

**A STUDY ON EMPLOYEES WELFARE, HEALTH AND SAFETY
MEASURES WITH REFERENCE TO THERMOX POLYMERS LTD**

Submitted in partial fulfillment of the requirements for the award of

Master of Business Administration

FINAL PROJECT

by

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SCHOOL OF BUSINESS ADMINISTRATION

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC I 12B Status by UGC I Approved by AICTE
Jeppiaar Nagar, RAJIV GANDHI SALAI, CHENNAI - 600 119**

April - 2021



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SCHOOL OF MANAGEMENT STUDIES

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **SHABIN GILBERT.G 40410162** who carried out the project entitled “**A STUDY ON EMPLOYEES WELFARE, HEALTH AND SAFETY MEASURES WITH REFERENCE TO THERMOX POLYMERS LTD**” under my supervision from December 2021 to March 2022.

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DECLARATION

SHABIN GILBERT.G (40410162) hereby declare that the Project Report entitled “**A STUDY ON EMPLOYEES WELFARE, HEALTH AND SAFETY MEASURES WITH REFERENCE TO THERMOX POLYMERS LTD**” done by me under the guidance of **DR.PALANI.A** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

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ABSTRACT

The project is done under the title **“A STUDY ON EMPLOYEE’S WELFARE, HEALTH AND SAFETY MEASURES IN THERMOX POLYMERS LTD”**. The objective of the study includes, to study about employee’s Welfare, health and safety measures in ThermoX Polymers Ltd , to identify whether the employee’s are satisfied with the welfare facilities provided to them, to identify the reasons for non use of Personnel Protective Equipment (PPE’S), to analyze the health related issues and health facilities provided to employees.

The sample size taken for the study is 150 and the sampling design used for the study is stratified random sampling. Structured questionnaire were used to collect the primary data from the employees.

The stratified tool which has been used is percentage analysis, weighted average method and chi square test. Using this, the result of the analysis, findings and suggestions have been arrived.

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CHAPTER - 1

INTRODUCTION OF THE STUDY

1.1 INTRODUCTION

Thermox Polymers Ltd is the pioneering among the major Indian ports with overcoming challenges after challenges and steadily growing in prominence. 126 years down the line service the port as no sign of ageing. The employee's are also been the part of this great achievements, the study reveals about the welfare, Health and Safety measures provided to the employee's by Thermox Polymers Ltd .

Employee welfare is a comprehensive term including various services, facilities and amenities provided to employees for their betterment. It is an essential part of social welfare; it involves adjustment of an employee's work life and family life to the community or social life.

In port occupational health services have very broad functions, going far beyond medical supervision of the personnel and concerned at least as much with treatment, it will usually be convenient in a port of any size, for the port authorities to organize their own medical services with medical services with medical and nursing personnel employed part time or full time according to the number of workers to be supervised.

Accidents and injuries in ports and docks may be caused by environmental factors like bad weather, confined spaces , poor lighting and so on and in many instances, by the need to work fast. A number of accidents could be attributed to non use of Personal Protective Equipments (PPE'S). The type and degree of hazards during dock work vary according to the nature of the cargo and the working conditions.

Thus the basic purpose of employee welfare is to improve the lot of the working class and thereby make a worker a good employee and a happy citizen & the basic purpose of employee's health and safety is to make them feel that their organization gives more value to their life and provide best in facilities rather than any other.

1.2 INDUSTRY PROFILE

The Indian sub-continent has established itself as the most exciting and dynamic emerging market in the world and is one full of potential and investment opportunities. With a population greater than China but with a polymer demand less than 20%, the region is expected to enjoy the fastest growth in polymer demand anywhere in the world over the next five years; outstripping China and other emerging economies. According to a recently published study by Applied Market Information Ltd (AMI Consulting), there is now massive investment occurring in the region's petrochemical, polymer production and downstream plastic processing industries, driving strong growth in polymer demand. AMI forecasts that at the region's current rate of growth its thermoplastics market will surpass 20 million tons by 2020. The market in the region is dominated by India on account of its huge population and high GDP. However, growth in the region on the whole is driven by its increasingly globally-minded governments that are introducing policies to encourage foreign direct investment and facilitate closer integration with the worldwide economy, helping to drive investment in petrochemicals, polymer production and downstream plastic processing. Growth in the region is not only fuelled by such policy relaxations but also by rising urbanisation of a large, youthful, population, leading to greater consumer spending for items that require plastics - from packaged goods to mobile phones and automobiles. While much of these products are still imported, there is now considerable investment taking place in plastics processing operations to support manufacturing investments, driving growth in polymer demand.

Although rapidly developing, the region does face substantial challenges. For example, lack of sufficient local polymer production is a major obstacle faced by many plastics processors in the region with each country besides India being heavily or even entirely reliant on resin imports depending on the country in question; these imports are mainly sourced from India, the Middle East and South East Asia. Exchange rate fluctuations of local currencies against the dollar add further uncertainty to the market, making it harder to compete against cheaper Chinese imports of finished goods. In general, power supply in the sub-continent is tight but also erratic and unreliable in many regions, which can dramatically reduce effective utilisation. However, in India in particular, the government is seeking to address these issues by implementing strategies to tackle infrastructural and power limitations. In addition, in September 2014, it announced its "Make in India" initiative, designed to catalyse Indian manufacturing to make the country a globally recognised manufacturing hub for years to

come. It is clear that plastics will be called on to play a vital role in this changing region and the plastics industry will benefit from national efforts to encourage and improve manufacturing. In its report, AMI forecasts 8% per year average increases in the Indian sub-continent over the next five years, with levels of annual growth varying from 5% in Sri Lanka to up to over 8% in India. Polymer demand in the India sub continent is currently as follows: PP at 30% of the total polymer demand, PVC at 21%, HDPE at 18%, LLDPE at 12%, LDPE at 4%, Engineering Plastics at 4%, EPS at 1%, GPPS and HIPS combined at 2%, PET at 8%.

India stands third in polymer consumption globally after China and US. Per capita consumption of plastic in India was low at 9.7 kg in 2012-13 as per Global Market Research. Despite the slowdown in the economy until 2014, the polymer industry in India is believed to be finally on track. With an increase in demand the polymer consumption is expected to double by 2020, to about 20 million metric tons. The key players of the market believe that the growth drivers of the sector are finally in place and with the insatiable manufacturing industry, supportive government policies and a freshly surging economy, the best is yet to come for this niche. As the third largest consumer of polymers, India ranks only after China and USA, with about 5.7% of the total market share, as of 2011. Evaluation of the polymer industry trends reveals strong growth prospects citing the increased usage of plastics across sectors. The sector is projected to grow at the rate of 5.4% in 2014 and 6.5% in 2015 citing the growing demand from various industries. Furthermore, with the key market players integrating more back-end exploration and refining businesses, alongside streamlining their sourcing operations, opportunities are expected to increase in the coming years. As polymers rapidly replace the traditional materials for packaging, other key long-term factors fuelling the growth of the sector include the recent surge in the annual car production that is predicted to grow to 9.3 mln vehicles by 2020 will further aid its growth, given that the automobile sector is one of the biggest users of polymer. Given the rising demand, the Indian government is also planning to increase its spend to about USD 1 trillion on the infrastructure requirements of the industry. Alongside, the market for electronic goods to grow by 700%, substantially triggered by the increased rural disposable income. This will inevitably cause the manufacturing sector to grow manifold, further boosting the domestic polymer industry. With the increased demand for polymer across the country India is expected to become the seventh largest consumer of polymer by 2025. In spite of all these latent opportunities, China still produces three to twenty times more of most polymers, as compared to India, even with

the population of both the countries being relatively equal. However, market experts predict that it will be the growing demand for plastics, rising costs and economic challenges that will see the Indian market growing faster than its competitors.

Polymers account for around 70% of petrochemicals and that is the reason that they are the most important constituent of the Indian chemical industry.

Polymers are essentially used in the manufacture of various plastic products. In the consumption of the basic petrochemical, polymers form the bulk of demand with a share of around 55%.

The share of polymers in the product mix in India for various crackers ranges from 60% to 90%. The segment of polymers have registered a growth of 18% while there have been an increase of 26% in the capacities CAGR.

The various byproducts of polymers are:

- Polystyrene
- PVC
- Poly propylene
- LDPE/ LLDPE
- HDPE

Polystyrene, a byproduct of polymers has a ` 435 crore market size. Its market price was around ` 42.5 per kg in 1999. The major companies involved in the production of polystyrene are Rajasthan Polymers, Mc Dowell & Co., and Supreme Petrochem. PVC, a polymers byproduct, is in demand in the Indian market at 554,000 tons per annum. This segment has been growing at the rate of 15% yearly. Around 54% of PVC is used in the manufacturing of pipes and 14% is used in the production of cable sheathing. The cost of PVC was ` 44.95 per kg in 1999. The main companies involved in the production of PVC are IPCL and RIL.

Polypropylene is a very light weight polymer and that is the main reason why it is used as a substitute for various other polymers. During 1997-1998, around 11,000 tons of

poly propylene was imported. Over the last 3 years, the demand for this product has increased by 38% and now stands at 595,000 tons. The price of polypropylene was ` 47.50 per kg in 1999. It is mainly used in the manufacture of injection moulding, BOPP, ropes, twines, and

In India, low-density polyethylene (LDPE) and linear low density polyethylene (LLDPE) are also widely used polymers. This segment of polymers is growing at the rate of 12% per year. More than 50% of LDPE/ LLDPE is used by the packaging industry and they were priced at around ` 54.25 per kg in 1999. The companies which make LDPE/ LLDPE are Oswal, RIL, and IPCL. The second most used polymer in India is HDPE, with a share of 22%. The value of its domestic consumption is ` 2, 123 crore and it is growing at the rate of 15% per year. It cost around ` 50 per kg in 1999. HDPE is used in the manufacturing of raffia, blow moulding, injection moulding, and in the paper industry as well. The companies involved in the production of HDPE are NOCIL, RIL, and IPCL.

1.3 COMPANY PROFILE

Established in 2005 in the automotive industrial hub of Chennai, Thermox Polymers Ltd today is a world class manufacturer of Moulded and Extruded Rubber & Plastic parts for Automotive OEM around the globe. All the TPL plants are certified and meet the most stringent quality norms set by its diverse range of customers. Apart from supplying to automotive majors in India.

TPL has a unique capability to process rubber parts in all grades like NR, NBR, SBR, EPDM, Silicon, Viton, Neoprene, Chloroprene, HNBR, Fluoro, Isoprene, Hyplone, etc., and plastic parts in grades like PP (Polypropylene), PVC (Polyvinylchloride), TPE (Thermoplastic rubber), PA 66, PA66 + Glass Fibre, POM (Polyoxymethylene), Santoprene, Desmopan, etc. It therefore offers a 'one stop shop' engineering solutions to all the customers through its expertise in designing, development, tooling, moulding, extrusion, assembly, painting, testing and delivery capabilities across the globe. Backed by its technical capabilities and highly enthusiastic workforce, TPL today has become a supplier of choice for the Indian Automotive industry.

Mission/Vision Statement

To be an innovative, profitable and a preferred Automotive organization by creating the right environment for our most valuable asset-the human capital while continuously striving to reduce our carbon footprint and proactively engage our self in CSR activities.

Corporate Social Responsibility

As a truly global organization, it strives to maintain a strong ethical background. All its plants are smoke free, zero pollution hubs, thereby contributing to a greener environment. The company actively undertakes social welfare programs to support its employees as well as the community like tree plantation week, Blood donation camps, charity programs etc. The company has set a target of devoting 500 manhours to CSR activities.

