) *Society, stress and disease* Vol.1, London: Oxford University Press, 1971,pp.l48-l8O.

GARRET, H.E. *Statistics in Psychology and Education.* London: Longman, 1970 (pp. 201, 461).

GECHMAN, A.S. and WINER, Y. (1975) Job involvement and satisfaction as related to mental health and personal time devoted to work. *Journal of Applied Psychology,* 60,521-523.

GHISELLI, E.F. AND BROWN, C.W. *Personnel and Industrial Psychology.* McGraw-Hill Book Company, 1955, P. 335.

GHOSH, S. AND KALRA, S.K. Perceptual differences in quality of work life factors. *Indian Journal of Training and Development,* 1982, 12(3 & 4), 10-12.

GILL, ANDREW M. *Social Science Journal,* 1998, Vol 35(3), 311-375

GUEST, R, H. Quality of work life - learning from Tarrytown. *Harvard Business Review,* 1979, 57, 4, 76-87.

GUILFORD, J.P. *Fundamental Statistics in Psychology and Education.* New York: McGraw-Hill Book Company, 1950.

GURIN, G, VEROFF, J., and FLED, S. (1960) *Americans View Their Mental Health.* New York: Basic Books.

HAGGARD, H.W. (1924) Action of Irritant Gases Upon the Respiratory Tract. *Journal of Industrial Hygiene.* 5, 390-398.

HAQUE, Z. (1991). Quality of working life of Jute Mills in Rajshahi and Khulna Divisions. Unpublished Ph.D. dissertation, Rajshahi University, Bangladesh.

HARDAY JORGE. E, MITLIN DIANA, SATTERTHWAITE. *Environmental Problem in the third world cities,* Warthscon publication Ltd, London 1995

HARRELL, B.W. *Industrial Psychology,* New York; Rinehart and Company, 1958.

HEMEON, W.C.L. (1955) The Estimation of Health Hazards from Air pollution, *Archives of industrial health,* 11, 397-402.

HERRICK, N.Q. AND MACCOBY, M. Humanising Work: a priority goal of the 1970s. In L.E. Davis and A. Cherns (Eds.), *The quality of working life* (Vol.I).New York: The Free Press, 1975, (pp. 63-77).

HERZBERG, F. (1968). *Work and the Nature of Man London:* Staples Press.

HERZBERG, F.; MAUSNER, B.; PETERSON, R. AND CAPWELL, D. *Job attitudes: Review of research and opinion.* Pittsburg: Psychological Service of Pittsburg, 1957.

HERZBERG, F; MAUSNER, B. et al *The motivation to work.* New York: Wiley, 1959.

HIGGINS, I.T.T., and FERRIS, BG., Jr. 1973. Epidemiology of sulphur oxides and particulates. In proceedings of the conference on *Health Effects of Air pollutant.* Assembly of Life Sciences, National Academy of Sciences-National Research Council (prepared for the Committee on Public works, U.S. Senate), Washington, D.C.

HINES, DAVID. *Psychological Report,* 1996(Jun), Vol 78 (3, pt 1) 860-862.

HNNIGAN. J.K. and WORTHAM. A.W. 1975 Analysis of workday stress on industrial managers using heart rate as a criterion. *Ergonomics.* 18, 675-685.

HOPPOCK, R. *Job satisfaction.* New York: Harper and Row, 1935.

HOPPOCK, R. *Job satisfaction.* New York: Harper and Brothers,1935.

HREBENIAK, LG. & ALUTTO, J.A. (1972). Personal and role related factors in the development of organizational commitment. *Administrative Science Quarterly,* 17,555-573.

HUEPER, W.C. 1972. Environmental cancer hazards *Journal of Occupational Medicine*, 14; 150.

HURST, M.W., JENKINS, C.D. and ROSE, R.M. (1976). The relation psychology stress to onset of medical illness. *Annual review of medicine,* 27, 301-312.

ILO, 1978. *A report on working conditions and life.* ILO, Regional Office for Asia and the Pacific, Bangkok, Thailand.

International Labour Office (ILO) *Directory of Institutions.* Geneva: I L 0, 1981.

IVANCEVICH, J.M. & MATTESON, M.T. (1979). Organization and Coronary heart disease: The stress connection. In J.L. Gibson, J.M. Ivancevich & J.M. Donnely, Jr. (Eds.) *Readings in organization* 3rd edition, Dallas. Tx: BPI: Inc.

JAHODA, M. (1958). *Current Concepts of mental Health.* New York: Basic Books.

JENKINS, C.D. (1976) Recent evidence supporting psychological and social risk factors for coronary disease. New England *Journal of Medicine,* 294, 987-994 and. 1033-1038.

JONSSON. A. and HANSOON.I., 1977, prolonged exposure to a stress full stimulus (noise) as a cause of raised blood- pressure in man *Lancet.* 1, 86-87.

JOSEPH, J.S. Quality of working life (Q W L) and job attitudes of industrial craftsmen. *Bombay Psychologist,* 1978, 1(1), 28-34.

KASL, S.V. (1973) Mental Health and work environment: An examination of the evidence, *Journal of Occupational Medicine* 15, 509-518.

KASL, S.V. (1978). Epidemiological contributions to the study of work stress In C.L. cooper & H. Payne (Eds.), *Stress at work.* N.Y. Wiley.

KASL. S.V. (1974). Work and mental health In J.O'Toole (Ed.), *Work and Quality of life.* Cambridge, M.A: MIT press.

KAVANAGH, M.J., HURST, M.W. and ROSE (1981). The relationship between job satisfaction and psychiatric health symptoms for air traffic controllers. *Personnel Psychology* 34, 691-707.

KEMELGOR, B.H. Job satisfaction as mediated by value congruity of supervisors and their subordinates. *Journal of Occupational behavior,* 1982, *3,* 147-160.

KEON, T.L., and McDONALD, B (1982) Job satisfaction and life satisfaction: an empirical evaluation of their inter-relationship. *Human Relations,* 35, 167-180.

KHALEQUE, A. AND RAHMAN, M.A. Perceived importance of job facets and overall job satisfaction of industrial workers. *Human Relations,* 1987, 40, 7, 401-416.

KHALEQUE, A. *Industrial Psychology* (in Bengali). University of Dhaka, 1990.

KHALEQUE, A. *Job satisfaction and work in industries: Three case studies in Bangladesh.* University of Dhaka, 1984.

KHALEQUE, A. Performance and job satisfaction in short- cycled repetitive work. In R.G. Sell and Patricia Shipley (Eds.), *Satisfaction in work design: Ergonomics and other approaches.* London: Taylor and Francis Ltd., 1979.

KHALEQUE. A. (1981) Job satisfaction, perceived effort and heart rate in light industrial work. *Ergonomics* 24,735-742.

KHALEQUE. A. (1983) and RAHMAN, *A. Perceived importance of job facets and overall job satisfaction of industrial workers.* Presented at the 20th Conference of the Indian Academy of Applied Psychology, Hyderabad, India, March 9-11, (Abstract published in the Proceedings).

KHALEQUE. A. (1984) and SIDDIQUE, A.B. Job satisfaction and quality of life in shift work. Proceedings of the international conference on *occupational Ergonomics,* Toronto, Canada.

KHALEQUE. A. WADUD and KHANAM, M (1987) Work places pollution and health hazards of Industrial workers, Department of Psychology, University of Dhaka, Bangladesh.

KHALEQUE. et al., (1988). Interview schedule, Department of Psychology, University of Dhaka, Bangladesh.

KORNHAUSER, A.W. (1965) *Mental health of industrial workers:* A Detroit study. New York: Wiley.

KORNHAUSER, R.W. & SHARP, A.A. (1932) Employee attitudes: Suggestions from a study in a factory. *Personnel Journal* 10, 393-4 04.

KOZLOWSKI, S. and KRASUCKI, P. (1979) Ergonomics and occupational and public health surveys. *Ergonomics,* 22, 651-659.

KRASUCKI, P. (1977). *Ergonomics in Industry,* Agriculture and Forestry. Geneva.

KUMAR R (1987), *Environmental pollution and Health Hazards in India.*1-28

KUNDI, M., KOLLER, M., CERVINKA, R., & HAIDER, M. Job satisfaction in shift workers and its relation to family situation and health. NIGHT and SHIFT WORK: biological & social aspects. *Advances in the Biosciences* (Vol.30), 1981. (Pp. 237-244)

LANDY, F.J. AND TRUMBO, D.A. *Psychology of Work Behaviour.* Home Wood, Illinois, Dorsey Press, 1980.

LAWLER III, E.E. AND PORTER, L.W. The effect of performance on job satisfaction. *Industrial Relations,* 1967, 51, 369-381.

LAWLER III, E.E. *Motivation in work organizations.* Monterey, Calif. 1973.

LAWLER III, E.E. Strategies for improving the quality of work life. *American Psychologist* May, 1982.

LEE, K.M., and Fraumeni, J.F. 1969. Arsenic and respiratory cancer in man: an occupational study. *Journal of National Cancer Institute* 42: 1045.

LEOWSKI.J.1978. *Report on Health and Health-related Indicators.*

LIJINSKY, W., and EPSTEIN, S.S. (1970) Nitro amines as environmental carcinogens. *Nature* 225:21.

LIPPIT, G.L. Quality of work life: Organization renewal in action. *Training and Development Journal,* 1978, 32(7), 4-10.

LOCKE, E. A. (1970). Job satisfaction and performance: A theoretical analysis. *Organizational Behavior and Human performance,* 5, 484-500.

LOCKE, E. A. (1976). The nature and causes of job satisfaction. In M.D. Dunettle (Ed.), *Handbook of Industrial and 0rganizational psychology.* Chicago: Rand Mc .Nally ,1976.

LOCKE, E.A. Job satisfaction arid performance: A theoretical analysis. *Organizational Behavior and Human Performance,* 1970,5,484-500

LUPTON, T. Efficiency and the quality of work life: the technology of reconciliation. *Organizational Dynamics,* 1975,4(Autumn),68-80.

LYNN, D.A. 1975. *Air Pollution-Thrust and Response,* Addison-Wesley Publishing Company, Inc. Reading, Mass.

MACY, B.A. AND MARVIS, P.H. A methodology for assessment of Quality of Work Life and organizational effectiveness in Behavioural-Economic terms. *Administrative Science Quarterly,* 1976, 21(2), 212-226.

MAGEE, P.N. 1971, Toxicity of nitro amines: the possible Human Health Hazards. *Food Cosmetics Toxical.* 9:207-218

MCGRATH, J.E. (1976) Stress and behavior in organizations, In M.D. Dunnette (Ed.) *Handbook of industrial and organizational Psychology,* Chicago: Rand NcNally.

MCMURRAY, R.N. (1932) Efficiency, work satisfaction and neurotic tendency, a study of bank employees. *The personnel Journal,* 11,201-210.

MEHTA, P. Rising Aspirations, Quality of Life and Work Organization. *Productivity,* 1982, 22,4, 85-88.

MICHAEL CSICSAKY and URSULA KRAMER (1985): *Gesundheitsrisiken durch Luftschadstoffe in WSI-Mitteilungen* (Cologne), No.12, Dec. 1985, pp. 738-746.

MIRVIS, P.H., and LAWLER. E.E. Measuring the financial impact of employee attitudes. *Journal of Applied Psychology,* 1977, 62, 1-8.

MOBLEY, W.H. and LOCKE, E.A. (1970). The relationship of value importance to satisfaction. *Organizational Behavior and Human Performance, 5,* 463-483.

MONGA, M.L. AND MAGGU, A. Quality of work life: a study of public sector in India. A S C I *Journal of Management,* 1981, 10(2), 115-137.

MORGAN, L.G. AND HERMAN, J.B. Perceived consequences of absenteeism. *Journal of Applied Psychology,*1976, 61, 7 38-742.

MORSE, D.R. and FURST, M.L. (1979). *Stress for success:* A holistic approach to stress and its management .New York: Van Nostrand Reinhold.

MURRELL, H. (1978). *Work stress and mental strain.* Occasional paper No.6, Department of Employment work Research Unit.

MURRELL, K. F.H. *Ergonomics: man in his working environment.* London: Chapman and Hall, 1965.

NADLER, D.A. AND LAWLER III, E.E. Quality of work life: Perspectives and directions. *Organizational Dynamics,* 1983, 11(3), 20-30.

NANDA KUMAR, N.V. 1989. Tannery and chromate industrial effluent effect on soil, Animals and plants. In *'soil pollution and soil organisms'* (Ed. P.C. Mishra) pp. 149-170. Ashism Publishing House, New Delhi, India.

NANDA KUMAR, N.V. AND RAJENDRA BABU, S.1984. Physicochemical analysis of Chromate polluted water resources from chromate chemical industry. *Pollution Research.* 3(1): 13-15.

NATIONAL ACADEMY OF SCIENCES. (1971) *Biologic effects of atmospheric pollutants:* Fluoride, Washington, D.C. Author.

NESS, ROBERTA B; GRISSO, JEANE ANN; HIRSCHINGER, NANCY; MARKOVIC, NINA et al. *New England Journal of Medicine,* 1999(Feb), Vol 340(5) 333-339

NICHOLSON, N. BROWN C.A. and CHADWICK-JONES, T.K. (1976). Absence from work and job satisfaction. *Journal of Applied Psychology,* 61, 728-737.

NICHOLSON, N.; BROWN, C. A. AND CHADWICK-JONES, T.K. Absence from work and job satisfaction. *Journal of Applied Psychology,* 1976, 61, 728-737.

NIE, N.H. HULL, C.H., JENKINS, J.G., STEINBRENNER, K., & BENT, D.H. *Statistical Package for the Social Sciences* (SPSS). New York: McGraw-Hill Book Company, 1975.

NILSON. (1981) *Health and well being of the workers at work.* Wiley and sons. N.Y.

O' TOLLE, J. (1976) *Work and the quality of life:* Resource papers for war in America. Cambridge, MA: MIT press.

ORGAN, D.W. Effects of pressure and individual neuroticism on emotional responses to task rate ambiguity. *Journal of Applied Psychology.* 1975, 60, 397-400.

PANEL. ON CHEMICALS & Health: President's Science Advisory Committee 1973. *Chemicals & Health.* Science & Technology Policy Office, National Science Foundation, Washington, D.C.

POMONIS, B. AND BAUMGRATEL, H. The quality of work life movement. *Human Futures,* 1980, 3(3), 246-253.

PORTER, L.W. AND STEERS, R.M. Organization, work and personal factors in employee turn over and absenteeism. *Psychological Bulletin,* 1973, 80, 151-175.

PORTER, L.W., & STEERS, R.M. (1973). Organization, work & personal factors in employee turnover & absenteeism. *Psychological Bulletin,* 80, 151-176.

PRESCOTT, EVA; OSLER, MERETE; HEIN, HANS OLE; BORCH JOHNSEN, KNUT et al. *Journal of Epidemiology & Community Health,* 1998 (Feb), Vol 52(2), 131-132.

QUADERI, J.U., 1982. *Industrial effluents survey.* An unpublished report on industrial pollution and polluting industries in Bangladesh. Department of Environmental Pollution Control, Dhaka, Bangladesh.

QUINN,R.P. STAINES,G.L., & McCULLOUGHT, MR. Job satisfaction: Is there trend? Washington, D.C.: US Department of Labour, *Manpower Research Monograph,* No.30, 1974.

RAHE & ARTHER (1978). *Occupation and Health* (2nd Eds.) New York.

RAHMAN, A. Quality of Working Life (Q W L) as perceived by Industrial shift workers. Unpublished Ph.D. dissertation, Osmania University, Hyderabad, 1984.

REDMOND, C.K., et al. 1972. Long term mortality study of steelworkers. VI. Mortality from malignant neoplasms among coke oven workers. *Journal of. Occupation Method.* 14:621.

REY. P., 1960. *L. absenteisme dans huit fabriques d'horlogerie, chefs.*4.15-25

REY. P., BAHY.M. et RAMACIOTTI, D., 1977. Symptoms respirators chroniques dans une population exposee professionnellement a different forms de pollution d i'air. *Medicine et Hygiene.* 1228. 522-525.

RILEY WILLIAM T.; KAUGARS, GEORGE E.; GRISIUS, TOM MR.; PAGE, DENNIS G. et al. *Addictive behaviors.* 1996(Jan-Feb), Vol 21(1), 135-138.

ROETHLISBERGER, F.G. AND DICKSON, W.J. *Management and the worker.* Cambridge: Harvard University Press,1939.

ROTTON,J., YOSIKAMA,J. & KAPLAN,F(1979) .*Perceived control, Malodorous pollution, and behavioral after, effects.* Paper presented at the meeting of the southeastern Psy. Ass. New Orleans, March, 1979.

ROTTON,J.,FREY,J.BERRY, T., MILLIGAN,M. & FITZPATRICK, M. (1979). The air pollution experience and human aggression. *Journal of Applied Social Psychology.* 9, 597-412.

SAYEED, 0.B. AND SINHA, P. Quality of working life (Q W L) in relation to job satisfaction and performance in two organizations. *Managerial Psychology,* 1981, 2(1), 15-30.

SCHILLING R.S.F. (1981) *Occupational Health Practice* Butter worth & co (publishers) Ltd, Second edition, 27-37.