Our Strengths

Possess rich experience in Rubber Auto parts manufacturing Offer complete solutions in Rubber & Plastic Processing Technologies i.e. Injection, Compression, Transfer Moulding and Extrusion processes

6 state-of-the-art manufacturing units at geographically diverse locations Single window contact point for all our customers available 24x7 for customer support

A well experienced product development team with deep understanding of the most intricate products

Centralized Rubber Compounding facilities for unparalleled economies and consistency.

Complete In house Testing facilities and a well equipped tool room with latest technology machines and software

INFRASTRUCTURE

Rubber & Plastic Extrusion

The in-house co-extrusion lines for extruding EPDM profiles are equipped with Glass beads and microwave hot air curing system with or without metal inserts and flocking. The company has recently introduced PVC Co-Extrusion line with facilities for Slicing, Cutting, Printing, Taping, Notching, Punching, Drilling etc. It has achieved competence in the manufacturing of single & twin layer fuel tubes with the capability to produce the most complicated shapes in all sizes.



Plastic Moulding & Assembly

TPL is equipped with latest Horizontal Plastic Injection Moulded machines ranging from 90T to 400 Tonnes. This is supported by various other Post Moulding operations like Ultrasonic Plastic Welding Machines and ABS and Sheet Metal 3K system Paint Shop etc. In a quest to further augment its product offering, TPL keeps upgrading itself to bigger tonal machines.



Finishing

Understanding the complexity of precise finishing of the rubber parts, TPL has deployed the state of the art finishing equipment- Cryogenic Deflashing machines for seamless finishing processes.



Adhering to the quality standards of the industry

Rubber Moulding



Precision and high performance is our forte

Injection Moulding

The group has deployed advanced Microprocessor controlled Desma Rubber Injection Moulding machines of upto 250 Tonnes. Depending upon the nature of the product, machines are run on fully automated processes right from compound feeding to product removal from the moulds.

Compounding



Equipped with technology at its best

Thermox Polymers has an automatic centralized rubber compounding setup facilitated to achieve maximum productivity, precision quality and consistency of the rubber compound. This has been integrated with a high-tech automated intermix system with facilities for automatic chemical weighing, auto oil dispersion, batch off unit, sieving and cutting. This

ensures consistency in the compound properties, optimal productivity and gives a mixing capacity of more than 1000 tons of rubber compound per month.

PRODUCTS

1. Rubber Moulded and Metal Bonded



Guide Chains



Insulators



Suspension Bushes



Engine Mounts



Dust Covers & Seals for
Steering Systems



Foot Rests



Assorted Rubber to Metal
Bonded Parts



Bellows & Hoses



Wire Harness Grommet



Gaskets



Assorted Rubber Parts



Grometts and Air Cleaner
Hose

2. Rubber and PVC Extruded



Bonnet Seal



Rubber Profiles With and
Without Metal Inserts



Rubber Profiles With and
Without Metal Inserts



Single and Twin Layer Fuel
Tube Assemblies



Single and Twin Layer Fuel
Tube 1

3. Plastic Injection Moulded & Painted



Painted Mud Guards



Mud Guards



Cylinder Head and Side
Covers



Plastic Moulded Parts with
Metal Inserts



Assorted Plastic Parts

1.4 NEED FOR THE STUDY:

The study gives ideas about how far employees are satisfied with prevailing welfare facilities .To find out health related problems among the employee's and how far the health facilities are helpful and also to create the awareness regarding safety equipments among the workers.

Organization like Thermox Polymers Ltd is more prone to labour problems. In order to bring down labour problems, employee health, safety and welfare measures should be given due importance. Management must also ensure that facilities provided by should reach the employees. Through this analysis we should avoid probable accidents and injuries in ports and docks through personal protective equipments.

1.5 OBJECTIVES OF THE STUDY:

- To study about employee's Welfare, health and safety measures in Thermax Polymers Ltd.
- To identify whether the employees are satisfied with the welfare facilities provided to them.
- To create awareness in the use of Personnel Protective Equipment (PPE'S).
- To analyze the health-related issues and health facilities provided to employees.

1.6 SCOPE OF THE STUDY:

The study will give necessary information to management for further improvement in welfare measures of the employees in the Thermax Polymers Ltd .

From this study the management can identify the problem of employee's regarding health and safety of the employees working in the various department of the Thermax Polymers Ltd .

The study gives feedback in identifying right thing needed for employee's, so as to provide better Welfare, Health and Safety facilities.

1.7 LIMITATIONS OF THE STUDY:

- The study involves certain problem like employee's doesn't spent time to reply for the questions.
- Few employees are reluctant to give complete information.
- There were possibilities of ambiguous replies, omission of replies to certain questions.
- Questionnaire was translated in tamil to some of the respondents which may also lead to misunderstanding of questions.
- The port is working on shift system and some of the employees who are working in night shift have not been covered under the study.

CHAPTER – II

REVIEW OF THE STUDY

2.1 REVIEW OF LITERATURES

Each employer depending on his priorities gives varying degrees of importance to welfare, health and safety, it is because the government is not sure that all the employers will provide basic measure that it introduces statutory legislation from time to time to bring about some measures of uniformity in the basic amenities available to industrial workers.

DOCK WORKER’S (SAFETY, HEALTH, AND WELFARE) SCHEME 1961.

A comprehensive dock worker’s (safety, health, and welfare) scheme 1961 has been formed under the dock worker’s (Regulation of Employment Act, 1948).

DEFINITIONS:

According to the **Oxford dictionary** employee welfare or labor welfare means “the efforts to make life worth living for workmen”

According to **the labor investigation committee (1946)**, Employee welfare means “anything done for intellectual, physical, moral and economical betterment of the workers, whether by employer, by government or by other agencies, over and above what is normally expected on the part of the contracted benefits for which workers may have bargained”

1. Human resource safety practices and employee injuries.

By Kristy J'Lyn Lauver | Journal of Managerial Issues - Fall, 2007

This study begins the important integration of the human resource and safety literatures, as well as providing findings that HR practices are associated with employee injuries. This provides organizations with some potential steps they can take to improve employee safety. However, this study only begins to touch on issues that may make a significant difference in organizational safety, calling for future studies to continue defining what and how HR practices may be associated with reducing employee injuries.

2. THE EFFECTS OF JOB INSECURITY ON EMPLOYEE SAFETY OUTCOMES

JOURNAL OF OCCUPATIONAL HEALTH PSYCHOLOGY

VOLUME 6 ISSUE2

Job insecurity research has focused primarily on attitudinal (eg., job satisfaction), behavioral (eg., employee turnover), and health outcomes. Moreover, research in the area of

workplace safety has largely focused on ergonomic factors and personnel selection and training as primary antecedents of safety. Two cross-sectional structural equation modeling analyses and 1 longitudinal regression analysis of 237 food-processing plant employees unite these 2 disparate areas of research by exploring the relatively uncharted relationship between job insecurity and safety outcomes. Results indicate that employees who report high perceptions of job insecurity exhibit decreased safety motivation and compliance, which in turn are related to higher levels of workplace injuries and accidents.

3. Designing Employee Welfare Provision

Ann Davis, Lucy Gibson, (1994) "Designing Employee Welfare Provision", Personnel Review, Vol. 23 Iss: 7, pp.33 – 45

Describes a process through which organizations might seek to implement interventions relating to employee wellbeing. Emphasizes the importance of a comprehensive needs assessment both in obtaining the breadth of information needed to design appropriate interventions and also in providing baseline information against which to evaluate programme effectiveness. Discusses factors which influence the type of intervention appropriate for a particular situation and highlights their design implications. Finally, provides guidance on programme implementation and evaluation, and discusses some of the advantages and disadvantages of different approaches to tertiary welfare provision.

ILO RECOMMENDATIONS AND CONVENTIONS ON WELFARE, HEALTH AND SAFETY:

WELFARE:

ILO has taken recourse to a number of activities in promoting the welfare of workers, two recommendation deals with various aspects of workers welfare.

The utilization of spare time Rec. (no. 21)1924 deals with the principles and methods for securing the best use of the spare time of workers.

The living in condition (Agriculture) Rec. (no. 16), 1921 recommends that measure should be adopted to regulate the living in condition of agricultural workers with due regard to the climatic or other condition affecting agricultural workers.

Other recommendations dealing with welfare are,

- Welfare facilities (No.102), 1956
- Working housing (No.115), 1961

HEALTH:

A few conventions and recommendations seek to protect workers against certain occupational diseases and health hazards,

The labor inspection (Health Service) Rec (No5), 1919 deals with the establishments of Government Health Services especially for safeguarding health of workers.

The protection of workers health Rec. (No 96) 1953 relates to the protection of health of workers in places of employment and covers a wide range of health aspects including health hazards, medical examination, and notification of occupational diseases and the provisions of first aid facilities.

Rec No 3 suggests making of arrangements for the disinfection of wool infected with anthrax spores either, in the country exporting such wool, or at the port of the entry.

SAFETY:

Particular industries or processes in respect of which Convention or recommendation concerning safety have been adopted include Docks, Making of weight, Building construction and Coalmines.

The prevention of industrial accidents Recommendation (No.31), 1929 the power driven Machinery Rec (No 32), 1929 and the labor inspectors Rec. (No.20), 1923 deals with general problem of safety.

The marking of weight (package transported by vessels) Con(No.27),1929 which has been ratified by India requires every package of one ton or more gross weight consigned for transport by sea or inland water to have its gross weight plainly marked on the outside, on a ship or other vessels.

CHAPTER – III

RESEARCH METHODOLOGY

RESEARCH METHODOLOGY:

Research methodology is a way to systematically solve the research problem it guides us to how research is done scientifically. It consists of different steps that are generally adopted by a researcher to study his research problems along with logic behind them. The research methodology by itself is a process. It has many stages of activities, grouped together yield the solution to the problem.

DEFINITION OF RESEARCH:

“According to Clifford Woody research comprises defining and redefining the problem, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deduction and reaching conclusions; and at last, carefully testing the conclusions to determine whether they fit the formulating hypothesis.”

RESEARCH DESIGN:

- A research design is purely and simply the framework or plan for a study that guides the collection and analysis of data.
- A research design is the arrangement of condition for collection and analysis of data in a manner that aims to combine relevance to research purpose with economy in procedure.
- The research design is the conceptual structure within research is conducted it constitutes the blueprint for the collection measurement and analysis of data.

In the research survey conducted, the research design adopted is “DESCRIPTIVE RESEARCH DESIGN”

DESCRIPTIVE RESEARCH:

In social sciences and business research we quite use the term Ex Post Facto research for descriptive research studies. The main characteristics of this method is that researcher has no control over the variable; he can only report what has happened and what is happening.

Descriptive research is the one that simply describes something such as demographic characteristics of consumers who used the product/services. The study is something that occurs or how two variables vary together. This study is typically hypothesis.

POPULATION:

The population comprises of the entire employee's in Thermox Polymers Ltd (PL). But due to the time constraints it is not possible to have a complete population, the study is among the employee's which is one of the major departments in PL.

The sample size of 150 respondents has been arrived for the study among the population of 450 employees.

The number of employees in traffic department was 450 and it has eleven divisions under which one third of employees have been taken from each division

MODE OF CONTACT:

All the respondents were personally interviewed with the help of structured questionnaire for the purpose of data collection.

DESIGN AND PRETESTING OF QUESTIONNAIRE:

The questionnaire is keeping in view the primary and secondary objective it was designed so as to reduce ambiguity as far as possible, initially the questionnaire was pre tested among the respondents to identify new points that could be included before administration the complete questionnaire and to eliminate bias.

METHOD OF DATA COLLECTION:

The source of data is generally classified as primary and secondary. According to Pauline's Young, the source of information can be classified into documentary source and field source."

The information given collected by individual and group constitute primary or field source.

Books, manuscripts, diaries, letterset are from the secondary or documentary sources.