SCHILLING, R.S.F. (1963) ' Developments in occupational health during the last thirty years.' *Journal of the Royal Society of Arts,* 111.

SCHUVAL, H.I.& GRNENER, H. (1977). *Health affects of nitrates in Water* (Report No. 600/1-77-030). Washington, D.C. Environmental Protection Agency.

SEASHORE, S. E. Defining and measuring the quality of work. In L.E. Davis and A. Cherns (Eds.) *The quality of working life* (Vol. I). New York: The Free Press, 1975, 105-117.

SELIKOFF, I.L.1972.Occupational lung diseases. In *Environmental Factors in Respiratory Disease*. Academic Press, Inc. New York.

SGUOKET, P. (1979). A study of quality of life and work in a professional group. In R.G.Sell' P.Shipley (Eds.), satisfactions in *Work Design: Ergonomics and other approaches.* London: Taylor & Francis.

SIGERIST.H.E. 1941. *Medicine and Human Welfare,* (Newhaven).

SINGER,R., & RUTENFRANZ,J.(1972). Job satisfaction & job related health disturbances among air traffic controllers. *Internationals Archin Fur Arbeitsmedizin,* 30,135-160.

SINGH, A.D. Quality of working life: a professional approach. *Industrial Relations,* 1979, 31(4), 19-26.

SINGH, J.P. Improving quality of working life in the Indian context, *Productivity,* 1982, 12, 4, 13-20.

SINGH, P. AND MAGGU, A. Quality of work life in Indian Organizations. *Management and Labor Studies,* 1980, 6(1), 1- 9.

SINGH, P. Motivational Profile and quality of corporate work life - a case of mismatch. Paper presented at the National Symposium on *quality of working life,* Hyderabad (India). July 25 and 26. 1983. (Symposium Papers, Vol. 4).

SINHA, J.B.P. Quality of work life in the Indian setting. *Journal of Social and Economic Studies,* 1977, 5(2), 235 - 247.

SINHA, P. AND SAYEED, 0.B. Measuring quality of working life: development of an inventory. *The Indian Journal of Social Work,* 1980, 41(3), 219-226.

SINHA, P. Quality of working life. *Indian Journal of Industrials Relations,* 1982, 17(3), 373-394.

Spink, P. Some comments on the quality of working life. *Journal of Occupational Psychology* 1975, 48, 179-184.

STEERS, R.M. AND PORTER, L.W. *Motivation and Work Behavior* (3rd Edition). New York: McGraw-Hill Book Company, 1983.

TAKEZAWA, S. et al *Improvements in the quality of working life in three Japanese industries.* Geneva: International Labour Office, 1982.

TAYLOR, J .*C. Concepts and problems in studies of the quality of working life.* Wol Programme Graduate School of Management, University of California, Los Angeles, 1973.

TAYLOR, J .C. Job satisfaction and quality of working life: A reassessment. *Journal of Occupational Psychology,* 1977, 50, 243-252.

TAYLOR, J.C.; LANDY, J. AND LEVINE, M. *The Quality of Working Life: An Annotated Bibliography.* Centre for Organizational Studies, Graduate School of Management, University of California, Los Angeles, 1972.

THOMPSON, SCOTT. *Journal of American Medical Association,* 1999 (Nov) Vol 282(18) 1722-1723

TRIBEDI, R .K.; SRIVASTAVA, A.K. AND KUMAR, P. Interrelationship between job anxiety and absenteeism. *Indian Psychological Review,* 1981, 20(3), 13-18.

TRIVEDI P.R & RAJ GURDEEP *Encyclopedia of Environmental Sciences,* 1992,Vol-1.

U.S. Deptt. of Health, Education, & Welfare. 1964. *Smoking & Health* (Report of the Advisory Committee to the Surgeon General of the PHS; PHS Publ. 1103). Govt. Printing Office, Washington, D.C.

U.S. Public Health Service. 1972.*Current Estimates from the Health Interview survey,* United States-1970 (Ser.10.No.72, DHEW Publ. HSM-72-1054).Govt. Printing Office, Washington, D.C.

U.S.Dept. of Health, Education, & Welfare.1967. *Occupational Characteristics of Disabled workers, by Disabling Condition* (Public Health Service Publ. (1531). Government Printing Office, Washington, D.C.

USSR; Ministry of Health (1967) *The Systems of Public Health Services in the USSR.*

VALBO, ANNELILL & EIDE, TERJE. (1996) *Addictive Behaviors,* (Jan-Feb), Vol 21(1), 29-35.

VAN BEINUM, H. *Interim Report on International Summer School at Plevoord Holland,* August 1974. Sponsored by International Council for the Quality of Working Life. (P. 2).

VERHAEGEN, P. Work satisfaction in present day working life: ergonomics and work satisfaction. In R.G. Sell and P. Shipley (Eds.), *Satisfaction in Work Design: Ergonomics and other approaches.* London: Taylor and Francis, 1979.

VROOM, V.H. *Work and motivation.* New York: Wiley, 1964.

VROOM,V.H. (1964). *Work and motivation.* New York, Wiley.

WAEINTRAUB, J (1974). The relationship between job satisfaction & perceived States of health, a multivariate investigation. (Doctoral dissertation, Bowling Green State University, 1973), *Dissertation Abstracts International* 34, 41118.

WALDBOTT,G.L. (1962). Fluoride in clinical medicine. *Archives of Allergy & Applied Immunology,* 20. (Suppliment-1).

WALKER, K.F. Workers attitude - a key to the quality of working life. In L.E. Davis and A. Cherns (Eds.) *The quality of working life* (Vol. I). New York: The Free Press, 1975, 1-2.

WALSON H. A. *Occupational Health practice,* Third edition, Butter Worths & co (Publishers Ltd) 1989

WALTON, R.E. Quality of working life: What is it ? *Sloan Management Review,* 1973, 15(1), 11-21.

WARR, P. AND WALL, T. *Work and well-being.* London: Penguin, 1975.

WARR, P., COOK, J., & WALL. T. (1979). Scales for the measurement of some work attitudes & aspects of psychological well being. *Journal of Occupational psychology,* 52(2), I29.I48.

WARR, P.B. & WALL, T.D. (1975). *Work & well-being.* Harmonds worth, Middx: Penguine.

WHO (1970). *Fluorides & Human health.* WHO Monograph series, 59.

WHO (1973) *Technical Report Series.,* Geneva.

WHO (1975) *Technical Report Series,* No. 574. Geneva.

WHO (1977) *Technical Report Series,* No. 601. Geneva.

WHO (1979) *Report on Study of Periodic Health Examinations of Workers exposed to Industrial Hazards,* ed. R. Murray. Copenhagen: WHO.

WHO (1980) Health Aspects of Well-being in working places; *Euro Reports and Studies* 31. Copenhagen: WHO.

WHO, *Air Quality guidelines for Europe,* Regional publications, European Series No.23 Copenhagen.

WILSON, DAVID; PARSONS, JACQUELINE & WAKEFIELD, Melanie Preventive medicine; *An International Journal Devoted to practice & Theory,* 1999 (sep) Vol 29(3), 139-144

WILSON, N.A.B. *On the quality of working life.* Man Power Paper No. 7. London: H M S O.

WONGPHANICH, M. et al Conditions of working life of women textile workers in Thailand on day and shift work systems. *Journal of Human Ergology,* 1982, Vol. II, suppl., 165-175.

WORK IN AMERICA. *Report of a special task force* to the Secretary of Health, Education & Welfare, Cambridge, MA:The MIT press, 1973.

YANKELOVICH, D. (1979). Work, values and the new breed. Inc. C.Kerr & J.M. Rosow (Eds.), *Work in America:* The decade ahead. New York: Van Nor strand Reinhold.

YOGENDRA N. SRIVASTAVA (1995) *Environmental pollution* New Delhi

ZALEZNIK, A., CHIRISTENSEN, C.R., (1958), and. ROETHLISBERGER, F.J. *The motivation, productivity, and satisfaction of workers: a prediction study*. Boston: Harvard University Graduate School of Business of Administration.

ZILLERMAN, P.W. (1949) *"Impurities in the Air and their Influence on plant life",* Proc. Natl. Air Pollution Symposium, 1st Symposium, Pasadena, California.

Appendix-A

(Sinha and Sayeed's inventory for measuring Q W L)

This questionnaire is intended to obtain some information from the technical and non-technical employees working in industries. The aim is to know and study the workers' views and opinions.

To make the task successful, it is essential that you answer each and every question and statement truly, without any hesitation. This is not a test of your abilities or knowledge, nor do these questions have any right or wrong answers. They are just meant to know your PERSONAL views and opinions , thoughts and ideas.

Confidentiality : Your answers in this questionnaire would be kept strictly confidential. Wlhen you have answered these questions, I would personally collect it from you. It would not be shown to any other individual or authority in your company or elsewhere. They are to be used STRICTLY FOR RESEARCH PURPOSES.

Your cooperation is solicited.

THANK YOU.

General Instructions :

1. Answer the questions serially, i.e., as they appear in the format.

2. If some statements or questions appear to be similar, even then you answer each of them separately.

3. It is expected that while answering, you do not consult anyone else. We want to know your opinions, views and feeling, not theirs.

4. Do not take too much time over any particular question. Whatever answer comes first to your mind, give that.

5. Please be as honest as possible and do not hesitate. feel free to give your frank answers. they would be strictly confidential.

6. It is necessary that you answer all questions and statements. Please do not leave any question or statement unanswered.

Name ..... Designation .....

Name of Supervisor or immediate boss .....

Age..... Educational Qualification.....

Total Income (Salary) .....

Length of Service in this company .....

Given ahead are some statements and questions about certain characteristics related to your work and working conditions. Please assign weightages to these in terms of how much these are present in your employment. On the right side of each item/question/ statement/ quotation you would find a scale which would describe your views and feelings in terms of numerical values. The scale is from 1 to 7. ALL YOU HAVE TO DO IS TO RATE ON SEVEN POINT SCALE ON A CONTINUUM FROM MINIMUM (1) TO MAXIMUM (7). THE NUMBER 4) STANDS FOR AVERAGE.

Example :

(A) Poor performance decreases 1 2 3 4 ⑤ 6 7
chances of recognition.

B) To what extent does company 1 2 ③ 4 5 6 7
environment suit you ?

If you feel that in case of (A) you agree to the extent of 5, encircle it as shown in the scale. Again, if you feel that in case of (B) it suits you only to extent of 3, encircle it.

Thus in case of all items in this section, your agreement or disagreement, satisfaction or dissatisfaction, and your feelings—positive or negative have to be answered from a minimum (1) to maximum (7). So give your judgements to each and every item as specified above. Remember again, we want your views opinions and feelings, not others, so please do not consult anyone.

So go ahead, read carefully the items/quotations/questions/ statements and give your frank answers.

		Min.						Max.
1	"My work gives me a feeling of achievement".	1	2	3	4	5	6	7
2	"In decisions regarding selection of pelple for jobs, my views are also heard.	1	2	3	4	5	6	7
3	How satisfactory are your family relations ?	1	2	3	4	5	6	7
4	To what extent are the working conditions, such as plant maintenance, sufficient ?	1	2	3	4	5	6	7
5	"Sudden leave or break in work makes me feel relieved and happy".	1	2	3	4	5	6	7
6	"I am satisfied with the fairness of promotion procedure in my company".	1	2	3	4	5	6	7
7	To what extent are you satisfied with the working of the union in your company ?	1	2	3	4	5	6	7
8	How much does your supervisor encourage people to give their best effort ?	1	2	3	4	5	6	7
9	How much do persons in your work group encourage each other to work as a team?	1	2	3	4	5	6	7
10	"I have opportunities to use my special skills and abilities in my job".	1	2	3	4	5	6	7
11	In case of emergencies and difficulties how much influence do you exercise in getting a way out ?	1	2	3	4	5	6	7
12	"I think of myself as part of the company team".	1	2	3	4	5	6	7
13	How much are you satisfied with respect to you and your family's foodings ?	1	2	3	4	5	6	7
14	To what extent are work activities sensibly organized in this company ?	1	2	3	4	5	6	7
15	To what extent do the "savings plan" facilities present in your employment satisfy you?	1	2	3	4	5	6	7
16	"The management does not fail to appreciate the importance of my work".	1	2	3	4	5	6	7
17	"The management takes due care of my dignity as an individual".	1	2	3	4	5	6	7
18	"My supervisor gets along well with people".	1	2	3	4	5	6	7
19	To what extent do you think your supervisor has confidence and trust in you ?	1	2	3	4	5	6	7

20	To what extent does the company have a real interest in the welfare and happiness of those who work here ?	1	2	3	4	5	6	7
21	"My company offers me education and training to keep me in touch with my field and do better".	1	2	3	4	5	6	7
22	"I give of my best efforts as part of contributions to the company products".	1	2	3	4	5	6	7
23	To what extent do things about working here (people, policies, or conditions encourage you to work hard ?	1	2	3	4	5	6	7
24	How much are you satisfied with the "retirement plans" of your company ?	1	2	3	4	5	6	7
25	"The management appreciates my skills, abilities, and performances".	1	2	3	4	5	6	7
26	"My social relations are satisfactory"	1	2	3	4	5	6	7
27	"My job has given me a feeling of status in society".	1	2	3	4	5	6	7
28	To what extent does your supervisor show you how to improve your performances ?	1	2	3	4	5	6	7
29	"My fellow workers are very cooperative".	1	2	3	4	5	6	7
30	"My company gives me an opportunity to feel part of the management".	1	2	3	4	5	6	7
31	In general, how much say or influence do you have on how to perform your job?	1	2	3	4	5	6	7
32	How much influence do you hold in setting differences and quarrels in your company?	1	2	3	4	5	6	7
33	How much are you satisfied with clothes, dresses and other such wears?	1	2	3	4	5	6	7
34	How far are you satisfied with your land and property position ?	1	2	3	4	5	6	7
35	Does your company's "overtime" payments satisfy you ?	1	2	3	4	5	6	7
36	"I devote myself to the job".	1	2	3	4	5	6	7
37	My company offers enough opportunities to change job within the company.	1	2	3	4	5	6	7
38	To what extent does the management recornizes and pays attention to your unions' actions?	1	2	3	4	5	6	7
39	"My job has enough prestige within the company".	1	2	3	4	5	6	7
40	To what extent does your supervisor provide the help you need so that you can schedule work ahead of time ?	1	2	3	4	5	6	7

41	To what extent do persons in your work group show you how to do a better job?	1	2	3	4	5	6	7
42	To what extent does the company make an effort to help employees get and maintain good income ?	1	2	3	4	5	6	7
43	In general, how much say or influence do you have on what goes on in your work group?	1	2	3	4	5	6	7
44	To what extent do you have a say in termination of jobs of people in your work place ?	1	2	3	4	5	6	7
45	How much are you satisfied with your place of residence/housing facilities?	1	2	3	4	5	6	7
46	To what extent are you satisfied with educational facilities available for your family?	1	2	3	4	5	6	7
47	To what extent are you told what you need to know to do your job in the best possible way?	1	2	3	4	5	6	7
48	To what extent do you feel a real responsibility to achieve the success of the company?	1	2	3	4	5	6	7
49	To what extent do you have control in deciding to change the method of your work?	1	2	3	4	5	6	7
50	"I Make use of the company sponsored training for my job".	1	2	3	4	5	6	7
51	When you talk with persons in your work group, to what extent do they pay attention to what you are saying?	1	2	3	4	5	6	7
52	"My supervisor always makes his expectations clear".	1	2	3	4	5	6	7
53	My colleagues treat me with due respect	1	2	3	4	5	6	7
54	"My contacts with fellow workers outside work is good".	1	2	3	4	5	6	7
55	"The management is fair enough in giving rewards of merit to individuals".	1	2	3	4	5	6	7
56	"There is very little in my job to keep me interested".	1	2	3	4	5	6	7
57	"Thinking of going to the job makes me feel sick".	1	2	3	4	5	6	7
58	"I am sufficiently paid for the work I do".	1	2	3	4	5	6	7

59	To what extent is the "sick leave policy" or "medical leave" facilities sufficient in your employment ?	1	2	3	4	5	6	7
60	"I feel incompetent for the job I am doing".	1	2	3	4	5	6	7
61	"My company takes care of my future career plans".	1	2	3	4	5	6	7
62	"My supervisor is good at planning and scheduling of work".	1	2	3	4	5	6	7
63	To what extent does your supervisor offer new ideas for solving job related problems ?	1	2	3	4	5	6	7
64	To what extent do persons in your work group provide the help you need so that you can plan, organize and schedule work ahead of time ?	1	2	3	4	5	6	7
65	"My supervisor accepts my ideas and suggestions".	1	2	3	4	5	6	7
66	To what extent do you influence decisions regarding promotions ?	1	2	3	4	5	6	7
67	How satisfactory is your financial condition ? (Money)	1	2	3	4	5	6	7
68	To what extent does this organization have a real interest in the welfare and happiness of those who work here?	1	2	3	4	5	6	7
69	How adequate for your needs is the amount of information you get about what is going on in other departments and shifts ?	1	2	3	4	5	6	7
70	To what extent do you influence decisions regarding pay, bonus etc.?	1	2	3	4	5	6	7
71	"Doing my job well, I get a feeling of satisfaction".	1	2	3	4	5	6	7
72	How friendly and easy to approach are persons in your work group ?	1	2	3	4	5	6	7
73	"My supervisor has enough knowledge about the work and job".	1	2	3	4	5	6	7
74	"I get recognition for the good work I do here".	1	2	3	4	5	6	7
75	To what extent does the company's medical aid facilities satisfy you ?	1	2	3	4	5	6	7
76	To what extent do you enjoy performing the actual day to day activities that make up your job?	1	2	3	4	5	6	7

77	"Promotion from within the company is adequately handled by the management".	1	2	3	4	5	6	7
78	To what extent does your supervisor encourage persons who work for him to work as a team ?	1	2	3	4	5	6	7
79	To what extent do persons in your work group offer each other new ideas for solving job related problems?	1	2	3	4	5	6	7
80	"I have a say in deciding how to schedule my work".	1	2	3	4	5	6	7
81	How much this organization tries to improve working conditions?	1	2	3	4	5	6	7
82	To what extent does this organization have clear-cut reasonable goals and objectives?	1	2	3	4	5	6	7
83	To what extent do persons in your work group exchange opinions and ideas?	1	2	3	4	5	6	7
84	To what extent does your supervisor encourage people who work for him to exchange opinions and ideas?	1	2	3	4	5	6	7
85	How much do persons in your work group emphasize a team goal?	1	2	3	4	5	6	7

Appendix-B

প্রশ্নমালা

সাংকেতিক নং ----------

জনাব,

এই গবেষণাটি সম্পূর্ণভাবে গবেষকের শিক্ষাগত প্রয়োজনে, আপনার কর্মজীবনের গুণগত দিক সম্পর্কে ধারণা, মতামত, চিন্তা ইত্যাদি জানার উদ্দেশ্যে সংশ্লিষ্ট প্রশ্নমালাটি প্রণয়ন করা হয়েছে। প্রতিটি প্রশ্ন বা উক্তির পরিপ্রেক্ষিতে আপনার বস্তুনিষ্ঠ এবং দ্বিধাহীন উত্তর/মতামত আমাদের অনুধ্যানটিকে সার্থকতা দান করবে।

উল্লেখ্য যে, আপনার প্রদত্ত উত্তর সম্পূর্ণরূপে গোপন রাখা হবে এবং আপনার বক্তব্য বা ধারণা আপনার প্রতিষ্ঠানের অন্য কাউকে জানানো হবে না। শুধুমাত্র গবেষণার কাজেই আপনার মতামত ব্যবহার করা হবে। মনে রাখবেন যে, আমরা কেবল আপনার ব্যক্তিগত মতামত, ধারণা বা চিন্তা জানতে চাচ্ছি। সুতরাং প্রশ্নমালার উত্তরদানকালে অন্য কারো সংগে আলাপ করবেন না। দয়া করে সকল প্রশ্নের উত্তর দেবেন, কোন প্রশ্ন বাদ দেবেন না। উত্তরদানকালে প্রশ্নের ক্রম বজায় রাখা বাঞ্ছনীয়।

আপনার সহযোগিতার জন্য অনেক ধন্যবাদ।

বিনীত গবেষক

আপনি যে বিভাগ বা সেকশনে কাজ করেন ----------
আপনার পদবী ----------
আপনার সরাসরি উর্ধ্বতন কর্মকর্তার পদবী ----------
আপনার বয়স ---------- শিক্ষাগত যোগ্যতা ----------
মাসিক মোট আয় ---------- বৈবাহিক অবস্থা ----------
বর্তমান চাকুরীতে অভিজ্ঞতা -- ----------বছর----------মাস লিংগ ----------

নির্দেশনাঃ

আপনার কর্ম এবং কর্মের বিভিন্ন শর্তাবলী সম্পর্কে কিছু প্রশ্ন নিম্নে প্রদত্ত হল। প্রশ্ন বা উক্তির বক্তব্য আপনার বর্তমান চাকুরীতে কি পরিমাণে উপস্থিতি তার ভিত্তিতে সাংখ্যমান আরোপ করুন। প্রতিটি পদ/প্রশ্ন/উক্তির ডান পাশে ১ থেকে ৫ সংখ্যার একটি মাপকাঠি দেওয়া আছে। এ মাপকাঠির যে কোন একটি সংখ্যা বৃও/গোল চিহ্নিত করার মাধ্যমে প্রতিটি প্রশ্নের পরিপ্রেক্ষিতে আপনার ধারণা বা অনভূতি ব্যক্ত করুন। উদাহরণ স্বরূপঃ

		সর্বনিম্ন				সর্বোচ্চ
ক)	কার্য সম্পাদনের নিম্নমান স্বীকৃতিলাভের সম্ভাবনা হ্রাস করে	১	২	৩	৪	৫
খ)	প্রতিষ্ঠানের কর্ম পরিবেশ কি পরিমণে আপনার উপযোগী?	১	২	৩	৪	৫

আপনি যদি মনে করেন যে, 'ক' এর বেলায় আপনি ৪র্থ বিন্দু পর্যন্ত একমত, তা'হলে ৪-এর চতুপার্শ্বে উদাহরণের অনুরূপ বৃত্ত আঁকুন। আবার 'খ' এর বেলায় আপনি যদি মনে করেন যে, কর্ম পরিবেশ ৩ মাত্রা পর্যন্ত আপনার উপযোগী, তা'হলে ঐ সংখ্যাটির চারপার্শ্বে বৃত্ত আঁকুন।

তা'হলে প্রশ্নমালার প্রতিটি পদ/প্রশ্ন/উক্তির পরিপ্রেক্ষিতে আপনার মতামত/সন্তুষ্টি-অসন্তুষ্টি/ ইতিবাচক ও নেতিবাচক অনুভূতি সর্বনিম্ন (১) থেকে সর্বোচ্চ (৫) মাত্রায় প্রকাশ করতে হবে।

আশা করি বুঝতে পেরেছেন? এখন, প্রতিটি পদ/প্রশ্ন/উক্তি মনোযোগ সহকারে পড়ুন এবং আপনার অকপট উত্তর দিন।

কর্মজীবনের গুণগত দিক

ক্রমিক নং	বিষয়/বিবৃতি	সর্বনিম্ন				সর্বোচ্চ
১।	"আমার কাজ আমাকে কৃতি ও সাফল্যের অনুভূতি দেয়।"	১	২	৩	৪	৫
২।	"চাকুরীতে লোক নিয়োগের সিদ্ধান্তের ব্যাপারে আমার বক্তব্যও শোনা হয়।"	১	২	৩	৪	৫
৩।	আপনার পারিবারিক সম্পর্ক কতটা সন্তোষজনক?	১	২	৩	৪	৫
৪।	আপনার কার্য পরিস্থিতি, যেমন কারখানার রক্ষণাবেক্ষন কতটা যথেষ্ট?	১	২	৩	৪	৫
৫।	"আকস্মিক ছুটি বা কর্ম বিরতিতে আমি দায়মুক্ত এবং আনন্দ অনুভব করি।"	১	২	৩	৪	৫
৬।	"আমার প্রতিষ্ঠানের পদোন্নতি পদ্ধতির ন্যায্যতায় আমি সন্তুষ্ট।"	১	২	৩	৪	৫
৭।	আপনার প্রতিষ্ঠানে ইউনিয়নের কাজকর্মে আপনি কতটা সন্তুষ্ট?	১	২	৩	৪	৫
৮।	আপনার পরিদর্শক/সরাসরি উপরস্থ কর্মকর্তা সর্বাদিক প্রচেষ্টা প্রয়োগে লোকদেরকে কতটা উৎসাহিত করেন?	১	২	৩	৪	৫
৯।	দলবদ্ধভাবে কাজ করতে আপনার সহকর্মীরা একে অন্যকে কতখানি উৎসাহিত করে?	১	২	৩	৪	৫
১০।	"আমার চাকুরীতে আমার বিশেষ দক্ষতা এবং যোগ্যতা প্রয়োগের সুযোগ পাই।"	১	২	৩	৪	৫
১১।	জরুরী অবস্থা বা জটিল পরিস্থিতি মোকাবেলায় আপনি কতখানি প্রভাব খাটান?	১	২	৩	৪	৫
১২।	"আমি নিজেকে প্রাতিষ্ঠানিক টীমের অংশ মনে করি।"	১	২	৩	৪	৫
১৩।	আপনার নিজের এবং পরিবারের খাওয়া দাওয়ায় আপনি কতটা সন্তুষ্ট?	১	২	৩	৪	৫

ক্রমিক নং	বিষয়/বিবৃতি	সর্বনিম্ন				সর্বোচ্চ
১৪।	এই প্রতিষ্ঠানের কাজ কর্ম কতটা যুক্তিসম্মত ভাবে সংগঠিত?	১	২	৩	৪	৫
১৫।	আপনার চাকুরীতে বিদ্যমান "সঞ্চয় পরিকল্পনা"-র সুবিধাদি আপনার কাছে কতখানি সন্তোষজনক?	১	২	৩	৪	৫
১৬।	"আমার কাজের গুরুত্ব অনুধাবনে ব্যবস্থাপনা কর্তৃপক্ষ ভূল করে না।"	১	২	৩	৪	৫
১৭।	"ব্যক্তি হিসাবে আমার মর্যাদার প্রতি ব্যবস্থাপনা কর্তৃপক্ষ যত্নশীল।"	১	২	৩	৪	৫
১৮।	"আমার পরিদর্শক/সরাসরি উর্ধ্বতন কর্মকর্তা মানুষের সংগে ভাল ব্যবহার করেন।"	১	২	৩	৪	৫
১৯।	আপনার প্রতি আপনার পরিদর্শক বা সরাসরি উর্ধ্বতন কর্মকর্তার আস্থা এবং বিশ্বাস আছে বলে আপনি কতটা মনে করেন?	১	২	৩	৪	৫
২০।	যারা এখানে কাজ করে, তাদের কল্যাণ এবং সুখের ব্যাপারে প্রতিষ্ঠানের কি পরিমান সত্যিকার আগ্রহ আছে?	১	২	৩	৪	৫
২১।	"কার্য পরিসরের সংগে সম্পর্ক রাখা এবং আরো ভাল কাজ করার জন্য আমার প্রতিষ্ঠান আমাকে শিক্ষা এবং প্রশিক্ষণ দিয়ে থাকেন।"	১	২	৩	৪	৫
২২।	"প্রতিষ্ঠানের উৎপাদনে আমার অবদানের অংশ হিসাবে আমি সর্বাধিক প্রচেষ্টা নিয়োজিত করে থাকি।"	১	২	৩	৪	৫
২৩।	এখানকার কাজের বিভিন্ন দিক (যেমন লোকজন, নিয়মনীতি, কাজের শর্তাবলী) কঠোর পরিশ্রম করতে আপনাকে কতখানি অনুপ্রাণিত করে?	১	২	৩	৪	৫
২৪।	আপনার প্রতিষ্ঠানের "অবসর পরিকল্পনা"-র ব্যাপারে আপনি কতটা সন্তুষ্ট?	১	২	৩	৪	৫
২৫।	"আমার দক্ষতা, যোগ্যতা এবং কার্য সম্পাদনকে ব্যবস্থাপনা কর্তৃপক্ষ প্রশংসা করে থাকে।"	১	২	৩	৪	৫
২৬।	"আমর সামাজিক সম্পর্ক সন্তোষজনক।"	১	২	৩	৪	৫
২৭।	"আমার চাকুরী আমাকে সমাজে মর্যাদা এনে দিয়েছে।"	১	২	৩	৪	৫
২৮।	আপনার কার্য কম্পাদনের মান কিভাবে উন্নত করতে হবে তা আপনার পরিদর্শক/উপরস্থ কর্মকর্তা কতখানি দেখিয়ে দিয়ে থাকেন?	১	২	৩	৪	৫
২৯।	"আমার সহকর্মীরা খুবই সহযোগিতামূলক।"	১	২	৩	৪	৫
৩০।	"ব্যবস্থাপনার একটি অংশ হিসাবে চিন্তা করতে আমার প্রতিষ্ঠান আমাকে সুযোগ দেয়।"	১	২	৩	৪	৫
৩১।	সাধারণভাবে, আপনার কাজ কিভাবে সম্পাদন করতে হবে সে ব্যাপারে আপনার কি পরিমাণ প্রভাব/বক্তব্য থাকে?	১	২	৩	৪	৫

ক্রমিক নং	বিষয়/বিবৃতি	সর্বনিম্ন				সর্বোচ্চ
৩২।	আপনার প্রতিষ্ঠানে মত পার্থক্য বা বিরোধ নিষ্পত্তিতে আপনার কতখানি প্রভাব থাকে?	১	২	৩	৪	৫
৩৩।	আপনার কাপড়-চোপড়, পোষাক এবং অন্যান্য পরিধেয় দ্রব্যাদির ব্যাপারে আপনি কতখানি সন্তুষ্ট?	১	২	৩	৪	৫
৩৪।	আপনার জমি-জমা বা সহায় সম্পদে আপনি কতটুকু সন্তুষ্ট?	১	২	৩	৪	৫
৩৫।	"অতিরিক্ত সময়ের জন্য আপনার প্রতিষ্ঠান যে পারিশ্রমিক দেয় তাতে কি আপনি সন্তুষ্ট?"	১	২	৩	৪	৫
৩৬।	"আমি আমার কাজে সম্পূর্ণপূরে মনোনিবেশ করে থাকি।"	১	২	৩	৪	৫
৩৭।	"আমার প্রতিষ্ঠানের অভ্যন্তরে কর্ম পরিবর্তনের যথেষ্ট সুযোগ আছে।"	১	২	৩	৪	৫
৩৮।	আপনাদের ইউনিয়নের কার্যকলাপে ব্যবস্থাপনা কর্তৃপক্ষ কতখানি স্বীকার করে এবং তাতে কি পরিমান মনোযোগ দেয়?	১	২	৩	৪	৫
৩৯।	"প্রতিষ্ঠানের অভ্যন্তরে আমার কাজ যথেষ্ট সম্মানজনক।"	১	২	৩	৪	৫
৪০।	আপনি যাতে সময় থাকতেই কাজের ফর্দ তৈরী করতে পারেন সে ব্যাপারে আপনার পরির্দশক বা সরাসরি উর্ধ্বতন কর্মকর্তা প্রয়োজনীয় সাহায্য কতটুকু করে থাকেন?	১	২	৩	৪	৫
৪১।	কিভাবে আরো ভালোভাবে কাজ করা যায় তা আপনার সহকর্মীরা কতটুকু দেখিয়ে দিয়ে থাকেন?	১	২	৩	৪	৫
৪২।	কর্মচারীরা যাতে ভাল রোজগার (আয়) করতে পারে সে ব্যাপারে সাহায্য করার জন্য প্রতিষ্ঠান কতখানি প্রচেষ্টা নেয়?	১	২	৩	৪	৫
৪৩।	আপনার কর্মদলে যা ঘটে (কাজ/যে কোন পরিস্থিতি) তাতে সাধারনভাবে আপনার কি পরিমান প্রভাব/বক্তব্য থাকে?	১	২	৩	৪	৫
৪৪।	আপনার কর্মদলের কারো চাকুরীচ্যুতির ব্যাপারে আপনার কি পরিমান বক্তব্য থাকে?	১	২	৩	৪	৫
৪৫।	আপনার আবাসস্থল/বাসস্থান সুযোগ সুবিধায় আপনি কতখানি সন্তুষ্ট?	১	২	৩	৪	৫
৪৬।	আপনার পরিবারের জন্য প্রাপ্ত লেখাপড়ার সুযোগ সুবিধায় আপনি কতখানি সন্তুষ্ট?	১	২	৩	৪	৫
৪৭।	আপনার কাজটা সর্বোত্তমভাবে সম্পাদনের জন্য আপনার যা জানা প্রয়োজন তা আপনাকে কি পরিমাণ বলা হয়?	১	২	৩	৪	৫
৪৮।	প্রতিষ্ঠানের সাফল্য অর্জনের জন্য আপনি কতখানি সত্যিকার দায়িত্ব অনুভব করেন?	১	২	৩	৪	৫
৪৯।	আপনার কর্মপদ্ধতি পরিবর্তনের সিদ্ধান্তে আপনার কতখানি নিয়ন্ত্রণ আছে?	১	২	৩	৪	৫
৫০।	"আমার কাজের জন্য প্রতিষ্ঠান কর্তৃক প্রদত্ত প্রশিক্ষনের সদ্ব্যবহার করে থাকি।"	১	২	৩	৪	৫