PRIMARY DATA:

The primary data are those which are collected a fresh and for the first time and thus happen to be original in character. In this survey primary data is obtain through direct interview using questionnaire.

SECONDARY DATA:

Secondary data is collected from books, websites , magazines, and from articles.

The difference between primary and secondary data is matters of relatively data which are primary in hands of one become secondary in hands of others. This study pertains to collect data from source that is primary data.

STRATIFIED SAMPLING:

Under stratified sampling the population is divided into several sub-population that are individually more homogenous than the population(the different sub-population are called ‘strata’) and then we select each items from stratum to constitute a sample.

Since each stratum is more homogenous than the total population, we are able to get more precise estimate for each stratum and by estimating more accurately each of the components parts, we get better estimate of the whole.

ANALYTICAL TOOLS

3.1 ANALYSIS USING KARL PEARSON’S CORRELATION:

Correlation analysis is the statistical tool used to measure the degree to which two variables are linearly related to each other. Correlation measures the degree of association between two variables. The Pearson product-moment correlation coefficient is a measure of the strength and direction of association that exists between two variables measured on at least an interval scale. It is denoted by the symbol r .

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}}$$

3.2 CHI- SQUARE TEST I – (χ^2)

A chi-squared test, also referred to as chi-square test or χ^2 test, is any statistical hypothesis test in which the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true, or any in which this is asymptotically true,

meaning that the sampling distribution (if the null hypothesis is true) can be made to approximate a chi-squared distribution as closely as desired by making the sample size large enough.

The χ^2 test was first used by Karl Pearson in the year 1900. The quantity χ^2 describes the magnitude of the discrepancy between theory and observation.

It is calculated using:

$$\chi^2 = \sum [(O_i - E_i)^2 / E_i] \text{ with } (n - 1) \text{ degrees of freedom.}$$

Where, O_i refers to the observed frequency & E_i to the expected frequencies.

χ^2 was used as a test of independence and goodness of fit.

ONE WAY ANOVA

The ANOVA tests the null hypothesis that samples in two or more groups are drawn from populations with the same mean values. To do this, two estimates are made of the population variance. The ANOVA produces an F-statistic, the ratio of the variance calculated among the means to the variance within the samples. If the group means are drawn from populations with the same mean values, the variance between the group means should be lower than the variance of the samples, following the central limit theorem. A higher ratio therefore implies that the samples were drawn from populations with different mean values.

3.3 PERCENTAGES

Percentages refer to a special kind of ratio. Percentages are used in making comparison between two or more series of data. Percentages are used to describe relationships, it is expressed as.

$$\text{Percentage} = (\text{no of employees} / \text{total no of employees}) \times 100$$

CHARTS:

Charts are graphic displays of data for easy understanding of relative positions that is not always possible with descriptive words or numbers. Types of charts commonly used in business data presentation are: Bar and pie.

BAR CHARTS:

The bar chart is commonly used for presentation of qualitative data. The data can be continuous or discrete data, which are plotted against discrete data intervals. The vertical bar diagram, also called bar chart where the length or height of bars represent the numerical value of the event or measurement. Width or gap between the bars is of no significance to the bar chart data, but they are uniform in a diagram.

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION OF THE STUDY

4.1 PERCENTAGE ANALYSIS

TABLE 4.1.1

TABLE SHOWING RESPONDANTS BASED ON AGE

AGE	NO OF RESPONDANTS	PERCENTAGE
21-25YRS	10	7
26-30YRS	34	22
31-35YRS	56	37
36-40YRS	31	21
ABOVE 40YRS	19	13
TOTAL	150	100

INFERENCE:

From the study it reveals that 22% of the respondents under 26-30 yrs of age, 37% of respondents under 31-35 yrs of age & 21% of respondents under 36-46yrs & 13% of respondents are under the age of above 40yrs.

CHART 4.1.1

CHART SHOWING RESPONDANTS BASED ON AGE

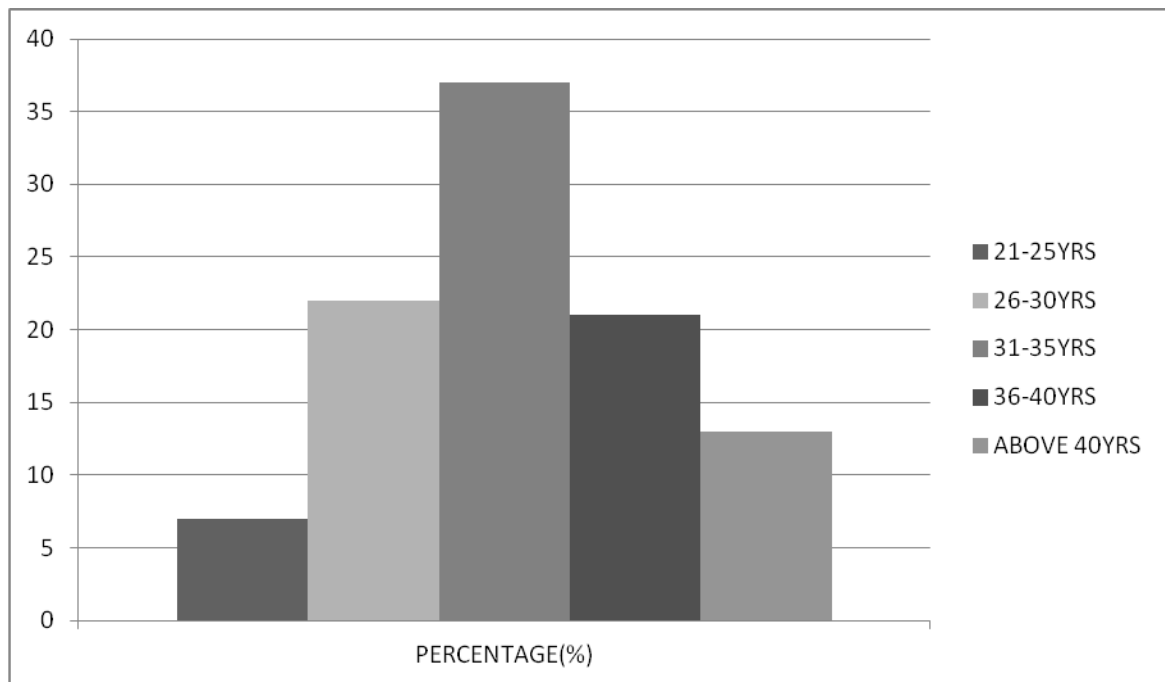


TABLE 4.1.2

TABLE SHOWING RESPONDENTS BASED ON GENDER

GENDER	NO OF RESPONDENTS	PERCENTAGE(%)
MALE	78	52
FEMALE	72	48
TOTAL	150	100

INFERENCE:

From the study it has reveals that, 52% of respondents are male and 48% of the respondents are female.

CHART 4.1.2

CHART SHOWING RESPONDENTS BASED ON GENDER

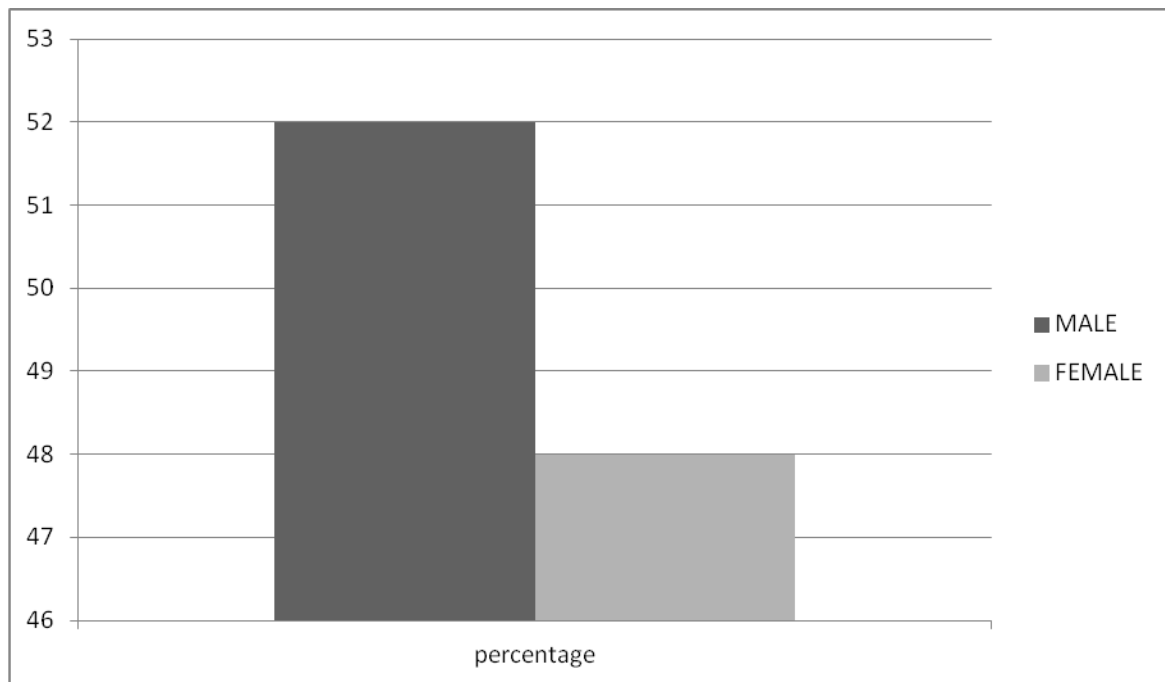


TABLE 2.1.3

TABLE SHOWING RESPONDENTS MARITAL STATUS

MARITAL STATUS	NO OF RESPONDENTS	PERCENTAGE (%)
SINGLE	4	3
MARRIED	146	97
TOTAL	150	100

INFERENCE:

From the study reveals that, 97% or respondents are married and 3% of respondents are single.

CHART 4.1.3

CHART SHOWING RESPONDENTS MARITAL STATUS

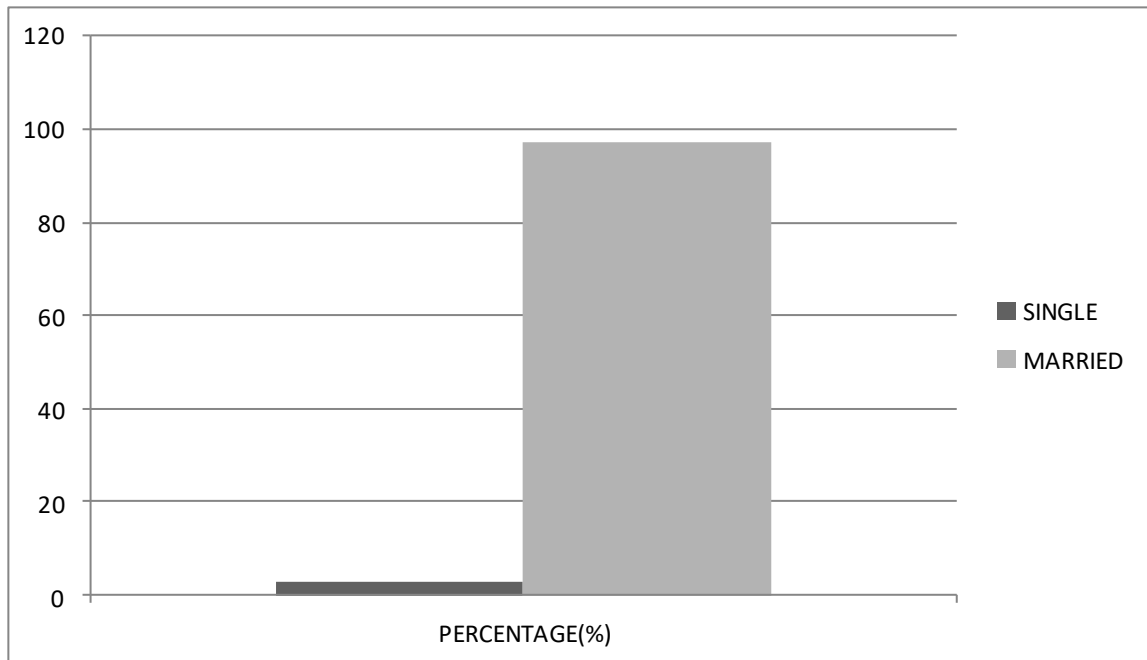


TABLE 4.1.4

TABLE SHOWING SERVICE STATUS OF THE RESPONDENTS

SERVICE STATUS	NO OF RESPONDENTS	PERCENTAGE(%)
PERMANENT	144	96
TEMPORARY	6	4
TOTAL	150	100

INFERENCE:

From the study it has reveals that, 96% of respondents are permanent in their job.