ক্রমিক নং	বিষয়/বিবৃতি	সর্বনিম্ন				সর্বোচ্চ
৫১।	আপনার সহকর্মীদের সংগে আলাপকালে ওরা আপনার বক্তব্য কি পরিমান মনোযোগ সহকারে শুনে?	১	২	৩	৪	৫
৫২।	"আমার পরিদর্শক/সরাসরি উর্ধ্বতন কর্মকর্তা তার প্রত্যাশা সব সময়ই পরিস্কারভাবে ব্যক্ত করেন।"	১	২	৩	৪	৫
৫৩।	"আমার সহকর্মীরা আমাকে উপযুক্ত সম্মান দিয়ে থাকে।"	১	২	৩	৪	৫
৫৪।	"কাজের বাহিরে সহকর্মীদের সাথে আমার যোগাযোগ ভাল"	১	২	৩	৪	৫
৫৫।	লোকদেরকে যোগ্যতার পুরস্কার প্রদানে ব্যবস্থাপনা কর্তৃপক্ষ যথেষ্ট ন্যায়বান।	১	২	৩	৪	৫
৫৬।	"আমাকে গভীরভাবে সংশ্লিষ্ট করার মত কোন কিছু আমার কাজে অল্পই আছে।"	১	২	৩	৪	৫
৫৭।	"কাজে যাওয়ার কথা চিন্তা করলে আমি অসুস্থ বোধ করি।"	১	২	৩	৪	৫
৫৮।	"আমার কাজের জন্য আমি যথেষ্ট পারিশ্রমিক পাই।"	১	২	৩	৪	৫
৫৯।	"চিকিৎসার ছুটির সুবিধাদি আপনার চাকুরীতে কতখানি যথেষ্ট।"	১	২	৩	৪	৫
৬০।	"এই কাজের জন্য আমি নিজেকে অনুপযুক্ত মনে করি।'	১	২	৩	৪	৫
৬১।	"আমার প্রতিষ্ঠান আমার ভবিষ্যৎ উন্নতির ব্যাপারে যত্নবান।"	১	২	৩	৪	৫
৬২।	"আমার পরিদর্শক বা সরাসরি উর্ধ্বতন কর্মকর্তা কাজের পরিকল্পনা এবং কর্মসূচী প্রণয়নে ভাল।"	১	২	৩	৪	৫
৬৩।	কাজ সম্পর্কিত কোন সমস্যার সমাধানে আপনার পরিদর্শক/সরাসরি উর্ধ্বতন কর্মকর্তা কি পরিমাণ নতুন ধারণা দিয়ে থাকেন?	১	২	৩	৪	৫
৬৪।	আপনি যাতে সময় থাকতে কাজের পরিকল্পনা এবং কর্মসূচী তৈরী করতে পারেন সে ব্যাপারে আপনার কর্মদলের লোকেরা আপনাকে কতখানি সাহায্য করে থাকে?	১	২	৩	৪	৫
৬৫।	"আমার পরিদর্শক/ সরাসরি উর্ধ্বতন কর্মকর্তা আমার ধ্যান-ধারণা এবং পরামর্শ গ্রহণ করে থাকেন।"	১	২	৩	৪	৫
৬৬।	পদোন্নতি সংক্রান্ত সিদ্ধান্ত সমূহ আপনি কতখানি প্রভাবিত করেন?	১	২	৩	৪	৫
৬৭।	আপনার আর্থিক অবস্থা কতখানি সন্তোষজনক।	১	২	৩	৪	৫
৬৮।	যারা এখানে কাজ করে তাদের কল্যাণ এবং সুখের ব্যাপারে এই প্রতিষ্ঠানের কি পরিমাণ সত্যিকার আগ্রহ আছে?	১	২	৩	৪	৫
৬৯।	অন্যান্য বিভাগ/সেকশন/পালায় কি ঘটছে সে ব্যাপারে আপনি যে তথ্য পান তা আপনার প্রয়োজনের তুলনায় কতখানি পর্যাপ্ত?	১	২	৩	৪	৫

ক্রমিক নং	বিষয়/বিবৃতি	সর্বনিম্ন				সর্বোচ্চ
৭০।	বেতন, বোনাস ইত্যাদি সংক্রান্ত সিদ্ধান্ত সমূহ আপনি কতখানি প্রভাবিত করেন?	১	২	৩	৪	৫
৭১।	"আমার কাজ ভালভাবে সম্পাদন করে আমি সুখের অনুভূতি লাভ করি।"	১	২	৩	৪	৫
৭২।	আপনার কর্মদলের সহকর্মীরা কতখানি সহজ এবং বন্ধুত্বমূলক?	১	২	৩	৪	৫
৭৩।	"কাজ এবং পেশা সম্পর্কে আমার পরিদর্শক/সরাসরি উর্ধ্বতন কর্মকর্তার যথেষ্ট জ্ঞান আছে।"	১	২	৩	৪	৫
৭৪।	"ভাল কাজের জন্য আমি এখানে স্বীকৃতি পাই।"	১	২	৩	৪	৫
৭৫।	**প্রতিষ্ঠানের চিকিৎসা সাহায্য কর্মসূচীতে আপনি কি পরিমান সন্তুষ্ট?**	১	২	৩	৪	৫
৭৬।	আপনার চাকুরীর অন্তভূক্ত দৈনন্দিন কাজ কর্ম সম্পাদনে আপনি কি পরিমান আনন্দ পান?	১	২	৩	৪	৫
৭৭।	"প্রতিষ্ঠানের অভ্যন্তরস্থ পদোন্নতরি বিষয় ব্যবস্থাপনা কর্তৃক যথোপযুক্তভাবে নিয়ন্ত্রিত হয়ে থাকে।"	১	২	৩	৪	৫
৭৮।	আপনার পরিদর্শক/সরাসরি উর্ধ্বতন কর্মকর্তা দলবদ্ধভাবে কাজ করতে আপনাদেরকে কতখানি উৎসাহ দিয়ে থাকেন?	১	২	৩	৪	৫
৭৯।	কর্ম সম্পর্কিত সমস্যা সমাধানে আপনার কর্মদলের সদস্যরা একে অন্যকে নুতন ধারণা কি পরিমাণ দিয়ে থাকে?	১	২	৩	৪	৫
৮০।	"আমার কর্মানুসূচী নির্ধারণের জন্য সিদ্ধান্তে আমার বক্তব্য থাকে।"	১	২	৩	৪	৫
৮১।	কাজের শর্তাবলী/অবস্থা উন্নয়নে এই প্রতিষ্ঠান কতটুকু চেষ্টা করে?	১	২	৩	৪	৫
৮২।	এই প্রতিষ্ঠানের লক্ষ্য উদ্দেশ্য কি পরিমাণ সুস্পষ্ট এবং যুক্তিসংগত?	১	২	৩	৪	৫
৮৩।	আপনার কর্মদলের সদস্যদের মধ্যে কি মাত্রায় ধারণা এবং মতামত বিনিময় হয়ে থাকে?	১	২	৩	৪	৫
৮৪।	মতামত এবং ধারণা বিনিময়ে আপনার পরিদর্শক/সরাসরি উর্ধ্বতন কর্মকর্তা কি পরিমাণ উৎসাহ দিয়ে থাকেন?	১	২	৩	৪	৫
৮৫।	আপনার কর্মদলের সদস্যরা দলীয় লক্ষ্যকে কতখানি গুরুত্ব দিয়ে থাকে?	১	২	৩	৪	৫

Appendix-C

ব্যক্তি স্বাস্থ্য মূল্যায়ন প্রশ্নমালা

হ্যাঁ / না-এর চারপাশে বৃত্ত আকুন ।

১)	আপনি কি প্রায়ই কাশি দ্বারা আক্রান্ত হন?	হ্যাঁ	না
২)	আপনার বুকে অথবা হৃদপিন্ডে পুনঃপুন ব্যাথা অনুভব করেন কি?	হ্যাঁ	না
৩)	হৃদপিন্ড বা তার আশেপাশে আর্পান প্রায়ই ধুকধুকুনি অনুভব করেনকি?	হ্যাঁ	না
৪)	আপনার হাত, পা বা আংগুল-এ অনেক সময়ই অতিরিক্ত ঠান্ডা অনুভব করেন কি?	হ্যাঁ	না
৫)	আপনি কি খুব বেশী পিপাসা অনুভব করেন?	হ্যাঁ	না
৬)	আপনার ক্ষুধা স্বাভাবিকের চাইতে কম বলে আপনার মনে হয় কি?	হ্যাঁ	না
৭)	পাকস্থলীতে পরিপূর্ণতা এবং ক্ষতির ভাব আপনি প্রায়ই অনুভব করেন কি?	হ্যাঁ	না
৮)	তাড়াতাড়ি নিঃশ্বাস নিতে আপনার কষ্ট হয় কি?	হ্যাঁ	না
৯)	আপনি কি পাকস্থলীতে প্রায়ই ব্যাথা অনুভব করেন?	হ্যাঁ	না
১০)	আপনার মুখের ভিতর প্রায়ই বিরক্তি জনক অথবা মিষ্টি স্বাদ অনুভব হয় কি?	হ্যাঁ	না
১১)	আপনার কি প্রায়ই হজমের গোলমাল হয়?	হ্যাঁ	না
১২)	আপনি কি প্রায়ই চক্ষুদিয়ে জল পড়া বা চোখের খোঁচানো অনুভব করেন?	হ্যাঁ	না
১৩)	আপনি কি ভোঁ ভোঁ শব্দ অনুভব করছেন?	হ্যাঁ	না
১৪)	আপনি কি সম্প্রতি সুস্থবোধ করছেন?	হ্যাঁ	না
১৫)	আপনাকে কি প্রায়ই গলা (কণ্ঠ) পরিস্কার করতে হয়?	হ্যাঁ	না
১৬)	চোখে বা চোখের আশে-পাশে প্রায়ই আপনি ব্যাথা অনুভব করেন?	হ্যাঁ	না
১৭)	আপনার কি খুব ঘন ঘন হাঁচি হয়?	হ্যাঁ	না
১৮)	আপনার কি প্রায়ই নাক বন্ধ হয়ে আসে?	হ্যাঁ	না
১৯)	আপনি কি পুন ঃ পুনঃ ক্ষুধা অনুভব করেন?	হ্যাঁ	না
২০)	আপনি কি প্রায়ই মাঝে মধ্যেই বুকে আ-শটি বা টান টান অবস্থা অনুভব করেন?	হ্যাঁ	না
২১)	আপনি কি নিয়মিত ভাবেই নাকে খোঁচানো অনুভব করেন?	হ্যাঁ	না
২২)	আপনি কি সহজেই ঘুমিয়ে পড়েন এবং আপনার কি ভাল ঘুম হয়?	হ্যাঁ	না
২৩)	আপনি হাড় বা মাংশ পেশীতে ব্যাথা অনুভব করে থাকেন কি?	হ্যাঁ	না
২৪)	দুর্বল বা ব্যাথা যুক্ত পা আপনাকে কষ্ঠ দেয় কি?	হ্যাঁ	না
২৫)	আপনি আপনার দৈনন্দিন কাজের সাথে তাল সামলাতে পারেন কি?	হ্যাঁ	না
২৬)	আপনি কি প্রায়ই পিঠের ব্যাথায় আক্রান্ত হন?	হ্যাঁ	না
২৭)	আপনি কি ঘন ঘন ক্লান্তি অনুভব করেন?	হ্যাঁ	না
২৮)	আপনার মাথায় রক্তপ্রবাহ কি সহজেই বৃদ্ধি পেয়ে যায়?	হ্যাঁ	না
২৯)	ঠান্ডা আবহাওয়াতে কি আপনি অনেক সময় অধিক মাত্রায় ঘুমাতে থাকেন?	হ্যাঁ	না
৩০)	কঠিক পরিশ্রমের পর আপনি কি প্রায়ই ক্লান্ত হয়ে পড়েন?	হ্যাঁ	না

হ্যাঁ / না-এর চারপাশে বৃত্ত আকুন

৩১)	আপনার কি প্রায়ই পাঁচড়া বা চুলকানি রোগ হয়?	হ্যাঁ	না
৩২)	ব্রন বা ফুসফুসি দ্বারা আপনি কি পুনঃ পুনঃ আক্রান্ত হন?	হ্যাঁ	না
৩৩)	আপনি সুস্থ্যবোধ করেন কি?	হ্যাঁ	না
৩৪)	আপনার কি প্রায়ই মাথা ব্যাথা হয়?	হ্যাঁ	না
৩৫)	আপনি কি পুনঃ পুনঃ অস্পষ্ট পেটের পীড়া অনুভব করেন?	হ্যাঁ	না
৩৬)	আপনি কি মাঝে মধ্যে হতবুদ্ধি হয়ে পড়েন?	হ্যাঁ	না
৩৭)	আপনি কি প্রায়ই দিনের বেলা প্রস্রাব করেন?	হ্যাঁ	না
৩৮)	স্বাভাবিক এবং নিয়মিত মল ত্যাগে আপনার প্রায়ই অসুবিধা হয় কি?	হ্যাঁ	না
৩৯)	আপনাকে প্রায়ই অলসতা বা ঘুম ঘুশ ভাব পেয়ে বসে কি?	হ্যাঁ	না
৪০)	আপনি অংগ প্রত্যংগে কখনো কখনো বোধ শক্তিহীনতা বা তীব্র যাতনা অনুভব করেন কি?	হ্যাঁ	না
৪১)	আপনি কি প্রায়ই উদ্বিগ্ন হয়ে পড়েন?	হ্যাঁ	না
৪২)	আপনি কি সাধারণতঃপ্রতিদিনই মলত্যাগ (পায়খানা) করে থাকেন?	হ্যাঁ	না
৪৩)	আপনি কি নিজেকে খুব হালকা-পাতলা মনে করেন?	হ্যাঁ	না
৪৪)	আপনি কি নিজেকে খুবই বলিষ্ট বা বলবান মনে করেন?	হ্যাঁ	না
৪৫)	আপনি কি প্রায়ই উদাসীন বোধ করেন?	হ্যাঁ	না
৪৬)	আপনি কি বাতরোগের দ্বারা আক্রান্ত হন?	হ্যাঁ	না
৪৭)	আপনি কি প্রায়ই স্নায়ুবিক দুর্বলতা অনুভব করেন?	হ্যাঁ	না
৪৮)	আপনি কি সাধারণত ক্লান্ত এবং বিশ্রামহীন অবস্থায় ভোরে শর্য্যাত্যাগ করেন?	হ্যাঁ	না
৪৯)	মাঝে মধ্যেই আপনি ছোট-খাট দুর্ঘটনার সম্মুখীন হন কি?	হ্যাঁ	না
৫০)	স্বাভাবিক সময়ের পূর্বেই আপনি ক্লান্ত হয়ে পড়েন বলে মনে করেন কি?	হ্যাঁ	না
৫১)	মদ্যপান কি অতীতের তুলনায় বর্তমানে আপনার উপর বেশী ক্রিয়া করে?	হ্যাঁ	না
৫২)	আপনি কি সহজেই রাগন্বিত হয়ে পড়েন?	হ্যাঁ	না
৫৩)	নির্ধারিত কাজের শেষে অতিরিক্ত কাজ করতে আপনি কি সক্ষম?	হ্যাঁ	না
৫৪)	আপনি কি প্রায়ই হাতে কম্পন অনুভব করেন?	হ্যাঁ	না
৫৫)	কাজের শেষে ঘরে ফিরে চেয়ারে বসা অবস্থায়ই কি আপনি নিদ্রিত হয়ে পড়েন?	হ্যাঁ	না
৫৬)	সামান্য অসুস্থ্যতাবোধ করলে আপনি সাধারণতঃ ঘরেই (বাড়ীতে/বাসায়) অবস্থান করেন কি?	হ্যাঁ	না

কোন প্রশ্নের উত্তর বাদ পড়েছে কি-না দয়া করে তা একটু পরীক্ষা করে দেখুন। কিন্তু কোন উত্তর আর বদলাবেন না।

Appendix-D

মানসিক স্বাস্থ্য মূল্যায়ন প্রশ্নমালা

আমরা বিভিন্ন শ্রেণীর কর্মচারীদের মানসিক স্বাস্থ্যের পরিমাপের জন্য এই প্রশ্নমালা প্রণয়ন করেছি। নিম্নের প্রত্যেকটি প্রশ্ন আপনার মানসিক অবস্থা বা অনুভূতি সম্পর্কিত। আপনি প্রতিটি প্রশ্নের সাথে প্রদত্ত ৪ (চার) ধরনের উত্তরের যেটির সাথে একমত তার উপর টিক (√) চিহ্ন দিন।

১।	দৈনন্দিন আপনি যা করছেন তাতে কি মনোনিবেশ করতে পারছেন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
২।	অত্যন্ত দুঃশ্চিন্তায় আজকাল আপনার নিদ্রার ব্যাঘাত ঘটে কি?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
৩।	আপনি আজকাল প্রয়োজনীয় কাজে মনোযোগ দিতে পারেন না কেন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
৪।	আপনি কি বর্তমানে কোন কিছু সম্পর্কে সিদ্ধান্ত গ্রহণে সমর্থ?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
৫।	আপনি কি ইদানিং পীড়ন অনুভব করেন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
৬।	অধুনা আপনি কি আপনার অসুবিধাগুলিকে দুর করতে সক্ষম হচ্ছেন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
৭।	সম্প্রতিকালে আপনি কি আপনার দৈনন্দিন কার্যসূচী উপভোগ করতে সক্ষম হন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
৮।	আপনি কি ইদানিং আপনার সমস্যাগুলির মোকাবেলা করতে সক্ষম হন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
৯।	অধুনা আপনি কি অসুখী ও বিমর্ষ বোধ করেন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
১০।	বর্তমানে আপনি কি আত্মবিশ্বাস হারিয়ে ফেলছেন বলে মনে করেন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
১১।	ইদানিং আপনি নিজেকে একজন অযোগ্য ব্যক্তি হিসাবে গণ্য করেন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান
১২।	অধুনা আপনি কি নিজেকে মোটামুটি ভাবে সুখী মনে করেন?	মোটেই না / কিছুটা / বেশ খানিকটা/ সর্বাধিক পরিমান