CHART 4.1.4

CHART SHOWING SERVICE STATUS OF THE RESPONDENTS

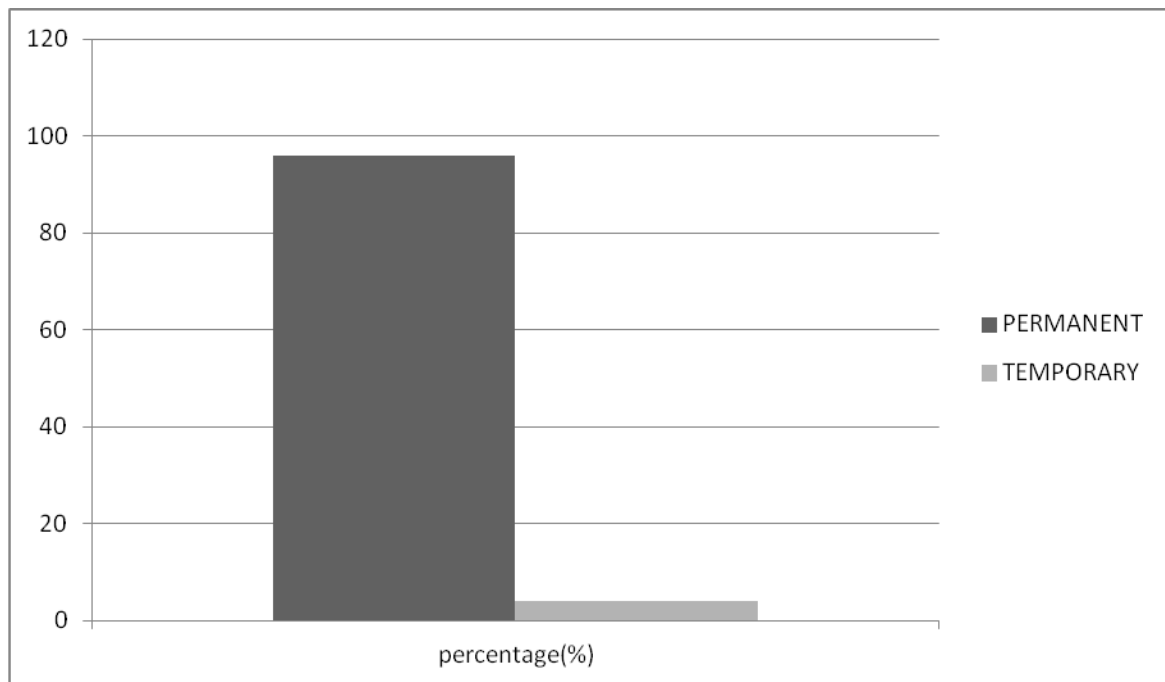


TABLE 4.1.5

TABLE SHOWING WORKING EXPERIENCE OF THE RESPONDENTS

EXPERIENCE	NO OF RESPONDENTS	PERCENTAGE(%)
1-5 YRS	6	4
5-10YRS	12	8
10-15YRS	27	18
15-20YRS	66	44
ABOVE 20YRS	39	26
TOTAL	150	100

INFERENCE:

From the study it has reveals that, 18% has 11-15 yrs of experience, 44% has 16-20 yrs of experience and 26% of respondents have above 20 yrs of experience.

CHART 4.1.5

CHART SHOWING WORKING EXPERIENCE OF THE RESPONDENTS

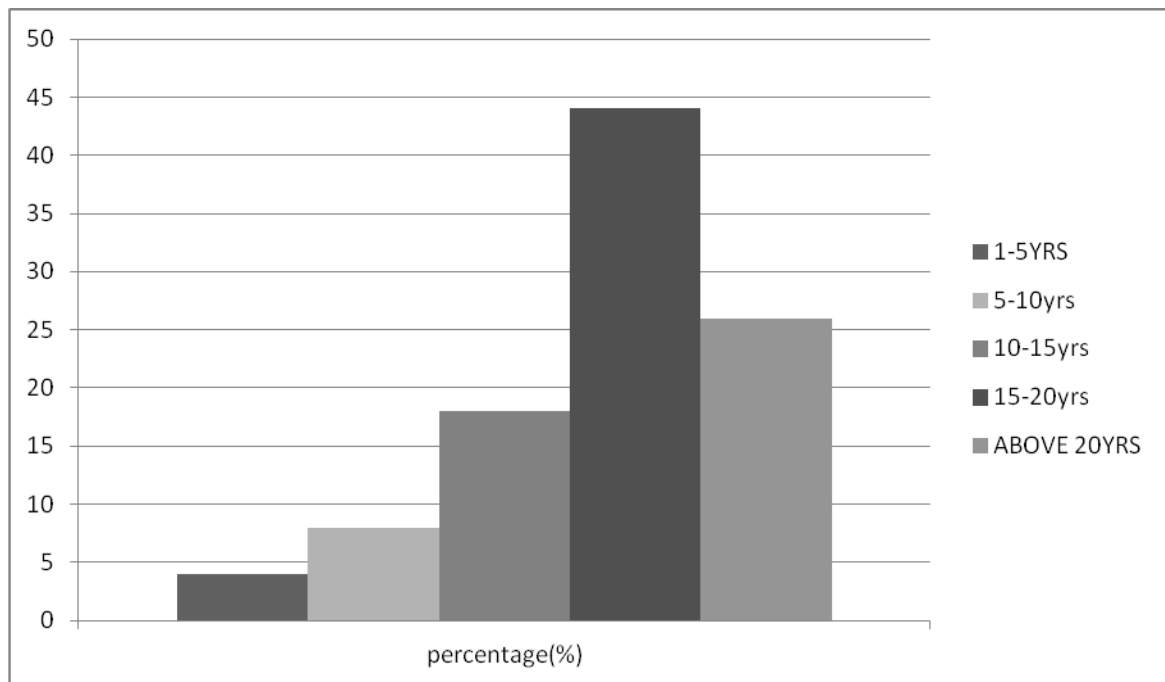


TABLE 4.1.6

TABLE SHOWING EDUCATION QUALIFICATION OF RESPONDENTS

QUALIFICATION	NO OF RESPONDENTS	PERCENTAGE(%)
SSLC	9	6
HSC	17	11
ITI/DIPLOMA	19	13
UG	65	43
PG	40	27
TOTAL	150	100

INFERENCE:

From the study it has reveals that, education qualification up to SSLC 6%, HSC 11%, ITI/Diploma 13%, UG degree 43% and PG degree 27%. Most of the respondents have been up to UG degree.

CHART 4.1.6

CHART SHOWING EDUCATION QUALIFICATION OF RESPONDENTS

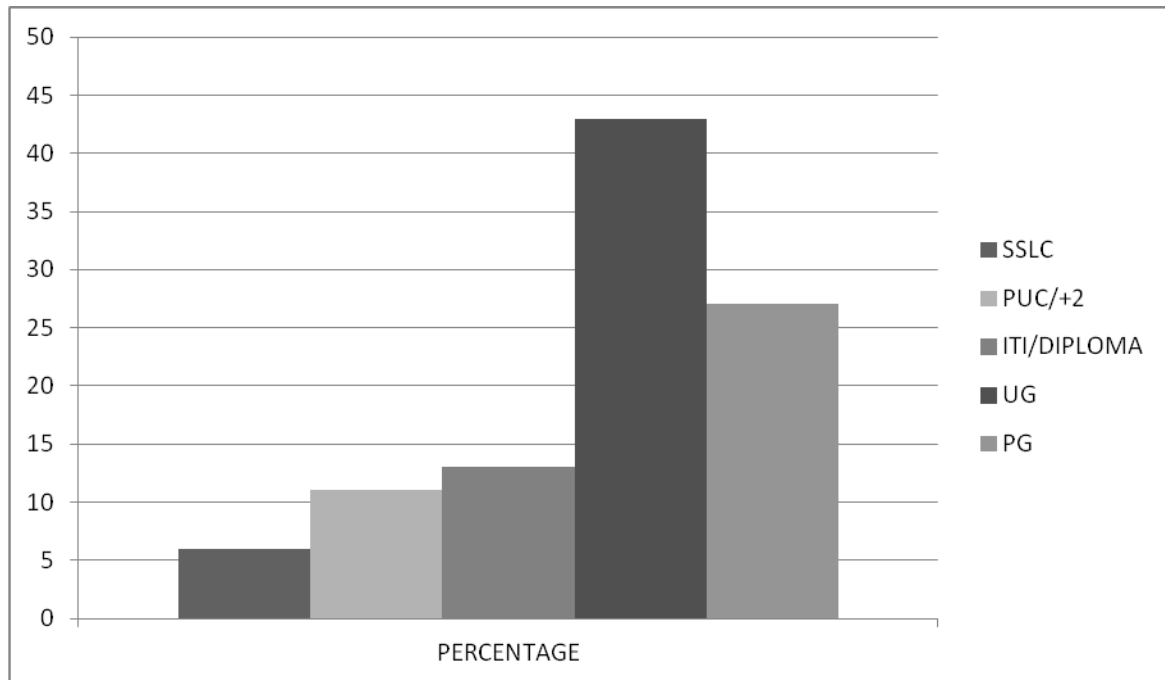


TABLE 4.1.7

TABLE SHOWING RESPONDENTS MONTHLY INCOME

MONTHLY INCOME	NO OF RESPONDENTS	PERCENTAGE(%)
BELOW 10000	6	4
10000-20000	44	29
20000-30000	73	49
ABOVE 30000	27	18
TOTAL	150	100

INFERENCE:

From the study it has reveals that, respondents earning monthly income Rs10000-20000 are 29%, Rs 20000-30000 are 49% and above Rs 30000 are 18%. Most of them come under the income group of Rs 20000 to 30000.

CHART 4.1.7

CHART SHOWING RESPONDENTS MONTHLY INCOME

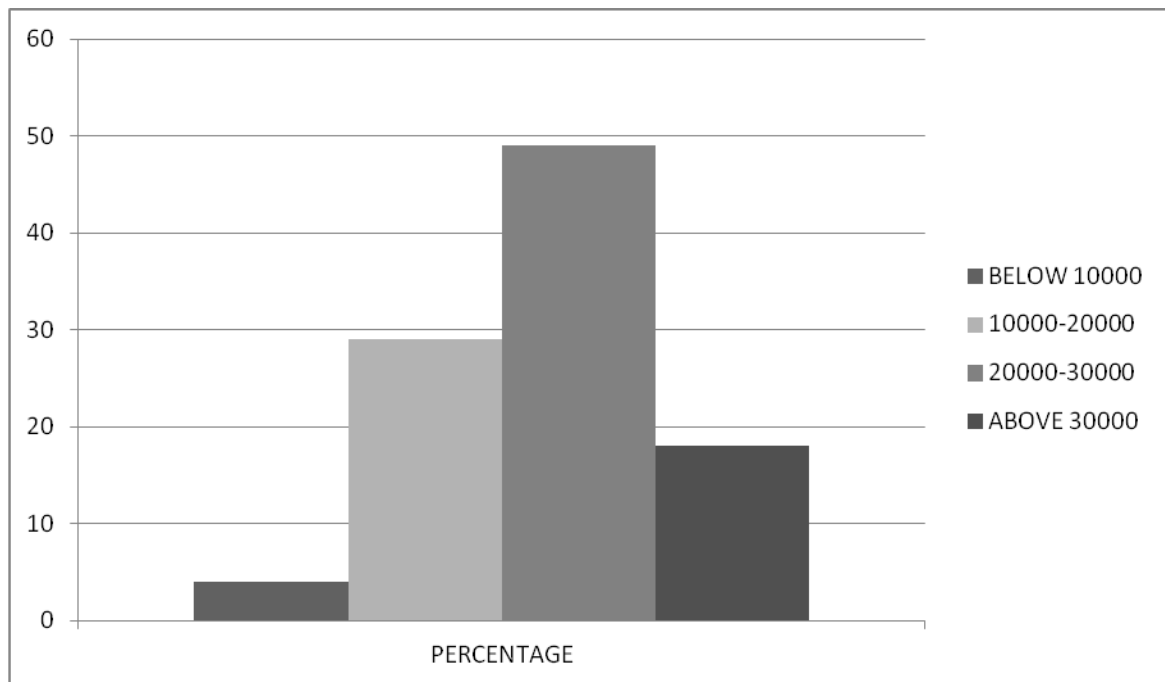


TABLE 4.1.8

TABLE SHOWING SATISFACTORY LEVEL OF INTRA MURAL FACILITIES

WELFARE ITEMS→	Drinkin g water	per (%)	Rest rooms/ sick room	per (%)	Canteen	per (%)	Wash basins	per (%)	crèches	Per (%)	Wash room	Per (%)
SATISFACTORY LEVEL												
HIGHLY SATISFIED	11	7	19	13	22	15	22	15	14	9	19	13
SATISFIED	46	31	33	22	30	20	44	29	38	25	46	31
NEUTRAL	38	25	46	31	16	10	38	25	52	35	33	22
DISSATISFIED	30	20	38	25	27	18	35	23	33	22	35	23
HIGHLY DISSATISFIED	25	17	14	9	55	37	11	8	14	9	16	11
TOTAL	150	100	150	100	150	100	150	100	150	100	150	100

INFERENCE:

From the study it has reveals that, for drinking water 38% of the respondents gives positives scale, 25% gives neither positive nor negative scale and 37% gives negative scale. For restroom, 35% of respondents give positive scale, 31% of respondents give neither positive nor negative scale and 34% of respondents give negative scale. For canteen, 35% of respondents give positive scale, 10% of respondents give neither positive nor negative scale and 55% of respondents give negative scale. For washroom, 44% of respondents give positive scale, 22% of respondents give neither positive nor negative scale and 34% of respondents give negative scale. For washbasins, 44% of respondents give positive scale, 25% of respondents gives neither positive nor negative scale and 31% of respondents gives negative scale. For crèches, 34% of respondents give positive scale, 35% of respondents gives neither positive nor negative scale and 31% of respondents gives negative scale

CHART 4.1.8

CHART SHOWING SATISFACTORY LEVEL OF INTRA MURAL FACILITIES

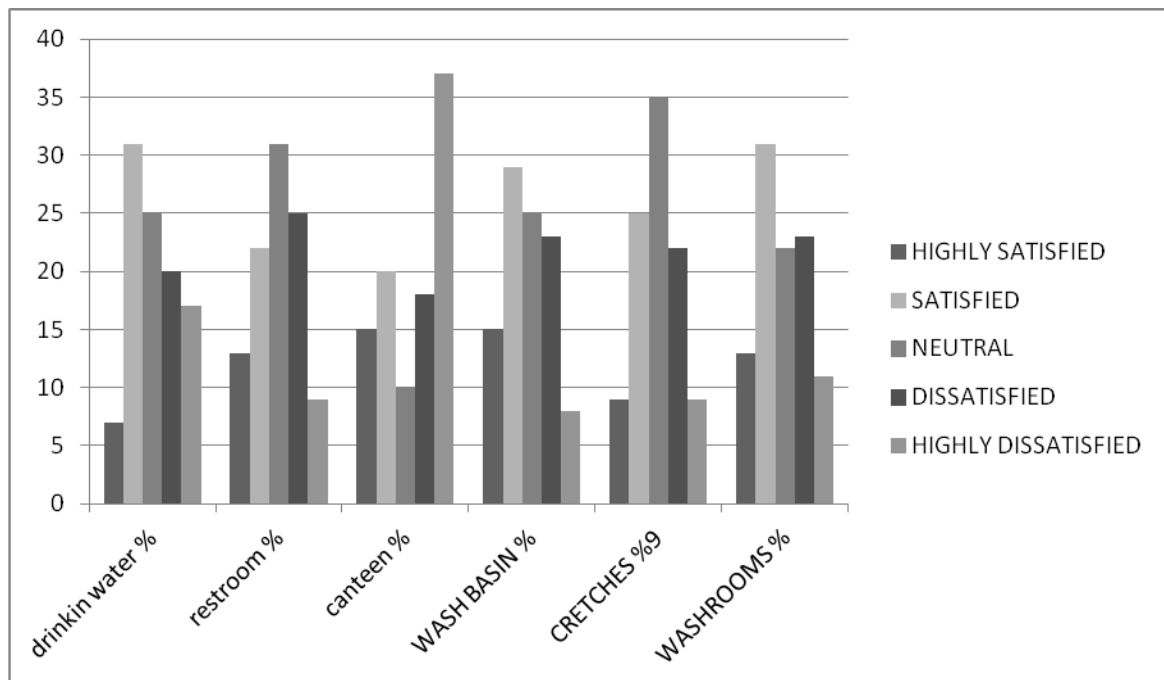


TABLE 4.1.9

TABLE SHOWING SATISFACTORY LEVEL OF EXTRA MURAL FACILITIES

WELFARE ITEMS	Housing	Per (%)	Recreation	Per (%)	Education	Per (%)	Loan	Per (%)	transport	per (%)	medical	PER%
SATISFACTORY LEVEL												
HIGHLY SATISFIED	19	13	19	13	14	9	27	18	11	7	10	7
SATISFIED	38	25	46	31	38	25	52	35	46	31	44	29
NEUTRAL	57	38	33	22	52	35	38	25	38	25	55	37
DISSATISFIED	22	15	35	23	33	22	22	15	30	20	27	18
HIGHLY DISSATISFIED	14	9	16	11	14	9	11	7	25	17	14	9
TOTAL	150	100	150	100	150	100	150	100	150	100	150	100

INFERENCE:

From the above table it reveals that, For housing 38% of respondents gives positive scale, 38% of respondents gives neither positive nor negative scale and 24% of respondents gives negative scale. For recreation, 44% of respondents give positive scale, 22% of respondents gives neither positive nor negative scale and 34% of respondents gives negative scale. For education, 34% of respondents give positive scale, 35% of respondents gives neither positive nor negative scale and 31% of respondents gives negative scale. For medical, 36% of respondents give positive scale, 37% of respondents gives neither positive nor negative scale and 27% of respondents gives negative scale. For loan, 53% of respondents gives positive scale, 25% of respondents gives neither positive nor negative scale and 22% of respondents gives negative scale. For transport, 38% of respondents gives positive scale, 25% of respondents gives neither positive nor negative scale and 37% of respondents gives negative scale

CHART 4.1.9

CHART SHOWING SATISFACTORY LEVEL OF EXTRA MURAL FACILITIES

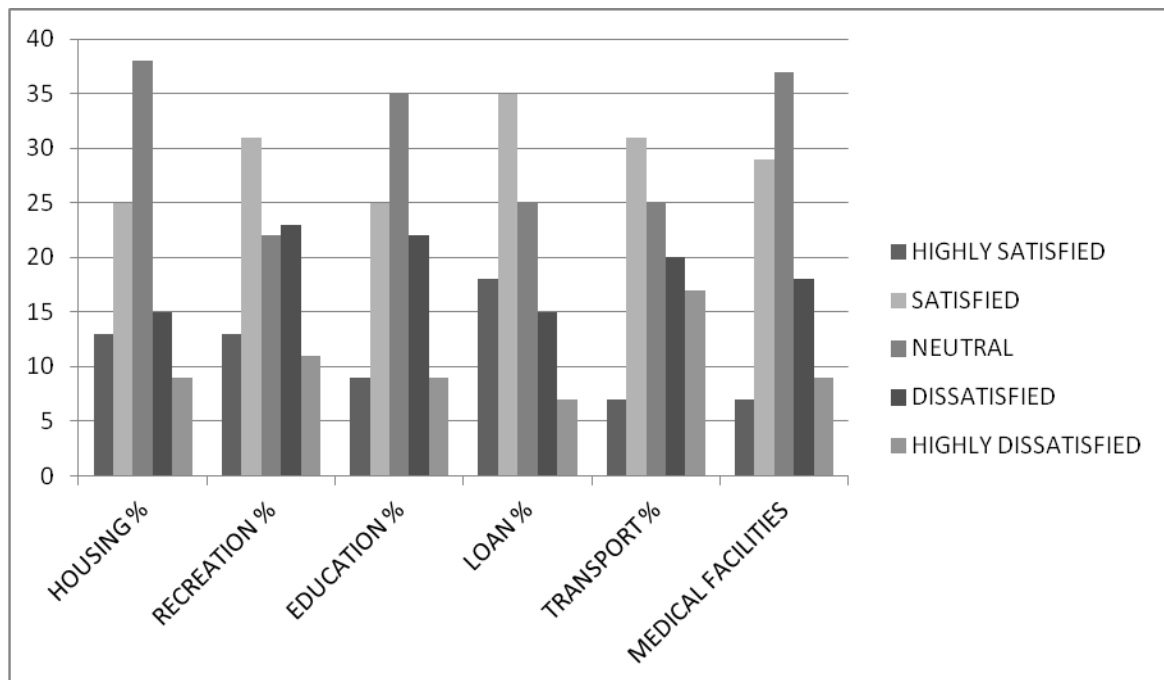


TABLE 4.1.10**TABLE SHOWIING SATISFACTORY LEVEL OF CONTEMPORARY WELFARE FACILITIES**

WELFARE ITEMS	WORKING ENVIRONMENT	PER%	EMPLOYEE COUNCELLING	PER%	STRESS	PER%	SUPPORT FROM SUPERIORS AND PEERS	PER%
SATISFACTORY LEVEL								
HIGHLY SATISFIED	19	13	27	18	16	11	10	7
SATISFIED	68	45	38	25	38	25	44	29
NEUTRAL	38	25	33	22	57	38	55	37
DISSATISFIED	16	11	41	27	20	13	27	18
HIGHLY DISSATISFIED	9	6	11	8	19	13	14	9
TOTAL	150	100	150	100	150	100	150	100

INFERENCE:

From the study it reveals that, For working environment, 58% of respondents gives positive scale, 25% of respondents gives neither positive nor negative scale and 17% of respondents gives negative scale. For employee counseling, 43% of respondents gives positive scale, 22% of respondents gives neither positive nor negative scale and 35% of respondents gives negative scale. For stress, 36% of respondents gives positive scale, 38% of respondents gives neither positive nor negative scale and 26% of respondents gives negative scale. For support from superiors and peers, 36% of respondents gives positive scale, 37% of respondents gives neither positive nor negative scale and 27% of respondents gives negative scale