Appendix-E

স্বাস্থ্য সম্পর্কিত তথ্যাবলী

১। কোন এলাকায় বাস করেন? ---------- ।

২। কতদিন থেকে বাস করছেন? ---------- ।

৩। আপনি কি কর্মস্থলের পরিবেশকে স্বাস্থ্যকর মনে করেন? ---------- হ্যাঁ / না।

৪। আপনার বাসস্থানের পরিবেশ কি স্বাস্থ্যসম্মত মনে করেন? ---------- হ্যাঁ / না।

৫। ধূমপান করেন কি না --------- হ্যাঁ / না।

৬। করলে কত বৎসর ? ---------- ।

৭। দিনে গড়ে কয়টা সিগারেট খান ? ---------- ।

৮। গত এক বৎসরে আপনি কতদিন কতবার অসুস্থ্যতার কারনে ছুটি নিয়েছেন? ---------- ।

৯। গত এক বৎসরে কোন ডাক্তার দেখিয়েছেন কি? ---------- হ্যাঁ / না।

১০। গত এক বৎসরে গুরুতর ভাবে অসুস্থ্য হয়েছেন কি? --- হ্যাঁ / না। (খ) হয়ে থাকলে কত বার --- ।

১১। গুরুতর অসুস্থ্যতার কারনে হাসপাতালে ভর্তি হয়েছেন কিনা ----হ্যাঁ / না। (খ) কতদিন হাসপাতালে ছিলেন - ।

১২। আপনি কি কি ধরনের অসুখে ভোগেন? ---------- ।

১৩। ক) বর্তমান চাকুরীতে যোগদানের পূর্বে কি অসুখে ভুগছেন? ---------- ।

খ) চাকুরীতে যোগাদানের পর কি অসুখে ভুগছেন? ---------- ।

১৪। আপনার চাকুরীর ফলে কি আপনার স্ব স্থ্যের ক্ষতিকর ঝুকি আছে (ক্ষতি হতে পারে)? ---------- ।

১৫। আপনার চাকুরীর ফলে কি আপনার স্বাস্থ্যের ক্ষতি হচ্ছে? ---------- হ্যাঁ / না।

১৬। কর্মের উপাদান সমূহ (যেমন কাঁচামাল, কেমিক্যাল ইত্যাদি) স্বাস্থ্যের জন্য ক্ষতিকর ---- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

১৭। কর্মক্ষেত্রের পরিবেশ (দূষিত বাতাস, গোলমাল) স্বাস্থ্যের জন্য ক্ষতিকর ---------- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

১৮। বাসস্থানের পরিবেশ স্বাস্থ্যের জন্য ক্ষতিকর ---------- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

১৯। যাতায়াতের অসুবিধা স্বাস্থ্যের জন্য ক্ষতিকর ---------- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

২০। পুষ্টিকর খাদ্যের অভাব স্বাস্থ্যের জন্য ক্ষতিকর ---------- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

২১। দুশ্চিন্তা ও উদ্বেগ স্বাস্থ্যের জন্য ক্ষতিকর --------- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

২২। কর্ম ক্লান্তি স্বাস্থ্যের জন্য ক্ষতিকর ---------- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

২৩। চিকিৎসার সুযোগ সুবিধার অভাব স্বাক্ষ্যের জন্য ক্ষতিকর ---------- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

২৪। কর্মে অসন্তষ্টি স্বাস্থ্যের জন্য ক্ষতিকর --------- হ্যাঁ / না।

যদি হ্যাঁ হয় তবে কতটা ক্ষতিকর?

১	২	৩	৪	৫	৬	৭
খুবই কম ক্ষতিকর						অত্যধিক ক্ষতিকর

Appendix-F

Table - 1 : Health information of the workers

* * * C R O S S T A B U L A T I O N * * *

$HELINFF (tabulating 1) Health information of the workers by PNP Polution

	PNP		
Count / Col pct	Polluted 1	Non polluted 2	Row Total
$HELINFF			
HRI_4 Home environment	33 / 9.7	187 / 93.5	220 / 40.7
HRI_5 Smoking habit	196 / 57.6	40 / 20.0	236 / 43.7
HRI8 The workers who took	130 / 38.2	116 / 58.0	246 / 45.6
HRI_9 The workers who cons	134 / 39.4	76 / 38.0	210 / 38.9
HRI_10 Illness condition	68 / 20.0	44 / 22.0	112 / 20.7
HRI_11 Admission in hospita	45 / 13.2	6 / 3.0	51 / 9.4
HRI13A The workers with pre	340 / 100.0	77 / 38.5	417 / 77.2
HRI13B The workers with pos	226 / 66.5	41 / 20.5	267 / 49.4
Column Total	340 / 63.0	200 / 37.0	540 / 100.0

Percents and totals based on respondents

540 valid cases; 0 missing cases

Table - 2 The workersperception of health problemsand risk factors.

* * * C R O S S T A B U L A T I O N * * *

$HEALPRO (tabulating 1) Table-2. The worker perception of health by PNP Polution

	PNP		
Count / Col pct	Polluted 1	Non polluted 2	Row Total
$HEALPRO			
HRI16	331	162	493
The workers who thin	97.4	81.0	91.3
HRI17	331	164	495
The workers who cons	97.4	82.0	91.7
HRI18	302	36	338
The workers who cons	88.8	18.0	62.6
HRI19	17	82	99
The workers who thin	5.0	41.0	18.3
HRI20	340	177	517
	100.0	88.5	95.7
HRI21	340	195	535
The workers who thin	100.0	97.5	99.1
HRI22	340	166	506
The workers who thin	100.0	83.0	93.7
HRI23	340	195	535
The workers who cons	100.0	97.5	99.1
HRI24	340	167	507
The workers who thin	100.0	83.5	93.9
Column Total	340 63.0	200 37.0	540 100.0

Percents and totals based on respondents

540 valid cases; 0 missing cases

Table - 3/4/5: t-ratio between the scores of the workers of polluted and non-polluted industries on quality of working life / subjective health complaints / mental health complaints.

Group Statistics

	Polution	N	Mean	Std. Deviation	Std. Error Mean
QWL	Polluted	340	161.59	10.10	.55
	Non polluted	200	262.47	28.73	2.03
SHQ	Polluted	340	28.25	5.00	.27
	Non polluted	200	13.92	5.81	.41
GHQ	Polluted	340	15.16	3.69	.20
	Non polluted	200	24.44	3.75	.27

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	171.570	.000	-58.884	538	.000	-100.88	1.71	-104.25	-97.52
	Equal variances not assumed			-47.946	228.289	.000	-100.88	2.10	-105.03	-96.74
SHQ	Equal variances assumed	3.918	.048	30.267	538	.000	14.34	.47	13.40	15.27
	Equal variances not assumed			29.117	369.044	.000	14.34	.49	13.37	15.30
GHQ	Equal variances assumed	3.592	.059	-28.018	538	.000	-9.27	.33	-9.92	-8.62
	Equal variances not assumed			-27.893	411.427	.000	-9.27	.33	-9.93	-8.62

Table- 6: Percentage of respondents who live in their place for twenty years and below and the respondents who live in for more than 20 years.

Polution * RHRI_2 Crosstabulation

			RHRI_2		
			Upto 20 years	Above 20 years	Total
Polution	Polluted	Count	100	240	340
		% within Polution	29.4%	70.6%	100.0%
	Non polluted	Count	128	72	200
		% within Polution	64.0%	36.0%	100.0%
Total		Count	228	312	540
		% within Polution	42.2%	57.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	61.755[b]	1	.000		
Continuity Correction[a]	60.345	1	.000		
Likelihood Ratio	62.169	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	61.640	1	.000		
N of Valid Cases	540				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 84.44.

Table - 7A/8A/9A : Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the polluted industries who perceive their work place unhygienic and the respondents who perceive it hygenic.

Group Statistics

	Work environment	N	Mean	Std. Deviation	Std. Error Mean
QWL	Unhygenic	326	161.35	10.19	.56
	Hygenic	14	167.07	5.40	1.44
SHQ	Unhygenic	326	28.44	4.69	.26
	Hygenic	14	23.71	8.88	2.37
GHQ	Unhygenic	326	15.17	3.74	.21
	Hygenic	14	14.93	2.37	.63

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper
QWL	Equal variances assumed	7.230	.008	-2.084	338	.038	-5.72	2.74	-11.12	-.32
	Equal variances not assumed			-3.691	17.270	.002	-5.72	1.55	-8.98	-2.45
SHQ	Equal variances assumed	20.555	.000	3.524	338	.000	4.73	1.34	2.09	7.37
	Equal variances not assumed			1.982	13.313	.069	4.73	2.39	-.41	9.88
GHQ	Equal variances assumed	1.719	.191	.241	338	.810	.24	1.01	-1.74	2.23
	Equal variances not assumed			.365	15.923	.720	.24	.67	-1.17	1.66

Table - 7B/8B/9B : **Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the non-polluted industries who perceive their work place unhygienic and the respondents who perceive it hygenic.**

Group Statistics

	Work environment	N	Mean	Std. Deviation	Std. Error Mean
QWL	Unhygenic	95	262.60	28.07	2.88
	Hygenic	105	262.35	29.44	2.87
SHQ	Unhygenic	95	13.85	5.96	.61
	Hygenic	105	13.97	5.70	.56
GHQ	Unhygenic	95	24.31	3.67	.38
	Hygenic	105	24.55	3.84	.37

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	1.308	.254	.061	198	.952	.25	4.08	-7.79	8.29
	Equal variances not assumed			.061	197.446	.952	.25	4.07	-7.78	8.27
SHQ	Equal variances assumed	.396	.530	-.144	198	.886	-.12	.82	-1.75	1.51
	Equal variances not assumed			-.144	193.944	.886	-.12	.83	-1.75	1.51
GHQ	Equal variances assumed	.379	.539	-.464	198	.643	-.25	.53	-1.30	.80
	Equal variances not assumed			-.465	197.381	.642	-.25	.53	-1.30	.80

Table - 7C : F-ratio obtained from the scores on quality of working life of the workers of polluted and non-polluted industries taking hygienic condition of work place as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Work environment	1	Hygenic	119
	2	Unhygenic	421

Descriptive Statistics

Dependent Variable: Quality of Working Life (QWL)

Polution	Work environment	Mean	Std. Deviation	N
Polluted	Hygenic	167.07	5.40	14
	Unhygenic	161.35	10.19	326
	Total	161.59	10.10	340
Non polluted	Hygenic	262.35	29.44	105
	Unhygenic	262.60	28.07	95
	Total	262.47	28.73	200
Total	Hygenic	251.14	41.44	119
	Unhygenic	184.20	45.30	421
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life (QWL)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1282006.63[a]	3	427335.542	1154.460	.000
Intercept	21374193.3	1	21374193.252	57743.014	.000
PNP	1281564.58	1	1281564.575	3462.185	.000
HRI_3	65.551	1	65.551	.177	.674
PNP * HRI_3	376.499	1	376.499	1.017	.314
Error	198406.123	536	370.161		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .866 (Adjusted R Squared = .865)

Table - 8C : F-ratio obtained from the scores on subjective health questionnaire of the workers of polluted and non-polluted industries taking hygienic condition of work place as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Work environment	1	Hygenic	119
	2	Unhygenic	421

Descriptive Statistics

Dependent Variable: Subjective health Questionnarie (SHQ)

Polution	Work environment	Mean	Std. Deviation	N
Polluted	Hygenic	23.71	8.88	14
	Unhygenic	28.44	4.69	326
	Total	28.25	5.00	340
Non polluted	Hygenic	13.97	5.70	105
	Unhygenic	13.85	5.96	95
	Total	13.91	5.81	200
Total	Hygenic	15.12	6.88	119
	Unhygenic	25.15	7.89	421
	Total	22.94	8.73	540

Tests of Between-Subjects Effects

Dependent Variable: Subjective health Questionnarie (SHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	26177.889[a]	3	8725.963	313.980	.000
Intercept	284189.896	1	284189.896	10225.805	.000
PNP	25876.799	1	25876.799	931.107	.000
HRI_3	52.369	1	52.369	1.884	.170
PNP * HRI_3	248.722	1	248.722	8.950	.003
Error	14896.214	536	27.791		
Total	325264.000	540			
Corrected Total	41074.104	539			

a. R Squared = .637 (Adjusted R Squared = .635)

Table - 9C : F-ratio obtained from the scores on general health questionnaire of the workers of polluted and non-polluted industries taking hygienic condition of work place as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Work environment	1	Hygenic	119
	2	Unhygenic	421

Descriptive Statistics

Dependent Variable: General Health Questionnarie (GHQ)

Polution	Work environment	Mean	Std. Deviation	N
Polluted	Hygenic	14.93	2.37	14
	Unhygenic	15.17	3.74	326
	Total	15.16	3.69	340
Non polluted	Hygenic	24.55	3.84	105
	Unhygenic	24.31	3.67	95
	Total	24.43	3.75	200
Total	Hygenic	23.42	4.83	119
	Unhygenic	17.23	5.33	421
	Total	18.60	5.82	540

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnarie (GHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10832.574[a]	3	3610.858	260.929	.000
Intercept	186744.007	1	186744.007	13494.559	.000
PNP	10828.735	1	10828.735	782.510	.000
HRI_3	1.297	1	1.297	.094	.760
PNP * HRI_3	2.543	1	2.543	.184	.668
Error	7417.418	536	13.838		
Total	204994.000	540			
Corrected Total	18249.993	539			

a. R Squared = .594 (Adjusted R Squared = .591)

Table - 10A/11A/12A : Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the polluted industries who are smokers and who are non-smokers.

Group Statistics

	Smoking habit	N	Mean	Std. Deviation	Std. Error Mean
QWL	Non-smokers	144	162.28	11.14	.93
	Smokers	196	161.08	9.26	.66
SHQ	Non-smokers	144	28.80	4.51	.38
	Smokers	196	27.85	5.31	.38
GHQ	Non-smokers	144	14.60	3.24	.27
	Smokers	196	15.58	3.94	.28

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	6.879	.009	1.079	338	.281	1.20	1.11	-.98	3.38
	Equal variances not assumed			1.049	273.349	.295	1.20	1.14	-1.05	3.44
SHQ	Equal variances assumed	3.878	.050	1.739	338	.083	.95	.55	-.12	2.03
	Equal variances not assumed			1.782	330.802	.076	.95	.53	-9.86E-02	2.00
GHQ	Equal variances assumed	4.823	.029	-2.435	338	.015	-.98	.40	-1.77	-.19
	Equal variances not assumed			-2.509	333.728	.013	-.98	.39	-1.75	-.21

Table - 10B/11B/12B : Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the non-polluted industries who are smokers and who are non-smokers.