CHART 4.1.10

CHART SHOWIING SATISFACTORY LEVEL OF CONTEMPORARY WELFARE FACILITIES

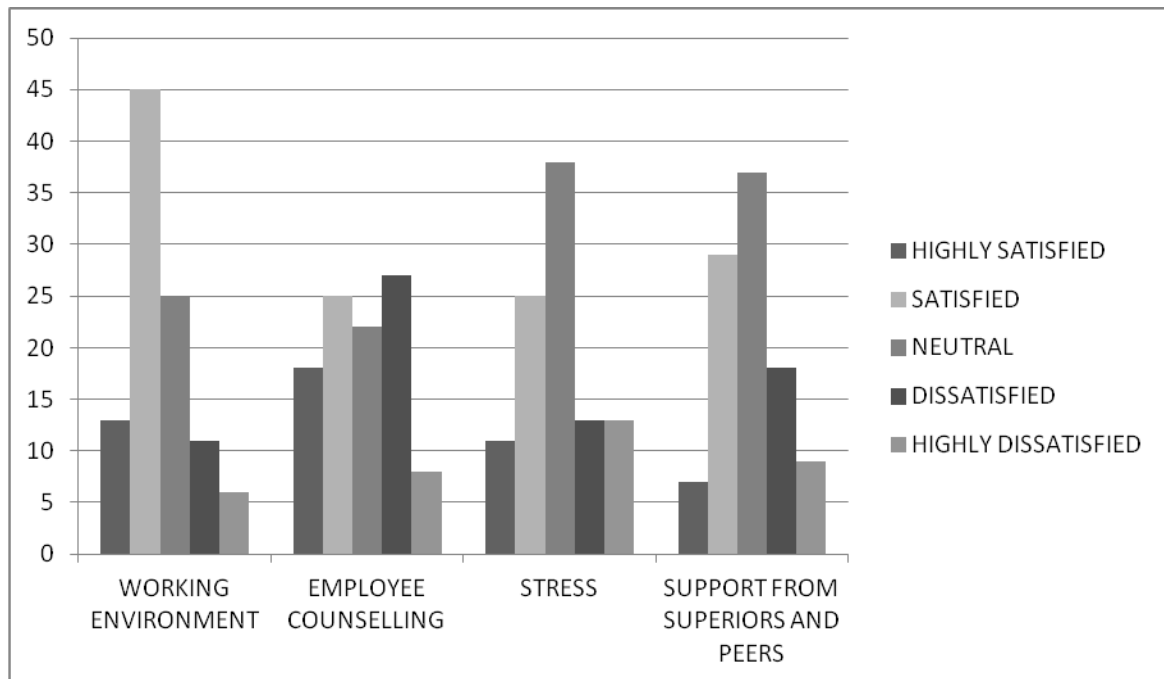


TABLE 4.1.11**TABLE SHOWING RESPONDENT'S HEALTH AFFECTED THROUGH
POLLUTION FACTORS**

POLLUTION FACTORS	DUST	PER (%)	SMOKE, GAS, & PERFUM ES	PER (%)	NOISE	PER (%)
AFFECTED LEVEL						
HIGHLY AFFECTED	79	53	48	32	50	33
AFFECTED	38	25	62	41	52	35
UNAFFECTED	18	12	25	17	26	17
NOT APPLICABLE	15	10	15	10	22	15
TOTAL	150	100	150	100	150	100

INFERENCE:

From the study it reveals that, For dust, 78% of respondents gives positively affected, 13% of respondents are somewhat affected and 9% of respondents gives negatively affected. For smoke, gas and fumes, 60% of respondents gives positively affected, 20% of respondents are somewhat affected and 20% of respondents gives negatively scale. For noise, 58% of respondents gives positively affected, 23% of respondents are somewhat affected and 19% of respondents gives negatively affected

CHART 4.1.11

**CHART SHOWING RESPONDENT'S HEALTH AFFECTED THROUGH
POLLUTION FACTORS**

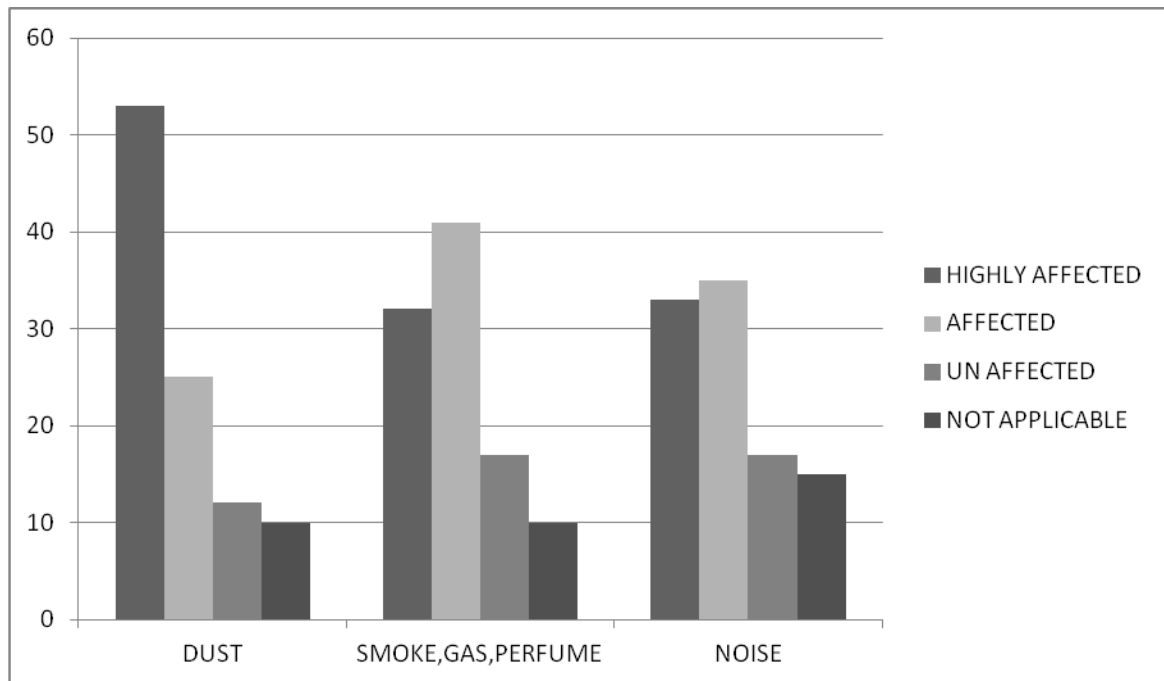


TABLE 4.1.12**TABLE SHOWING ENVIROMENTAL FACTORS AFFECTING THE HEALTH OF THE RESPONDENTS**

ENVIRONMENTAL FACTORS	BAD WEATHER	PER (%)	BADLY MAINTAINED AREAS	PER (%)
AFFECTED LEVEL				
HIGHLY AFFECTED	60	40	38	25
AFFECTED	44	29	49	33
UNAFFECTED	38	26	39	26
NOT APPLICABLE	8	5	24	16
TOTAL	150	100	150	100

INFERENCE:

From the study it reveals that, From bad weather, 69% of respondents gives positively affected, 13% of respondents gives neither positive nor negative scale and 18% of respondents gives negative scale. From badly maintained areas, 58% of respondents gives positively affected, 17% of respondents gives neither positive nor negative scale and 25% of respondents gives negative scale

CHART 4.1.12

**CHART SHOWING ENVIROMENTAL FACTORS AFFECTING THE HEALTH OF
THE RESPONDENTS**

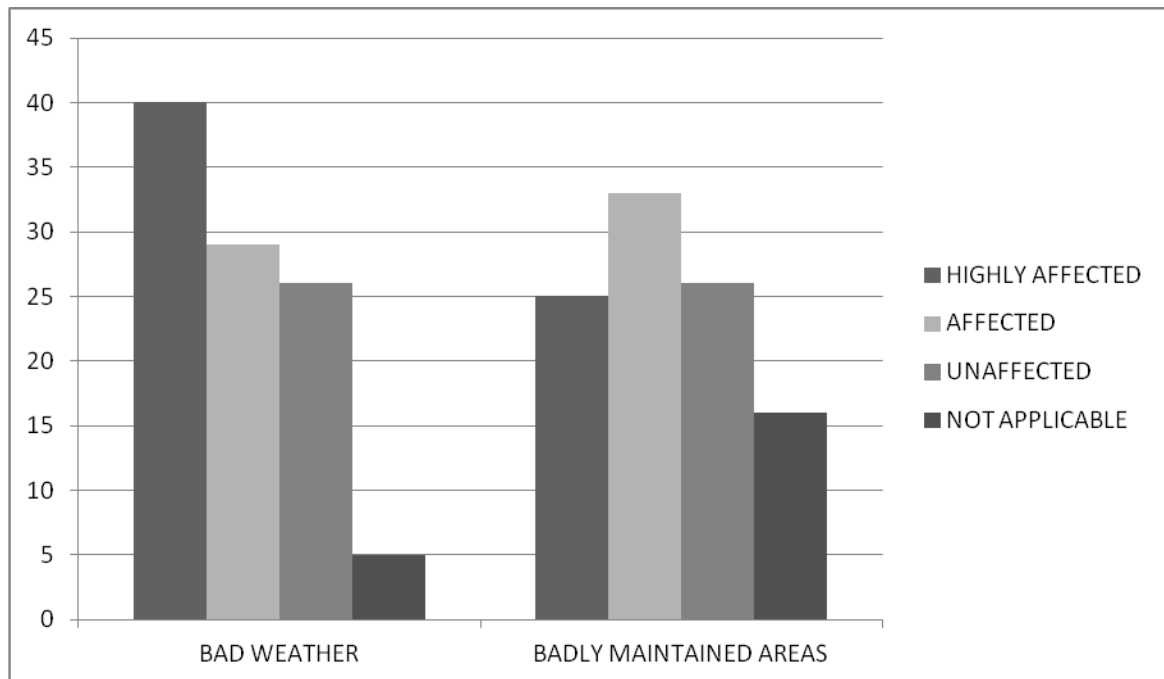


TABLE 4.1.13**TABLE SHOWING RISK FACTORS AFFECTING THE HEALTH OF THE RESPONDENTS**

RISK FACTOR SCALE LEVEL	DISEASES	PER %	ACCIDENTS	PER %
HIGHLY AGREE	62	41	25	17
AGREE	52	35	60	40
NEUTRAL	14	9	41	27
DIS AGREE	14	9	19	13
HIGHLY DIS AGREE	8	6	5	3
TOTAL	150	100	150	100

INFERENCE:

From the study it reveals that, 76% of respondents positively agree that there is risk of catching disease, 9% gives their response as neutral and 15% of respondents negatively disagree and there is no risk of catching disease. For accidents while working, 57% of respondents positively agree, 27% of response as neutral and 16% of respondents negatively disagree.

CHART 4.1.13

CHART SHOWING RISK FACTORS AFFECTING THE HEALTH OF THE RESPONDENTS

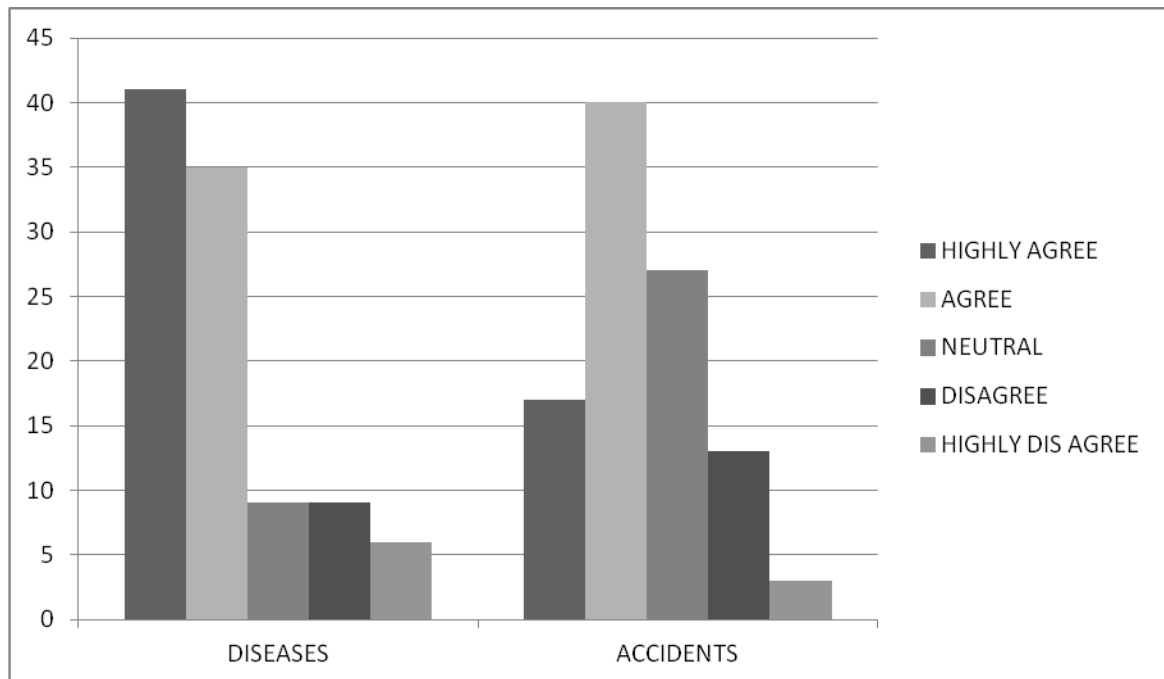


TABLE 4.1.14

**TABLE SHOWING RESPONDENT'S OPINION ON VISITING THERMOX
POLYMERS LTD HOSPITAL REGULARLY FOR HEALTH RELATED ISSUES**

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE(%)
YES	93	62
NO	57	38
TOTAL	150	100

INFERENCE:

From the study it reveals that, 62% of respondents have visited Thermox Polymers Ltd hospital for health related issues and 38% of respondents have not visited the hospital regularly.

CHART 4.1.14

**CHART SHOWING RESPONDENT'S OPINION ON VISITING THERMOX
POLYMERS LTD HOSPITAL REGULARLY FOR HEALTH RELATED ISSUES**

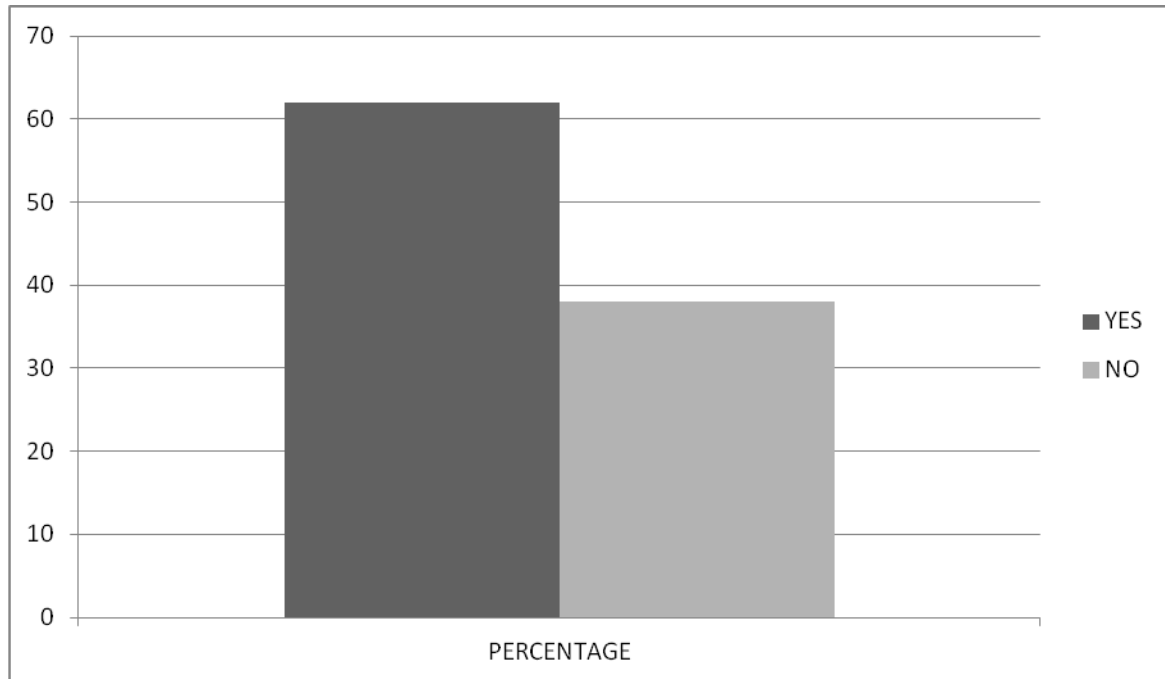


TABLE 4.1.15

**TABLE SHOWING RESPONDENT'S OPINION ON WHY THEY ARE NOT
REGULAR VISITOR OF PL HOSPITALS**

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
WAITING TIME	21	14
MORE PROCEDURE	43	32
SERVICE NOT GOOD	58	44
LACK OF MR	17	7
OTHERS	11	3
TOTAL	150	100

INFERENCE:

From the study it reveals that, respondents are not regularly visiting PL hospital for health issues are 14% due to more waiting time involved, 32% due to more procedure involved, 44% gives their response that service is not good, 7% give their response that there is lack of medical resource and 3% of respondents gives other reasons.

CHART 4.1.15

**CHART SHOWING RESPONDENT'S OPINION ON WHY THEY ARE NOT
REGULAR VISITOR OF PL HOSPITALS**

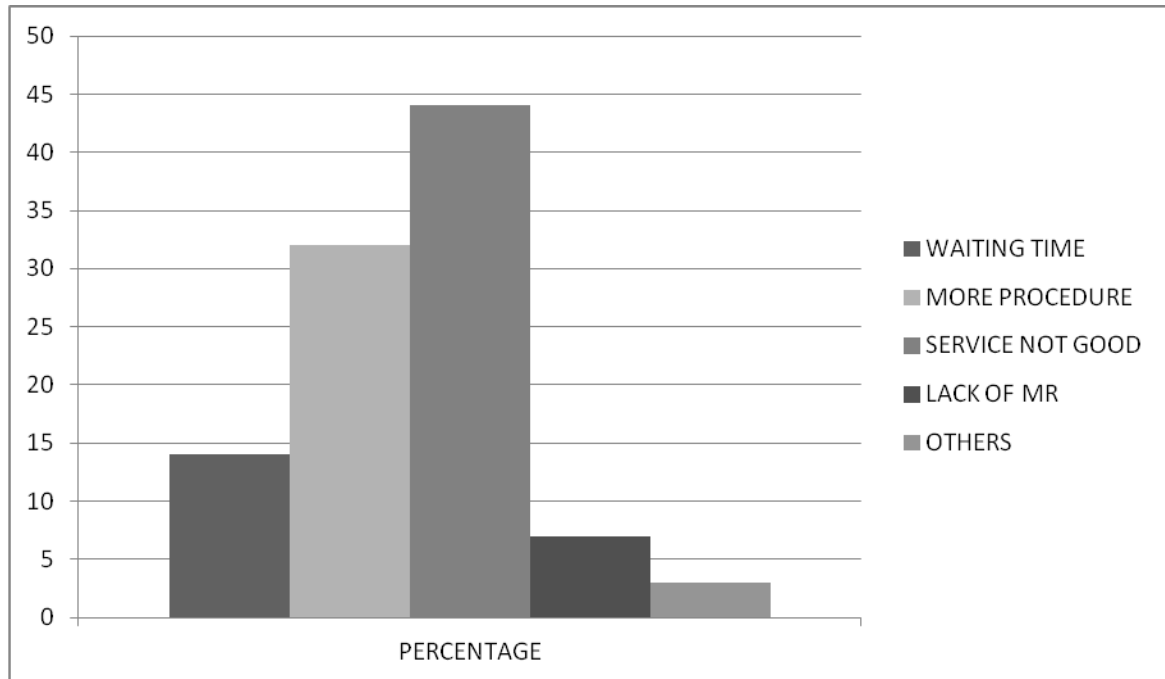


TABLE 4.1.16

TABLE SHOWING LEVEL OF RESPONDENTS VISITED PL HOSPITAL

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
HIGHLY SATISFIED	13	3
SATISFIED	35	26
NEUTRAL	49	39
DISSATISFIED	34	24
HIGHLY DISSATISFIED	19	8
TOTAL	150	100

INFERENCE:

From the table it reveals that, 3% of respondents are highly satisfied, 26% are satisfied, 39% of respondents give their response as neutral, 24% of respondents are dissatisfied & 8%of respondents are highly dissatisfied with the hospital facilities.

CHART 4.1.16

CHART SHOWING LEVEL OF RESPONDENTS VISITED PL HOSPITAL

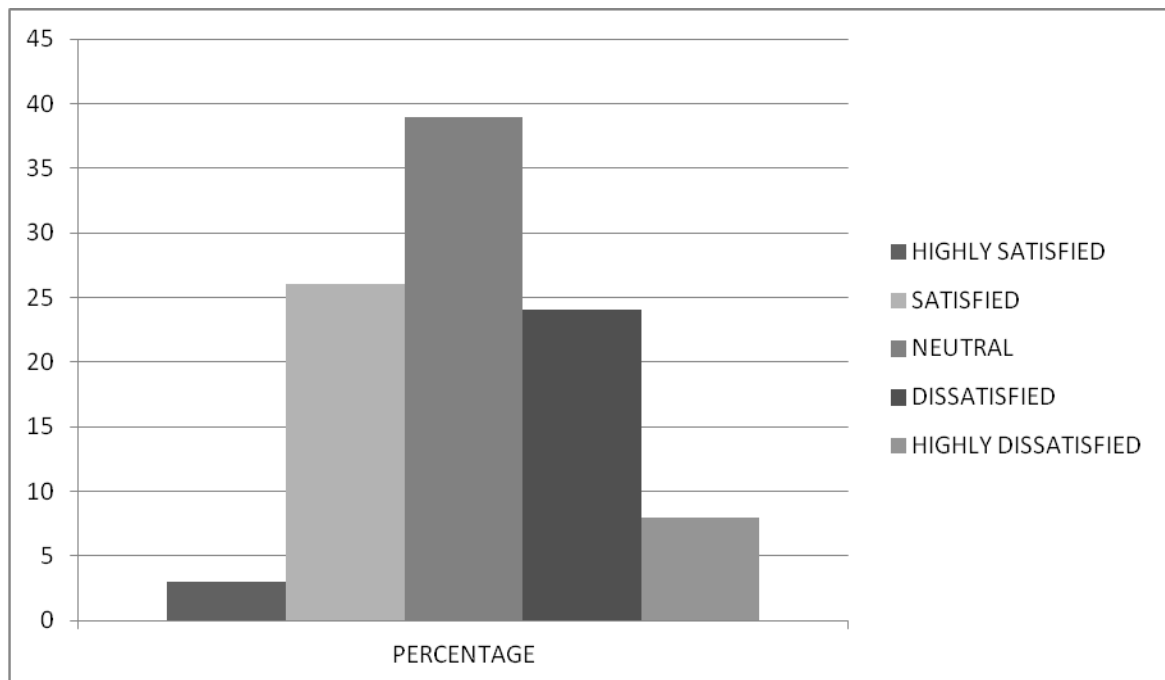


TABLE 4.1.17

**TABLE SHOWING RESPONDENT'S OPINION ON USE OF PPE'S RELATED
WITH PSYCHOLOGICAL FACTORS**

PSYCHOLOGICAL FACTOR	UNCOMFORTABLE WORKING ENVIRONMENT	PER %	UNSATISFIED ORGANISATIONAL CLIMATE	PER (%)	LACK OF CONCERN FOR OWN SAFETY	PER %	STRESS BECAME A REGULAR HABIT	PER %
SCALE LEVEL								
HIGHLY AGREE	21	15	8	6	7	5	14	9
AGREE	59	39	22	15	77	51	59	39
NEUTRAL	45	30	35	23	38	25	63	42
DISAGREE	14	9	29	19	24	16	7	5
HIGHLY DISAGREE	11	7	56	37	4	3	7	5
TOTAL	150	100	150	100	150	100	150	100

INFERENCE:

From the study it reveals that 54% of respondents positively agree that it is uncomfortable working environment 30% gives their response as neutral & 16% of respondents negatively disagree. For Lack of concern for safety 56% of respondents positively agree, 25% gives their response as neutral & 19% of respondents negatively disagree. For stress became a regular habit for the non use of PPE's 48% of respondents positively agree, 42% gives their response as neutral & 10% of respondents negatively disagree.