Group Statistics

	Smoking habit	N	Mean	Std. Deviation	Std. Error Mean
QWL	Non-smokers	160	256.02	25.89	2.05
	Smokers	40	288.25	25.05	3.96
SHQ	Non-smokers	160	15.09	4.52	.36
	Smokers	40	9.23	7.80	1.23
GHQ	Non-smokers	160	23.84	3.33	.26
	Smokers	40	26.83	4.40	.70

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	1.874	.173	-7.086	198	.000	-32.23	4.55	-41.19	-23.26
	Equal variances not assumed			-7.227	61.518	.000	-32.23	4.46	-41.14	-23.31
SHQ	Equal variances assumed	21.938	.000	6.225	198	.000	5.86	.94	4.01	7.72
	Equal variances not assumed			4.566	45.740	.000	5.86	1.28	3.28	8.45
GHQ	Equal variances assumed	5.385	.021	-4.738	198	.000	-2.99	.63	-4.23	-1.74
	Equal variances not assumed			-4.019	50.752	.000	-2.99	.74	-4.48	-1.49

Table - 10C : F-ratio obtained from the scores on quality of working life of the workers of polluted and non-polluted industries taking smoking habit as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Smoking habit	1	Smokers	236
	2	Non-smokers	304

Descriptive Statistics

Dependent Variable: Quality of Working Life (QWL)

Polution	Smoking habit	Mean	Std. Deviation	N
Polluted	Smokers	161.08	9.26	196
	Non-smokers	162.28	11.14	144
	Total	161.59	10.10	340
Non polluted	Smokers	288.25	25.05	40
	Non-smokers	256.02	25.89	160
	Total	262.47	28.73	200
Total	Smokers	182.64	49.61	236
	Non-smokers	211.62	51.07	304
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life (QWL)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1314913.77[a]	3	438304.588	1419.533	.000
Intercept	21374193.3	1	21374193.252	69224.399	.000
PNP	1281564.58	1	1281564.575	4150.591	.000
HRI_5	7550.954	1	7550.954	24.455	.000
PNP * HRI_5	25798.236	1	25798.236	83.553	.000
Error	165498.983	536	308.767		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .888 (Adjusted R Squared = .888)

Table - 11C : F-ratio obtained from the scores on subjective health questionnaire of the workers of polluted and non-polluted industries taking smoking habit as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Smoking habit	1	Smokers	236
	2	Non-smokers	304

Descriptive Statistics

Dependent Variable: Subjective health Questionnarie (SHQ)

Polution	Smoking habit	Mean	Std. Deviation	N
Polluted	Smokers	27.85	5.31	196
	Non-smokers	28.80	4.51	144
	Total	28.25	5.00	340
Non polluted	Smokers	9.23	7.80	40
	Non-smokers	15.09	4.52	160
	Total	13.91	5.81	200
Total	Smokers	24.69	9.08	236
	Non-smokers	21.58	8.21	304
	Total	22.94	8.73	540

Tests of Between-Subjects Effects

Dependent Variable: Subjective health Questionnarie (SHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	27051.786[a]	3	9017.262	344.683	.000
Intercept	284189.896	1	284189.896	10863.096	.000
PNP	25876.799	1	25876.799	989.135	.000
HRI_5	617.985	1	617.985	23.622	.000
PNP * HRI_5	557.002	1	557.002	21.291	.000
Error	14022.318	536	26.161		
Total	325264.000	540			
Corrected Total	41074.104	539			

a. R Squared = .659 (Adjusted R Squared = .657)

Table -12C : F-ratio obtained from the scores on general health questionnaire of the workers of polluted and non-polluted industries taking smoking habit as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Smoking habit	1	Smokers	236
	2	Non-smokers	304

Descriptive Statistics

Dependent Variable: General Health Questionnarie (GHQ)

Polution	Smoking habit	Mean	Std. Deviation	N
Polluted	Smokers	15.58	3.94	196
	Non-smokers	14.60	3.24	144
	Total	15.16	3.69	340
Non polluted	Smokers	26.83	4.40	40
	Non-smokers	23.84	3.33	160
	Total	24.43	3.75	200
Total	Smokers	17.48	5.83	236
	Non-smokers	19.46	5.67	304
	Total	18.60	5.82	540

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnarie (GHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11193.952[a]	3	3731.317	283.443	.000
Intercept	186744.007	1	186744.007	14185.687	.000
PNP	10828.735	1	10828.735	822.586	.000
HRI_5	272.072	1	272.072	20.668	.000
PNP * HRI_5	93.145	1	93.145	7.076	.008
Error	7056.041	536	13.164		
Total	204994.000	540			
Corrected Total	18249.993	539			

a. R Squared = .613 (Adjusted R Squared = .611)

Table - 13A/14A/15A : **Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the polluted industries who took frequent (More than five times) sick leave during last one year and the respondents who took infrequent (upto five times) sick leave.**

Group Statistics

	Frequency of sick leave	N	Mean	Std. Deviation	Std. Error Mean
QWL	Frequent	103	165.07	9.03	.89
	Infrequent	27	165.26	8.91	1.71
SHQ	Frequent	103	26.95	5.42	.53
	Infrequent	27	31.00	5.34	1.03
GHQ	Frequent	103	14.49	3.92	.39
	Infrequent	27	14.44	2.74	.53

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	.810	.370	-.098	128	.922	-.19	1.95	-4.04	3.66
	Equal variances not assumed			-.099	41.124	.922	-.19	1.93	-4.09	3.71
SHQ	Equal variances assumed	.360	.549	-3.463	128	.001	-4.05	1.17	-6.36	-1.74
	Equal variances not assumed			-3.494	41.184	.001	-4.05	1.16	-6.39	-1.71
GHQ	Equal variances assumed	2.839	.094	.051	128	.959	4.10E-02	.80	-1.54	1.63
	Equal variances not assumed			.063	57.201	.950	4.10E-02	.65	-1.27	1.35

Table - 13B/14B/15B : Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the non-polluted industries who took frequent (More than five times) sick leave during last one year and the respondents who took infrequent (upto five times) sick leave.

Group Statistics

	Frequency of sick leave	N	Mean	Std. Deviation	Std. Error Mean
QWL	Frequent	104	264.26	27.86	2.73
	Infrequent	12	258.42	27.15	7.84
SHQ	Frequent	104	13.43	6.25	.61
	Infrequent	12	13.83	3.35	.97
GHQ	Frequent	104	24.61	3.90	.38
	Infrequent	12	26.17	5.34	1.54

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	1.437	.233	.690	114	.492	5.84	8.47	-10.94	22.63
	Equal variances not assumed			.704	13.813	.493	5.84	8.30	-11.98	23.67
SHQ	Equal variances assumed	4.573	.035	-.218	114	.828	-.40	1.84	-4.05	3.24
	Equal variances not assumed			-.350	21.241	.730	-.40	1.15	-2.78	1.98
GHQ	Equal variances assumed	1.330	.251	-1.262	114	.210	-1.56	1.24	-4.01	.89
	Equal variances not assumed			-.983	12.387	.344	-1.56	1.59	-5.01	1.89

Table - 13C : F-ratio obtained from the scores on quality of working life of the workers of polluted and non-polluted industries taking frequency of sick leave as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	130
	2	Non polluted	116
Frequency of sick leave	1	Frequent	207
	2	Infrequent	39

Descriptive Statistics

Dependent Variable: Quality of Working Life (QWL)

Polution	Frequency of sick leave	Mean	Std. Deviation	N
Polluted	Frequent	165.07	9.03	103
	Infrequent	165.26	8.91	27
	Total	165.11	8.97	130
Non polluted	Frequent	264.26	27.86	104
	Infrequent	258.42	27.15	12
	Total	263.66	27.73	116
Total	Frequent	214.90	53.85	207
	Infrequent	193.92	46.53	39
	Total	211.58	53.23	246

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life (QWL)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	595697.416[a]	3	198565.805	488.111	.000
Intercept	11012172.0	1	11012171.967	27069.956	.000
PNP	595329.333	1	595329.333	1463.430	.000
RHRI_8	107.427	1	107.427	.264	.608
PNP * RHRI_8	260.655	1	260.655	.641	.424
Error	98446.617	242	406.804		
Total	11706316.0	246			
Corrected Total	694144.033	245			

a. R Squared = .858 (Adjusted R Squared = .856)

Table - 14C : F-ratio obtained from the scores on subjective health questionnaire of the workers of polluted and non-polluted industries taking frequency of sick leave as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	130
	2	Non polluted	116
Frequency of sick leave	1	Frequent	207
	2	Infrequent	39

Descriptive Statistics

Dependent Variable: Subjective health Questionnarie (SHQ)

Polution	Frequency of sick leave	Mean	Std. Deviation	N
Polluted	Frequent	26.95	5.42	103
	Infrequent	31.00	5.34	27
	Total	27.79	5.63	130
Non polluted	Frequent	13.43	6.25	104
	Infrequent	13.83	3.35	12
	Total	13.47	6.01	116
Total	Frequent	20.16	8.95	207
	Infrequent	25.72	9.34	39
	Total	21.04	9.22	246

Tests of Between-Subjects Effects

Dependent Variable: Subjective health Questionnarie (SHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12919.641[a]	3	4306.547	131.990	.000
Intercept	108906.407	1	108906.407	3337.830	.000
PNP	12567.279	1	12567.279	385.170	.000
RHRI_8	257.103	1	257.103	7.880	.005
PNP * RHRI_8	95.259	1	95.259	2.920	.089
Error	7895.953	242	32.628		
Total	129722.000	246			
Corrected Total	20815.593	245			

a. R Squared = .621 (Adjusted R Squared = .616)

Table - 15C : **F-ratio obtained from the scores on general health questionnaire of the workers of polluted and non-polluted industries taking frequency of sick leave as a variable.**

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	130
	2	Non polluted	116
Frequency of sick leave	1	Frequent	207
	2	Infrequent	39

Descriptive Statistics

Dependent Variable: General Health Questionnarie (GHQ)

Polution	Frequency of sick leave	Mean	Std. Deviation	N
Polluted	Frequent	14.49	3.92	103
	Infrequent	14.44	2.74	27
	Total	14.48	3.69	130
Non polluted	Frequent	24.61	3.90	104
	Infrequent	26.17	5.34	12
	Total	24.77	4.07	116
Total	Frequent	19.57	6.40	207
	Infrequent	18.05	6.59	39
	Total	19.33	6.44	246

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnarie (GHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6517.431[a]	3	2172.477	144.637	.000
Intercept	91910.671	1	91910.671	6119.121	.000
PNP	6491.183	1	6491.183	432.162	.000
RHRI_8	7.879	1	7.879	.525	.470
PNP * RHRI_8	18.369	1	18.369	1.223	.270
Error	3634.898	242	15.020		
Total	102063.000	246			
Corrected Total	10152.329	245			

a. R Squared = .642 (Adjusted R Squared = .638)

Table - 16A/17A/18A : Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the polluted industries who suffered from serious illness during last year and the respondents who did not suffer from serious illness.

Group Statistics

	Illness condition	N	Mean	Std. Deviation	Std. Error Mean
QWL	No illness	272	161.16	10.39	.63
	Illness	68	163.31	8.74	1.06
SHQ	No illness	272	27.78	4.80	.29
	Illness	68	30.15	5.37	.65
GHQ	No illness	272	15.49	3.80	.23
	Illness	68	13.85	2.91	.35

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	5.283	.022	-1.574	338	.116	-2.15	1.37	-4.84	.54
	Equal variances not assumed			-1.745	119.019	.084	-2.15	1.23	-4.59	.29
SHQ	Equal variances assumed	1.190	.276	-3.557	338	.000	-2.37	.67	-3.68	-1.06
	Equal variances not assumed			-3.324	95.468	.001	-2.37	.71	-3.79	-.96
GHQ	Equal variances assumed	5.487	.020	3.318	338	.001	1.64	.49	.67	2.61
	Equal variances not assumed			3.885	130.380	.000	1.64	.42	.80	2.47

Table - 16B/17B/18B : Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the non-polluted industries who suffered from serious illness during last year and the respondents who did not suffer from serious illness.

Group Statistics

	Illness condition	N	Mean	Std. Deviation	Std. Error Mean
QWL	No illness	156	258.90	25.10	2.01
	Illness	44	275.11	36.59	5.52
SHQ	No illness	156	14.47	5.23	.42
	Illness	44	11.95	7.24	1.09
GHQ	No illness	156	23.99	3.50	.28
	Illness	44	26.00	4.24	.64

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	24.815	.000	-3.391	198	.001	-16.21	4.78	-25.64	-6.78
	Equal variances not assumed			-2.761	54.907	.008	-16.21	5.87	-27.98	-4.44
SHQ	Equal variances assumed	17.216	.000	2.569	198	.011	2.51	.98	.58	4.44
	Equal variances not assumed			2.149	56.262	.036	2.51	1.17	.17	4.86
GHQ	Equal variances assumed	1.483	.225	-3.203	198	.002	-2.01	.63	-3.24	-.77
	Equal variances not assumed			-2.877	60.485	.006	-2.01	.70	-3.40	-.61

Table - 16C : F-ratio obtained from the scores on quality of working life of the workers of polluted and non-polluted industries taking illness as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Illness condition	1	Illness	112
	2	No illness	428

Descriptive Statistics

Dependent Variable: Quality of Working Life (QWL)

Polution	Illness condition	Mean	Std. Deviation	N
Polluted	Illness	163.31	8.74	68
	No illness	161.16	10.39	272
	Total	161.59	10.10	340
Non polluted	Illness	275.11	36.59	44
	No illness	258.90	25.10	156
	Total	262.47	28.73	200
Total	Illness	207.23	59.78	112
	No illness	196.79	50.15	428
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life (QWL)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1290834.04[a]	3	430278.014	1216.534	.000
Intercept	21374193.3	1	21374193.252	60431.721	.000
PNP	1281564.58	1	1281564.575	3623.395	.000
HRI_10	5110.007	1	5110.007	14.448	.000
PNP * HRI_10	4159.460	1	4159.460	11.760	.001
Error	189578.706	536	353.692		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .872 (Adjusted R Squared = .871)

Table - 17C : F-ratio obtained from the scores on subjective health questionnaire of the workers of polluted and non-polluted industries taking illness as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Illness condition	1	Illness	112
	2	No illness	428

Descriptive Statistics

Dependent Variable: Subjective health Questionnarie (SHQ)

Polution	Illness condition	Mean	Std. Deviation	N
Polluted	Illness	30.15	5.37	68
	No illness	27.78	4.80	272
	Total	28.25	5.00	340
Non polluted	Illness	11.95	7.24	44
	No illness	14.47	5.23	156
	Total	13.91	5.81	200
Total	Illness	23.00	10.83	112
	No illness	22.93	8.10	428
	Total	22.94	8.73	540

Tests of Between-Subjects Effects

Dependent Variable: Subjective health Questionnarie (SHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	26399.506[a]	3	8799.835	321.420	.000
Intercept	284189.896	1	284189.896	10380.236	.000
PNP	25876.799	1	25876.799	945.168	.000
HRI_10	20.590	1	20.590	.752	.386
PNP * HRI_10	502.117	1	502.117	18.340	.000
Error	14674.598	536	27.378		
Total	325264.000	540			
Corrected Total	41074.104	539			

a. R Squared = .643 (Adjusted R Squared = .641)

Table -18 C : F-ratio obtained from the scores on general health questionnaire of the workers of polluted and non-polluted industries taking illness as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Illness condition	1	Illness	112
	2	No illness	428

Descriptive Statistics

Dependent Variable: General Health Questionnarie (GHQ)

Polution	Illness condition	Mean	Std. Deviation	N
Polluted	Illness	13.85	2.91	68
	No illness	15.49	3.80	272
	Total	15.16	3.69	340
Non polluted	Illness	26.00	4.24	44
	No illness	23.99	3.50	156
	Total	24.43	3.75	200
Total	Illness	18.62	6.90	112
	No illness	18.59	5.51	428
	Total	18.60	5.82	540

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnarie (GHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11112.503[a]	3	3704.168	278.170	.000
Intercept	186744.007	1	186744.007	14023.808	.000
PNP	10828.735	1	10828.735	813.199	.000
HRI_10	4.572	1	4.572	.343	.558
PNP * HRI_10	279.196	1	279.196	20.967	.000
Error	7137.490	536	13.316		
Total	204994.000	540			
Corrected Total	18249.993	539			

a. R Squared = .609 (Adjusted R Squared = .607)

Table -19A/20A/21A : Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the polluted industries who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital.

Group Statistics

	Admission in hospital	N	Mean	Std. Deviation	Std. Error Mean
QWL	Not-admitted	295	161.66	10.25	.60
	Admitted	45	161.09	9.19	1.37
SHQ	Not-admitted	295	28.13	4.96	.29
	Admitted	45	29.04	5.22	.78
GHQ	Not-admitted	295	15.37	3.84	.22
	Admitted	45	13.78	2.07	.31

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	.669	.414	.356	338	.722	.58	1.62	-2.61	3.76
	Equal variances not assumed			.385	61.938	.701	.58	1.49	-2.41	3.56
SHQ	Equal variances assumed	.004	.950	-1.145	338	.253	-.92	.80	-2.49	.66
	Equal variances not assumed			-1.103	56.831	.274	-.92	.83	-2.58	.75
GHQ	Equal variances assumed	9.435	.002	2.727	338	.007	1.60	.59	.44	2.75
	Equal variances not assumed			4.193	98.423	.000	1.60	.38	.84	2.35

Table - 19B/20B/21B : **Difference between the scores on quality of working life / subjective health questionnarie / general health questionnaire of the respondents of the non-polluted industries who admitted in hospital for serious illness during last one year and the respondents who did not admit in hospital.**

Group Statistics

	Admission in hospital	N	Mean	Std. Deviation	Std. Error Mean
QWL	Not-admitted	194	262.73	29.03	2.08
	Admitted	6	254.17	15.46	6.31
SHQ	Not-admitted	194	13.77	5.77	.41
	Admitted	6	18.50	5.61	2.29
GHQ	Not-admitted	194	24.47	3.77	.27
	Admitted	6	23.33	3.14	1.28

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
QWL	Equal variances assumed	1.682	.196	.718	198	.474	8.56	11.92	-14.95	32.07
	Equal variances not assumed			1.288	6.148	.244	8.56	6.65	-7.61	24.73
SHQ	Equal variances assumed	.006	.938	-1.977	198	.049	-4.73	2.39	-9.44	-1.11E-02
	Equal variances not assumed			-2.030	5.332	.095	-4.73	2.33	-10.60	1.15
GHQ	Equal variances assumed	.715	.399	.729	198	.467	1.14	1.56	-1.94	4.21
	Equal variances not assumed			.867	5.456	.423	1.14	1.31	-2.15	4.42

Table -19C : F-ratio obtained from the scores on quality of working life of the workers of polluted and non-polluted industries taking admission in hospital as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Admission in hospital	1	Admitted	51
	2	Not-admitted	489

Descriptive Statistics

Dependent Variable: Quality of Working Life (QWL)

Polution	Admission in hospital	Mean	Std. Deviation	N
Polluted	Admitted	161.09	9.19	45
	Not-admitted	161.66	10.25	295
	Total	161.59	10.10	340
Non polluted	Admitted	254.17	15.46	6
	Not-admitted	262.73	29.03	194
	Total	262.47	28.73	200
Total	Admitted	172.04	31.87	51
	Not-admitted	201.76	53.35	489
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life (QWL)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1282003.97[a]	3	427334.658	1154.442	.000
Intercept	21374193.3	1	21374193.252	57742.243	.000
PNP	1281564.58	1	1281564.575	3462.138	.000
HRI_11	116.483	1	116.483	.315	.575
PNP * HRI_11	322.915	1	322.915	.872	.351
Error	198408.775	536	370.166		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .866 (Adjusted R Squared = .865)

Table - 20C : F-ratio obtained from the scores on subjective health questionnaire of the workers of polluted and non-polluted industries taking admission in hospital as a variable.

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Admission in hospital	1	Admitted	51
	2	Not-admitted	489

Descriptive Statistics

Dependent Variable: Subjective health Questionnarie (SHQ)

Polution	Admission in hospital	Mean	Std. Deviation	N
Polluted	*Admitted*	29.04	5.22	45
	Not-admitted	28.13	4.96	295
	Total	28.25	5.00	340
Non polluted	Admitted	18.50	5.61	6
	Not-admitted	13.77	5.77	194
	Total	13.91	5.81	200
Total	Admitted	27.80	6.24	51
	Not-admitted	22.43	8.80	489
	Total	22.94	8.73	540

Tests of Between-Subjects Effects

Dependent Variable: Subjective health Questionnarie (SHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	*26039.567[a]*	3	*8679.856*	309.448	.000
Intercept	284189.896	1	284189.896	10131.724	.000
PNP	25876.799	1	25876.799	922.540	.000
HRI_11	89.199	1	89.199	3.180	.075
PNP * HRI_11	73.569	1	73.569	2.623	.106
Error	15034.537	536	28.050		
Total	325264.000	540			
Corrected Total	41074.104	539			

a. R Squared = .634 (Adjusted R Squared = .632)

Table - 21C : **F-ratio obtained from the scores on general health questionnaire of the workers of polluted and non-polluted industries taking admission in hospital place as a variable.**

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Admission in hospital	1	Admitted	51
	2	Not-admitted	489

Descriptive Statistics

Dependent Variable: General Health Questionnarie (GHQ)

Polution	Admission in hospital	Mean	Std. Deviation	N
Polluted	*Admitted*	13.78	2.07	45
	Not-admitted	15.37	3.84	295
	Total	15.16	3.69	340
Non polluted	Admitted	23.33	3.14	6
	Not-admitted	24.47	3.77	194
	Total	24.43	3.75	200
Total	Admitted	14.90	3.80	51
	Not-admitted	18.98	5.86	489
	Total	18.60	5.82	540

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnarie (GHQ)

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	*10935.584[a]*	3	3645.195	267.120	.000
Intercept	186744.007	1	186744.007	13684.604	.000
PNP	10828.735	1	10828.735	793.530	.000
HRI_11	105.781	1	105.781	7.752	.006
PNP * HRI_11	1.069	1	1.069	.078	.780
Error	7314.409	536	13.646		
Total	204994.000	540			
Corrected Total	18249.993	539			

a. R Squared = .599 (Adjusted R Squared = .597)

Table - 22 F-ratio obtained from the scores on quality of working life of the workers of polutted and non-polutted industries taking subsective health as a variable

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
SHQ_LTME	1	Below Median (1-24)	265
	2	Above Median (25 & above)	275

Descriptive Statistics

Dependent Variable: Quality of Working Life

Polution	SHQ_LTME	Mean	Std. Deviation	N
Polluted	Below Median (1-24)	167.21	9.06	67
	Above Median (25 & above)	160.21	9.88	273
	Total	161.59	10.10	340
Non polluted	Below Median (1-24)	262.53	28.75	198
	Above Median (25 & above)	256.50	36.06	2
	Total	262.47	28.73	200
Total	Below Median (1-24)	238.43	48.58	265
	Above Median (25 & above)	160.91	12.99	275
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1284272.76[a]	3	428090.919	1169.862	.000
Intercept	21374193.3	1	21374193.252	58410.156	.000
PNP	1281564.58	1	1281564.575	3502.185	.000
SHQ_LTME	2706.385	1	2706.385	7.396	.007
PNP * SHQ_LTME	1.796	1	1.796	.005	.944
Error	196139.992	536	365.933		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .868 (Adjusted R Squared = .867)

Table - 23 F-ratio obtained from the scores on quality of working life of the workers of polutted and non-polutted industries taking mental health as a variable

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
GHQ_LTME	1	Below Median (1-16)	260
	2	Above Median (17 & above)	280

Descriptive Statistics

Dependent Variable: Quality of Working Life

Polution	GHQ_LTME	Mean	Std. Deviation	N
Polluted	Below Median (1-16)	160.78	9.63	259
	Above Median (17 & above)	164.16	11.16	81
	Total	161.59	10.10	340
Non polluted	Below Median (1-16)	249.00	.	1
	Above Median (17 & above)	262.54	28.79	199
	Total	262.47	28.73	200
Total	Below Median (1-16)	161.12	11.06	260
	Above Median (17 & above)	234.08	51.19	280
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1282450.48[a]	3	427483.492	1157.449	.000
Intercept	21374193.3	1	21374193.252	57872.480	.000
PNP	1281564.58	1	1281564.575	3469.947	.000
GHQ_LTME	784.801	1	784.801	2.125	.146
PNP * GHQ_LTME	101.099	1	101.099	.274	.601
Error	197962.273	536	369.333		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .866 (Adjusted R Squared = .866)

Table - 24:Summary of the 2 ways ANOVA for quality of working life of the workers of polutted and non-polutted industries in terms of age (Below 20 years, 20-29 years, 30 and above)

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
AGE3	1	Below 20 yesrs	74
	2	20-29 years	234
	3	30 & Above	232

Descriptive Statistics

Dependent Variable: Quality of Working Life

Polution	AGE3	Mean	Std. Deviation	N
Polluted	Below 20 yesrs	164.02	12.34	49
	20-29 years	159.96	9.66	147
	30 & Above	162.42	9.49	144
	Total	161.59	10.10	340
Non polluted	Below 20 yesrs	255.28	18.47	25
	20-29 years	259.30	30.72	87
	30 & Above	267.65	28.45	88
	Total	262.47	28.73	200
Total	Below 20 yesrs	194.85	45.84	74
	20-29 years	196.89	52.17	234
	30 & Above	202.34	54.58	232
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1286871.50[a]	5	257374.301	710.122	.000
Intercept	21374193.3	1	21374193.252	58973.576	.000
PNP	1281564.58	1	1281564.575	3535.967	.000
AGE3	2614.677	2	1307.338	3.607	.028
PNP * AGE3	2692.252	2	1346.126	3.714	.025
Error	193541.244	534	362.437		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .869 (Adjusted R Squared = .868)

Table -25 : Summary of the 2 ways ANOVA for subjective health complaints of the workers of polutted and non-polutted industries in terms of age (Below 20 years, 20-29 years, 30 and above)

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
AGE3	1	Below 20 yesrs	74
	2	20-29 years	234
	3	30 & Above	232

Descriptive Statistics

Dependent Variable: Subjective Health Questionnarie

Polution	AGE3	Mean	Std. Deviation	N
Polluted	Below 20 yesrs	28.90	5.28	49
	20-29 years	28.63	4.68	147
	30 & Above	27.64	5.19	144
	Total	28.25	5.00	340
Non polluted	Below 20 yesrs	15.92	2.61	25
	20-29 years	13.79	6.00	87
	30 & Above	13.47	6.19	88
	Total	13.91	5.81	200
Total	Below 20 yesrs	24.51	7.67	74
	20-29 years	23.12	8.87	234
	30 & Above	22.26	8.87	232
	Total	22.94	8.73	540

Tests of Between-Subjects Effects

Dependent Variable: Subjective Health Questionnarie

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	26092.215[a]	5	5218.443	186.001	.000
Intercept	284189.896	1	284189.896	10129.391	.000
PNP	25876.799	1	25876.799	922.328	.000
AGE3	169.695	2	84.847	3.024	.049
PNP * AGE3	45.721	2	22.861	.815	.443
Error	14981.889	534	28.056		
Total	325264.000	540			
Corrected Total	41074.104	539			

a. R Squared = .635 (Adjusted R Squared = .632)

Table - 26 : Summary of the 2 ways ANOVA for mental health complaints of the workers of polutted and non-polutted industries in terms of age (Below 20 years, 20-29 years, 30 and above)

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
AGE3	1	Below 20 yesrs	74
	2	20-29 years	234
	3	30 & Above	232

Descriptive Statistics

Dependent Variable: General Health Questionnaire

Polution	AGE3	Mean	Std. Deviation	N
Polluted	Below 20 yesrs	17.08	3.76	49
	20-29 years	15.16	3.24	147
	30 & Above	14.51	3.89	144
	Total	15.16	3.69	340
Non polluted	Below 20 yesrs	24.16	3.12	25
	20-29 years	24.29	3.97	87
	30 & Above	24.66	3.73	88
	Total	24.43	3.75	200
Total	Below 20 yesrs	19.47	4.88	74
	20-29 years	18.55	5.65	234
	30 & Above	18.36	6.24	232
	Total	18.60	5.82	540

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnaire

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11077.997[a]	5	2215.599	164.965	.000
Intercept	186744.007	1	186744.007	13904.261	.000
PNP	10828.735	1	10828.735	806.267	.000
AGE3	126.975	2	63.488	4.727	.009
PNP * AGE3	122.287	2	61.143	4.553	.011
Error	7171.996	534	13.431		
Total	204994.000	540			
Corrected Total	18249.993	539			

a. R Squared = .607 (Adjusted R Squared = .603)

Table - 27: **Summary of the 2 ways ANOVA for quality of working life of the workers of polutted and non-polutted industries in terms of sex**

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Sex of the respondent	1	Male	330
	2	Female	210

Descriptive Statistics

Dependent Variable: Quality of Working Life

Polution	Sex of the respondent	Mean	Std. Deviation	N
Polluted	Male	161.36	8.87	210
	Female	161.96	11.85	130
	Total	161.59	10.10	340
Non polluted	Male	276.89	27.87	120
	Female	240.84	10.94	80
	Total	262.47	28.73	200
Total	Male	203.37	58.56	330
	Female	192.01	40.08	210
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1343989.25[a]	3	447996.416	1760.152	.000
Intercept	21374193.3	1	21374193.252	83977.962	.000
Polution	1281564.58	1	1281564.575	5035.193	.000
SEX	22053.712	1	22053.712	86.648	.000
PNP * SEX	40370.960	1	40370.960	158.615	.000
Error	136423.501	536	254.521		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .908 (Adjusted R Squared = .907)

Table - 28: Summary of the 2 ways ANOVA for subjective health complaints of the workers of polutted and non-polutted industries in terms of sex

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Sex of the respondent	1	Male	330
	2	Female	210

Descriptive Statistics

Dependent Variable: Subjective Health Questionnarie

Polution	Sex of the respondent	Mean	Std. Deviation	N
Polluted	Male	27.88	5.39	210
	Female	28.85	4.25	130
	Total	28.25	5.00	340
Non polluted	Male	11.38	6.27	120
	Female	17.72	1.16	80
	Total	13.91	5.81	200
Total	Male	21.88	9.79	330
	Female	24.61	6.40	210
	Total	22.94	8.73	540

Tests of Between-Subjects Effects

Dependent Variable: Subjective Health Questionnarie

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	27889.025[a]	3	9296.342	377.915	.000
Intercept	284189.896	1	284189.896	11552.891	.000
PNP	25876.799	1	25876.799	1051.944	.000
SEX	1145.172	1	1145.172	46.554	.000
PNP * SEX	867.054	1	867.054	35.247	.000
Error	13185.079	536	24.599		
Total	325264.000	540			
Corrected Total	41074.104	539			

a. R Squared = .679 (Adjusted R Squared = .677)

Table - 29: Summary of the 2 ways ANOVA for mental health complaints of the workers of polutted and non-polutted industries in terms of sex

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Sex of the respondent	1	Male	330
	2	Female	210

Descriptive Statistics

Dependent Variable: General Health Questionnaire

Polution	Sex of the respondent	Mean	Std. Deviation	N
Polluted	Male	15.43	3.87	210
	Female	14.72	3.35	130
	Total	15.16	3.69	340
Non polluted	Male	26.19	3.74	120
	Female	21.80	1.63	80
	Total	24.43	3.75	200
Total	Male	19.35	6.44	330
	Female	17.42	4.45	210
	Total	18.60	5.82	540

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnaire

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11795.003[a]	3	3931.668	326.472	.000
Intercept	186744.007	1	186744.007	15506.577	.000
PNP	10828.735	1	10828.735	899.181	.000
SEX	559.126	1	559.126	46.428	.000
PNP * SEX	407.143	1	407.143	33.808	.000
Error	6454.989	536	12.043		
Total	204994.000	540			
Corrected Total	18249.993	539			

a. R Squared = .646 (Adjusted R Squared = .644)

Table - 30: Summary of the 2 ways ANOVA for quality of working life of the workers of polutted and non-polutted industries in terms of marital status

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Marital Status	1	Married	424
	2	Unmarried	116

Descriptive Statistics

Dependent Variable: Quality of Working Life

Polution	Marital Status	Mean	Std. Deviation	N
Polluted	Married	161.40	9.58	276
	Unmarried	162.39	12.15	64
	Total	161.59	10.10	340
Non polluted	Married	262.64	29.48	148
	Unmarried	261.98	26.76	52
	Total	262.47	28.73	200
Total	Married	196.74	51.92	424
	Unmarried	207.03	53.60	116
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1281632.15[a]	3	427210.718	1151.948	.000
Intercept	21374193.3	1	21374193.252	57634.236	.000
PNP	1281564.58	1	1281564.575	3455.662	.000
MS	7.425	1	7.425	.020	.888
PNP * MS	60.154	1	60.154	.162	.687
Error	198780.594	536	370.859		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .866 (Adjusted R Squared = .865)

Table - 31: Summary of the 2 ways ANOVA for subjective health complaints of the workers of polutted and non-polutted industries in terms of marital status

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Marital Status	1	Married	424
	2	Unmarried	116

Descriptive Statistics

Dependent Variable: Subjective Health Questionnarie

Polution	Marital Status	Mean	Std. Deviation	N
Polluted	Married	28.16	4.90	276
	Unmarried	28.66	5.43	64
	Total	28.25	5.00	340
Non polluted	Married	13.74	5.97	148
	Unmarried	14.42	5.35	52
	Total	13.91	5.81	200
Total	Married	23.12	8.68	424
	Unmarried	22.28	8.91	116
	Total	22.94	8.73	540

Tests of Between-Subjects Effects

Dependent Variable: Subjective Health Questionnarie

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	25907.950[a]	3	8635.983	305.212	.000
Intercept	284189.896	1	284189.896	10043.798	.000
PNP	25876.799	1	25876.799	914.534	.000
MS	30.386	1	30.386	1.074	.301
PNP * MS	.766	1	.766	.027	.869
Error	15166.154	536	28.295		
Total	325264.000	540			
Corrected Total	41074.104	539			

a. R Squared = .631 (Adjusted R Squared = .629)

Table - 32: Summary of the 2 ways ANOVA for mental health complaints of the workers of polutted and non-polutted industries in terms of marital status

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
Marital Status	1	Married	424
	2	Unmarried	116

Descriptive Statistics

Dependent Variable: General Health Questionnaire

Polution	Marital Status	Mean	Std. Deviation	N
Polluted	Married	14.68	3.47	276
	Unmarried	17.25	3.89	64
	Total	15.16	3.69	340
Non polluted	Married	24.49	3.79	148
	Unmarried	24.29	3.69	52
	Total	24.43	3.75	200
Total	Married	18.10	5.89	424
	Unmarried	20.41	5.17	116
	Total	18.60	5.82	540

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnaire

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	11174.046[a]	3	3724.682	282.143	.000
Intercept	186744.007	1	186744.007	14145.780	.000
PNP	10828.735	1	10828.735	820.272	.000
MS	175.631	1	175.631	13.304	.000
PNP * MS	169.680	1	169.680	12.853	.000
Error	7075.947	536	13.201		
Total	204994.000	540			
Corrected Total	18249.993	539			

a. R Squared = .612 (Adjusted R Squared = .610)

Table - 33:Summary of the 2 ways ANOVA for quality of working life of the workers of polutted and non-polutted industries in terms of job experience (below 10 years, 10-19 years, 20 years and above)

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
PRJOBEX3	1	Below 10 years	147
	2	10-19 years	311
	3	20 years & Above	82

Descriptive Statistics

Dependent Variable: Quality of Working Life

Polution	PRJOBEX3	Mean	Std. Deviation	N
Polluted	Below 10 years	166.18	11.90	39
	10-19 years	160.06	9.92	220
	20 years & Above	163.52	8.67	81
	Total	161.59	10.10	340
Non polluted	Below 10 years	263.02	30.83	108
	10-19 years	261.86	26.35	91
	20 years & Above	259.00	.	1
	Total	262.47	28.73	200
Total	Below 10 years	237.33	50.73	147
	10-19 years	189.85	49.22	311
	20 years & Above	164.68	13.62	82
	Total	198.95	52.41	540

Tests of Between-Subjects Effects

Dependent Variable: Quality of Working Life

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1283278.57[a]	5	256655.713	695.233	.000
Intercept	21374193.3	1	21374193.252	57898.733	.000
PNP	1281564.58	1	1281564.575	3471.521	.000
PRJOBEX3	1204.899	2	602.449	1.632	.197
PNP * PRJOBEX3	509.093	2	254.547	.690	.502
Error	197134.181	534	369.165		
Total	22854606.0	540			
Corrected Total	1480412.75	539			

a. R Squared = .867 (Adjusted R Squared = .866)

Table 34 : Summary of the 2 ways ANOVA for subjective health complaints of the workers of polutted and non-polutted industries in terms of job experience (below 10 years, 10-19 years, 20 years and above)

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
PRJOBEX3	1	Below 10 years	147
	2	10-19 years	311
	3	20 years & Above	82

Descriptive Statistics

Dependent Variable: Subjective Health Questionnarie

Polution	PRJOBEX3	Mean	Std. Deviation	N
Polluted	Below 10 years	28.82	5.45	39
	10-19 years	28.64	4.66	220
	20 years & Above	26.91	5.49	81
	Total	28.25	5.00	340
Non polluted	Below 10 years	13.72	6.49	108
	10-19 years	14.15	4.95	91
	20 years & Above	13.00	.	1
	Total	13.91	5.81	200
Total	Below 10 years	17.73	9.13	147
	10-19 years	24.40	8.12	311
	20 years & Above	26.74	5.67	82
	Total	22.94	8.73	540

Tests of Between-Subjects Effects

Dependent Variable: Subjective Health Questionnarie

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	26077.820[a]	5	5215.564	185.720	.000
Intercept	284189.896	1	284189.896	10119.668	.000
PNP	25876.799	1	25876.799	921.442	.000
PRJOBEX3	193.047	2	96.523	3.437	.033
PNP * PRJOBEX3	7.975	2	3.987	.142	.868
Error	14996.283	534	28.083		
Total	325264.000	540			
Corrected Total	41074.104	539			

a. R Squared = .635 (Adjusted R Squared = .631)

Table -35: Summary of the 2 ways ANOVA for mental health complaints of the workers of polutted and non-polutted industries in terms of job experience (below 10 years, 10-19 years, 20 years and above)

Between-Subjects Factors

		Value Label	N
Polution	1	Polluted	340
	2	Non polluted	200
PRJOBEX3	1	Below 10 years	147
	2	10-19 years	311
	3	20 years & Above	82

Descriptive Statistics

Dependent Variable: General Health Questionnaire

Polution	PRJOBEX3	Mean	Std. Deviation	N
Polluted	Below 10 years	16.44	3.41	39
	10-19 years	15.32	3.70	220
	20 years & Above	14.11	3.56	81
	Total	15.16	3.69	340
Non polluted	Below 10 years	24.37	4.27	108
	10-19 years	24.52	3.08	91
	20 years & Above	24.00	.	1
	Total	24.43	3.75	200
Total	Below 10 years	22.27	5.36	147
	10-19 years	18.01	5.48	311
	20 years & Above	14.23	3.71	82
	Total	18.60	5.82	540

Tests of Between-Subjects Effects

Dependent Variable: General Health Questionnaire

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10988.406[a]	5	2197.681	161.612	.000
Intercept	186744.007	1	186744.007	13732.715	.000
PNP	10828.735	1	10828.735	796.320	.000
PRJOBEX3	127.082	2	63.541	4.673	.010
PNP * PRJOBEX3	32.589	2	16.294	1.198	.303
Error	7261.587	534	13.598		
Total	204994.000	540			
Corrected Total	18249.993	539			

a. R Squared = .602 (Adjusted R Squared = .598)

Table-36 : Inter-correlation among the scores of different scales for the workers of the polluted industries.

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.254**	.094
	Sig. (2-tailed)	.	.000	.083
	N	340	340	340
Subjective Health Questionnarie	Pearson Correlation	-.254**	1.000	-.082
	Sig. (2-tailed)	.000	.	.130
	N	340	340	340
General Health Questionnaire	Pearson Correlation	.094	-.082	1.000
	Sig. (2-tailed)	.083	.130	.
	N	340	340	340

**. Correlation is significant at the 0.01 level (2-tailed).

Table- 37 : Inter-correlation among the scores of different scales for the workers of the non-polluted industries.

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.713**	.591**
	Sig. (2-tailed)	.	.000	.000
	N	200	200	200
Subjective Health Questionnarie	Pearson Correlation	-.713**	1.000	-.573**
	Sig. (2-tailed)	.000	.	.000
	N	200	200	200
General Health Questionnaire	Pearson Correlation	.591**	-.573**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	200	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Table-38A: Inter-correlations of the scores of different scales for the male workers of the polluted industries

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.258**	-.037
	Sig. (2-tailed)	.	.000	.593
	N	210	210	210
Subjective Health Questionnarie	Pearson Correlation	-.258**	1.000	-.021
	Sig. (2-tailed)	.000	.	.759
	N	210	210	210
General Health Questionnaire	Pearson Correlation	-.037	-.021	1.000
	Sig. (2-tailed)	.593	.759	.
	N	210	210	210

**. Correlation is significant at the 0.01 level (2-tailed).

Table-39A: Inter-correlations of the scores of different scales for the female workers of the polluted industries

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.281**	.291**
	Sig. (2-tailed)	.	.001	.001
	N	130	130	130
Subjective Health Questionnarie	Pearson Correlation	-.281**	1.000	-.200*
	Sig. (2-tailed)	.001	.	.023
	N	130	130	130
General Health Questionnaire	Pearson Correlation	.291**	-.200*	1.000
	Sig. (2-tailed)	.001	.023	.
	N	130	130	130

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table- 40A: Inter-correlations of the scores of different scales for the workers of the polluted industries in terms of age (below 20 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.602**	.257
	Sig. (2-tailed)	.	.000	.074
	N	49	49	49
Subjective Health Questionnarie	Pearson Correlation	-.602**	1.000	-.404**
	Sig. (2-tailed)	.000	.	.004
	N	49	49	49
General Health Questionnaire	Pearson Correlation	.257	-.404**	1.000
	Sig. (2-tailed)	.074	.004	.
	N	49	49	49

**. Correlation is significant at the 0.01 level (2-tailed).

Table- 41A: Inter-correlations of the scores of different scales for the workers of the polluted industries in terms of age (20 to 29 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.144	.204*
	Sig. (2-tailed)	.	.081	.013
	N	147	147	147
Subjective Health Questionnarie	Pearson Correlation	-.144	1.000	-.037
	Sig. (2-tailed)	.081	.	.658
	N	147	147	147
General Health Questionnaire	Pearson Correlation	.204*	-.037	1.000
	Sig. (2-tailed)	.013	.658	.
	N	147	147	147

*. Correlation is significant at the 0.05 level

Table- 42A: Inter-correlations of the scores of different scales for the workers of the polluted industries in terms of age (30 years and above)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.203*	-.089
	Sig. (2-tailed)	.	.015	.291
	N	144	144	144
Subjective Health Questionnarie	Pearson Correlation	-.203*	1.000	-.058
	Sig. (2-tailed)	.015	.	.493
	N	144	144	144
General Health Questionnaire	Pearson Correlation	-.089	-.058	1.000
	Sig. (2-tailed)	.291	.493	.
	N	144	144	144

*. Correlation is significant at the 0.05 level (2-tailed).

Table- 43A: Inter-correlations of the scores on different scales for married workers of polluted industries

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.173**	.027
	Sig. (2-tailed)	.	.004	.659
	N	276	276	276
Subjective Health Questionnarie	Pearson Correlation	-.173**	1.000	-.033
	Sig. (2-tailed)	.004	.	.586
	N	276	276	276
General Health Questionnaire	Pearson Correlation	.027	-.033	1.000
	Sig. (2-tailed)	.659	.586	.
	N	276	276	276

**. Correlation is significant at the 0.01 level (2-tailed).

Table- 44A: Inter-correlations of the scores on different scales for unmarried workers of polluted industries

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.518**	.273*
	Sig. (2-tailed)	.	.000	.029
	N	64	64	64
Subjective Health Questionnarie	Pearson Correlation	-.518**	1.000	-.321**
	Sig. (2-tailed)	.000	.	.010
	N	64	64	64
General Health Questionnaire	Pearson Correlation	.273*	-.321**	1.000
	Sig. (2-tailed)	.029	.010	.
	N	64	64	64

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table-45A: Inter-correlations of the scores on different scales for the workers of polluted industries in terms of experience (Below 10 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.701**	.485**
	Sig. (2-tailed)	.	.000	.002
	N	39	39	39
Subjective Health Questionnarie	Pearson Correlation	-.701**	1.000	-.450**
	Sig. (2-tailed)	.000	.	.004
	N	39	39	39
General Health Questionnaire	Pearson Correlation	.485**	-.450**	1.000
	Sig. (2-tailed)	.002	.004	.
	N	39	39	39

**. Correlation is significant at the 0.01 level (2-tailed).

Table-46A: Inter-correlations of the scores on different scales for the workers of polluted industries in terms of experience (10-20 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.149*	.029
	Sig. (2-tailed)	.	.028	.667
	N	220	220	220
Subjective Health Questionnarie	Pearson Correlation	-.149*	1.000	-.047
	Sig. (2-tailed)	.028	.	.493
	N	220	220	220
General Health Questionnaire	Pearson Correlation	.029	-.047	1.000
	Sig. (2-tailed)	.667	.493	.
	N	220	220	220

*. Correlation is significant at the 0.05 level (2-tailed).

Table-47A: Inter-correlations of the scores on different scales for the workers of polluted industries in terms of experience (above 20 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.232*	.079
	Sig. (2-tailed)	.	.037	.481
	N	81	81	81
Subjective Health Questionnarie	Pearson Correlation	-.232*	1.000	-.113
	Sig. (2-tailed)	.037	.	.314
	N	81	81	81
General Health Questionnaire	Pearson Correlation	.079	-.113	1.000
	Sig. (2-tailed)	.481	.314	.
	N	81	81	81

*. Correlation is significant at the 0.05 level (2-tailed).

Table-38B: Inter-correlations of the scores of different scales for the male workers of the non-polluted industries

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.609**	.411**
	Sig. (2-tailed)	.	.000	.000
	N	120	120	120
Subjective Health Questionnarie	Pearson Correlation	-.609**	1.000	-.437**
	Sig. (2-tailed)	.000	.	.000
	N	120	120	120
General Health Questionnaire	Pearson Correlation	.411**	-.437**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	120	120	120

**. Correlation is significant at the 0.01 level (2-tailed).

Table-39 B: Inter-correlations of the scores of different scales for the female workers of the non-polluted industries

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.019	-.008
	Sig. (2-tailed)	.	.870	.942
	N	80	80	80
Subjective Health Questionnarie	Pearson Correlation	-.019	1.000	.486**
	Sig. (2-tailed)	.870	.	.000
	N	80	80	80
General Health Questionnaire	Pearson Correlation	-.008	.486**	1.000
	Sig. (2-tailed)	.942	.000	.
	N	80	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

Table- 40B: Inter-correlations of the scores of different scales for the workers of the non-polluted industries in terms of age (below 20 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.765**	.464*
	Sig. (2-tailed)	.	.000	.019
	N	25	25	25
Subjective Health Questionnarie	Pearson Correlation	-.765**	1.000	-.372
	Sig. (2-tailed)	.000	.	.067
	N	25	25	25
General Health Questionnaire	Pearson Correlation	.464*	-.372	1.000
	Sig. (2-tailed)	.019	.067	.
	N	25	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table- 41B: Inter-correlations of the scores of different scales for the workers of the non-polluted industries in terms of age (20 to 29 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.785**	.561**
	Sig. (2-tailed)	.	.000	.000
	N	87	87	87
Subjective Health Questionnarie	Pearson Correlation	-.785**	1.000	-.596**
	Sig. (2-tailed)	.000	.	.000
	N	87	87	87
General Health Questionnaire	Pearson Correlation	.561**	-.596**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	87	87	87

**. Correlation is significant at the 0.01 level (2-tailed).

Table- 42B: Inter-correlations of the scores of different scales for the workers of the non-polluted industries in terms of age (30 years and above)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.639**	.649**
	Sig. (2-tailed)	.	.000	.000
	N	88	88	88
Subjective Health Questionnarie	Pearson Correlation	-.639**	1.000	-.583**
	Sig. (2-tailed)	.000	.	.000
	N	88	88	88
General Health Questionnaire	Pearson Correlation	.649**	-.583**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	88	88	88

**. Correlation is significant at the 0.01 level (2-tailed).

Table- 43B: Inter-correlations of the scores on different scales for married workers of non-polluted industries

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.715**	.586**
	Sig. (2-tailed)	.	.000	.000
	N	148	148	148
Subjective Health Questionnarie	Pearson Correlation	-.715**	1.000	-.566**
	Sig. (2-tailed)	.000	.	.000
	N	148	148	148
General Health Questionnaire	Pearson Correlation	.586**	-.566**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	148	148	148

**. Correlation is significant at the 0.01 level (2-tailed).

Table- 44B: Inter-correlations of the scores on different scales for unmarried workers of non-polluted industries

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.705**	.611**
	Sig. (2-tailed)	.	.000	.000
	N	52	52	52
Subjective Health Questionnarie	Pearson Correlation	-.705**	1.000	-.594**
	Sig. (2-tailed)	.000	.	.000
	N	52	52	52
General Health Questionnaire	Pearson Correlation	.611**	-.594**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	52	52	52

**. Correlation is significant at the 0.01 level (2-tailed).

Table-45B: Inter-correlations of the scores on different scales for the workers of non-polluted industries in terms of experience (Below 10 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.725**	.567**
	Sig. (2-tailed)	.	.000	.000
	N	108	108	108
Subjective Health Questionnarie	Pearson Correlation	-.725**	1.000	-.583**
	Sig. (2-tailed)	.000	.	.000
	N	108	108	108
General Health Questionnaire	Pearson Correlation	.567**	-.583**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	108	108	108

**. Correlation is significant at the 0.01 level (2-tailed).

Table-46B: Inter-correlations of the scores on different scales for the workers of non-polluted industries in terms of experience (10-20 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	1.000	-.694**	.646**
	Sig. (2-tailed)	.	.000	.000
	N	91	91	91
Subjective Health Questionnarie	Pearson Correlation	-.694**	1.000	-.556**
	Sig. (2-tailed)	.000	.	.000
	N	91	91	91
General Health Questionnaire	Pearson Correlation	.646**	-.556**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	91	91	91

**. Correlation is significant at the 0.01 level (2-tailed).

Table-47B: Inter-correlations of the scores on different scales for the workers of non-polluted industries in terms of experience (above 20 years)

Correlations

		Quality of Working Life	Subjective Health Questionnarie	General Health Questionnaire
Quality of Working Life	Pearson Correlation	.[a]	.[a]	.[a]
	Sig. (2-tailed)	.	.	.
	N	1	1	1
Subjective Health Questionnarie	Pearson Correlation	.[a]	.[a]	.[a]
	Sig. (2-tailed)	.	.	.
	N	1	1	1
General Health Questionnaire	Pearson Correlation	.[a]	.[a]	.[a]
	Sig. (2-tailed)	.	.	.
	N	1	1	1

a. Cannot be computed because at least one of the variables is constant.

Table - 48 : Percentage of the workers of the polluted and non-polluted industries with post-service record of ill health

Polution			Sex of the respondent		Total
			Male	Female	
Polluted	The workers with post-service record of ill health	0	79	35	114
			69.3%	30.7%	100.0%
			37.6%	26.9%	33.5%
		Cold and Fever		1	1
				100.0%	100.0%
				.8%	.3%
		Headache	46	26	72
			63.9%	36.1%	100.0%
			21.9%	20.0%	21.2%
		Body pain & grip up ones loins	17	13	30
			56.7%	43.3%	100.0%
			8.1%	10.0%	8.8%
		Gastric, Dysentry, Pain in the bowel	43	26	69
			62.3%	37.7%	100.0%
			20.5%	20.0%	20.3%
		Lung pain, respiration	18	12	30
			60.0%	40.0%	100.0%
			8.6%	9.2%	8.8%
		Irregular ~~Ministration~~ Menstruation		8	8
				100.0%	100.0%
				6.2%	2.4%
		Eye disease	5	5	10
			50.0%	50.0%	100.0%
			2.4%	3.8%	2.9%
		Ear disease	2	4	6
			33.3%	66.7%	100.0%
			1.0%	3.1%	1.8%
	Total		210	130	340
			61.8%	38.2%	100.0%
			100.0%	100.0%	100.0%
Non polluted	The workers with post-service record of ill health	0	85	74	159
			53.5%	46.5%	100.0%
			70.8%	92.5%	79.5%
		Cold and Fever	4	6	10
			40.0%	60.0%	100.0%
			3.3%	7.5%	5.0%
		Headache	28		28
			100.0%		100.0%
			23.3%		14.0%
		Body pain & grip up ones loins	2		2
			100.0%		100.0%
			1.7%		1.0%
		Gastric, Dysentry, Pain in the bowel	1		1
			100.0%		100.0%
			.8%		.5%
	Total		120	80	200
			60.0%	40.0%	100.0%
			100.0%	100.0%	100.0%