CHART 4.1.17

**CHART SHOWING RESPONDENT'S OPINION ON USE OF PPE'S RELATED
WITH PSYCHOLOGICAL FACTORS**

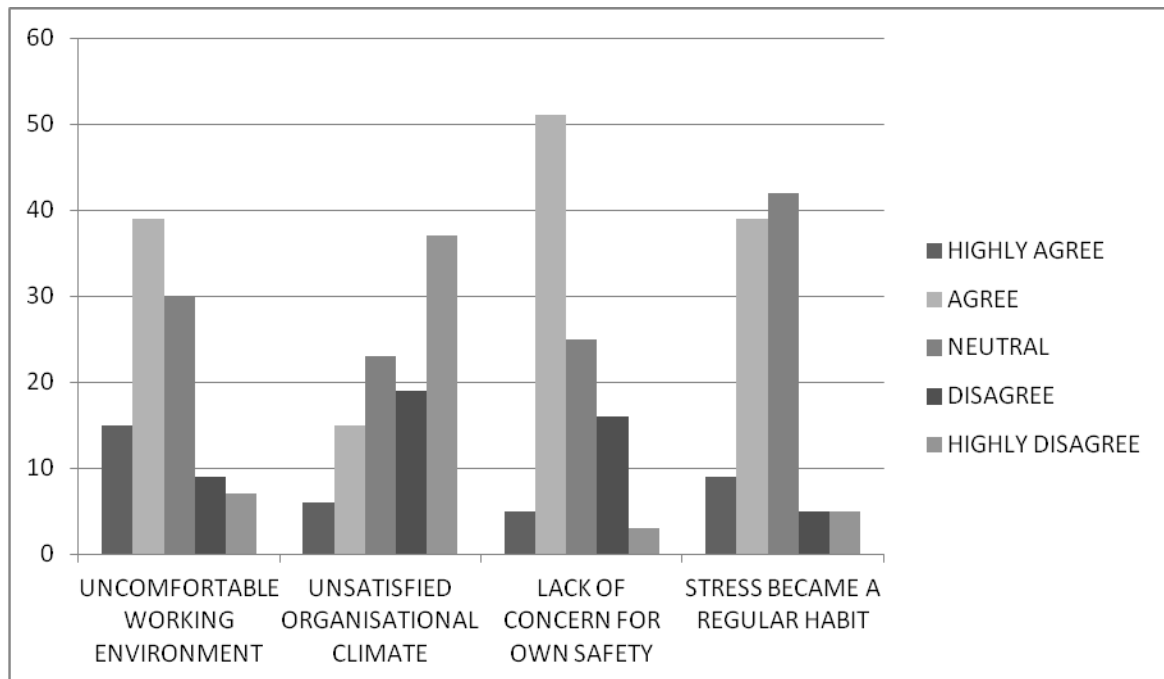


TABLE 4.1.18**TABLE SHOWING RESPONDENT'S OPINION ON NON USE OF PPE'S RELATED
WITH AWARENESS FACTORS**

AWARENESS FACTORS	INADEQUATE KNOWLEDGE ABOUT THE WORK AND MACHINES	PER %	INADEQUATE SAFETY TRAINING	PER %
SCALE LEVEL				
HIGHLY AGREE	17	11	8	5
AGREE	73	49	59	39
NEUTRAL	31	21	45	30
DISAGREE	29	19	38	26
HIGHLY DISAGREE	0	0	0	0
TOTAL	150	100	150	100

INFERENCE:

From the study it reveals that 60% of respondents positively agree that there is inadequate knowledge about the work & machines for the non use of PPE's 21% of respondent's gives their response as neutral and 19% of respondents negatively disagree. For inadequate safety training 44% of respondents positively agree, 30% of respondents give their response as neutral and 26% of respondents negatively disagree.

CHART 4.1.18

**CHART SHOWING RESPONDENT'S OPINION ON NON USE OF PPE'S
RELATED WITH AWARENESS FACTORS**

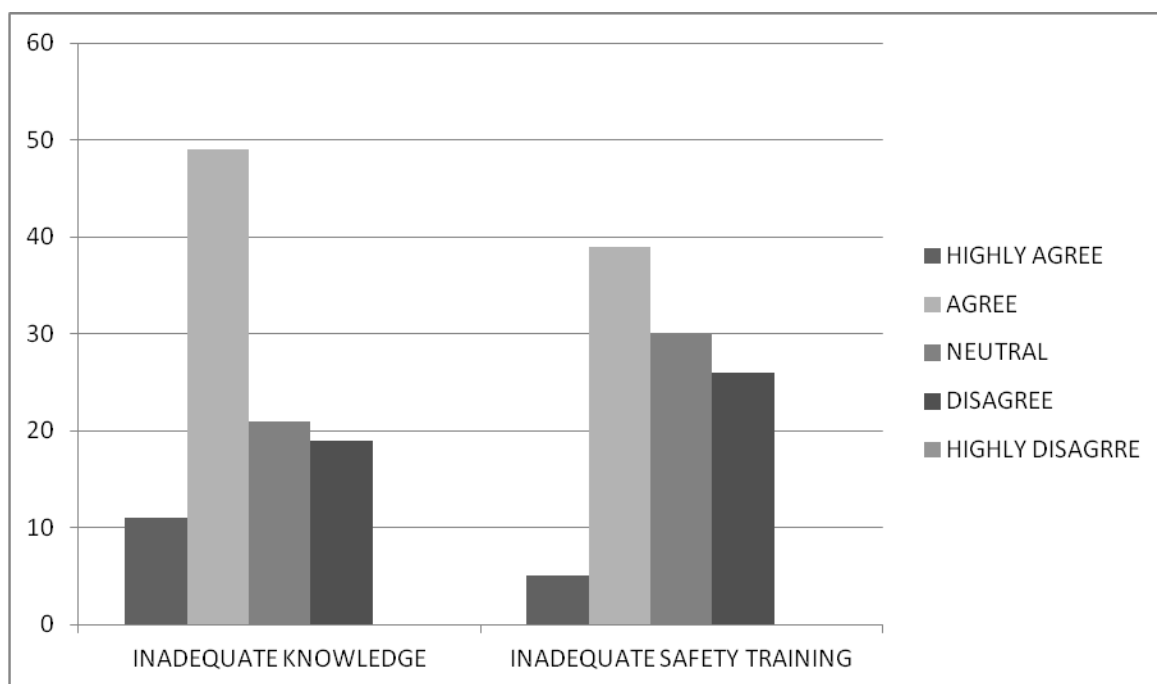


TABLE 4.1.19**TABLE SHOWING RESPONDENTS OPINION ON NON USE OF PPE'S RELATED WITH MAINTAINENCE**

MAINTAINENCE FACTOR SCALE LEVEL	POOR QUALITY OF PPE	PER%	LACK OF MAINTAINENCE	PER%	EQUIPMENTS NON AVAILABLE	PER%	LACK OF SUPERVI SION	PER%
HIGHLY AGREE	17	11	14	9	12	8	21	14
AGREE	38	25	59	39	24	16	63	42
NEUTRAL	59	39	70	47	70	47	45	30
DISAGREE	26	18	7	5	42	28	17	11
HIGHLY DISAGREE	10	7	0	0	2	1	4	3
TOTAL	150	100	150	100	150	100	150	100

INFERENCE:

From the study it reveals that, for poor quality of PPEs 36% of respondents positively agree, 39% of respondents give as neutral and 25% of respondents negatively disagree. For lack of maintenance 48% of respondents positively agree, 47% of respondents give their response as neutral and 5% of respondents negatively disagree. For equipments non available 24% of respondents positively agree, 47% of respondents give their response as neutral and 29% of respondents negatively disagree. For lack of supervision 56% of respondents positively agree, 30% of respondents give as neutral and 14% of respondents negatively disagree.

CHART 4.1.19

CHART SHOWING RESPONDENTS OPINION ON NON-USE OF PPE'S RELATED WITH MAINTAINENCE

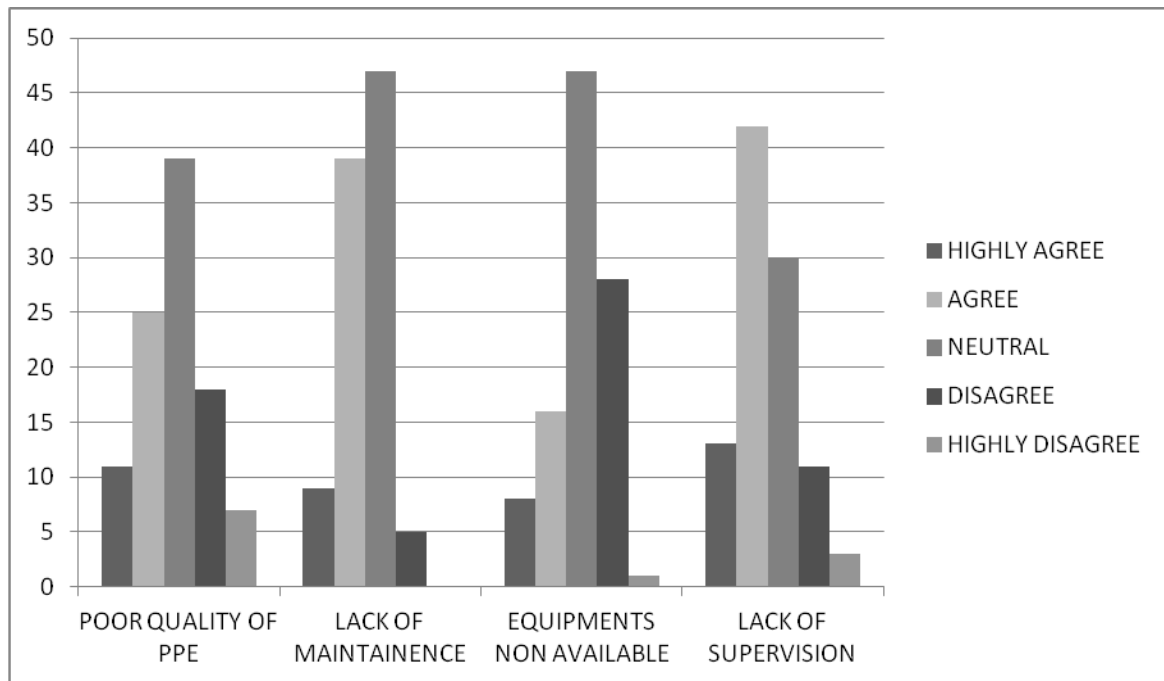


TABLE 4.1.20

TABLE SHOWING RESPONDENTS OPINION ON SATISFACTORY LEVEL OF PPE

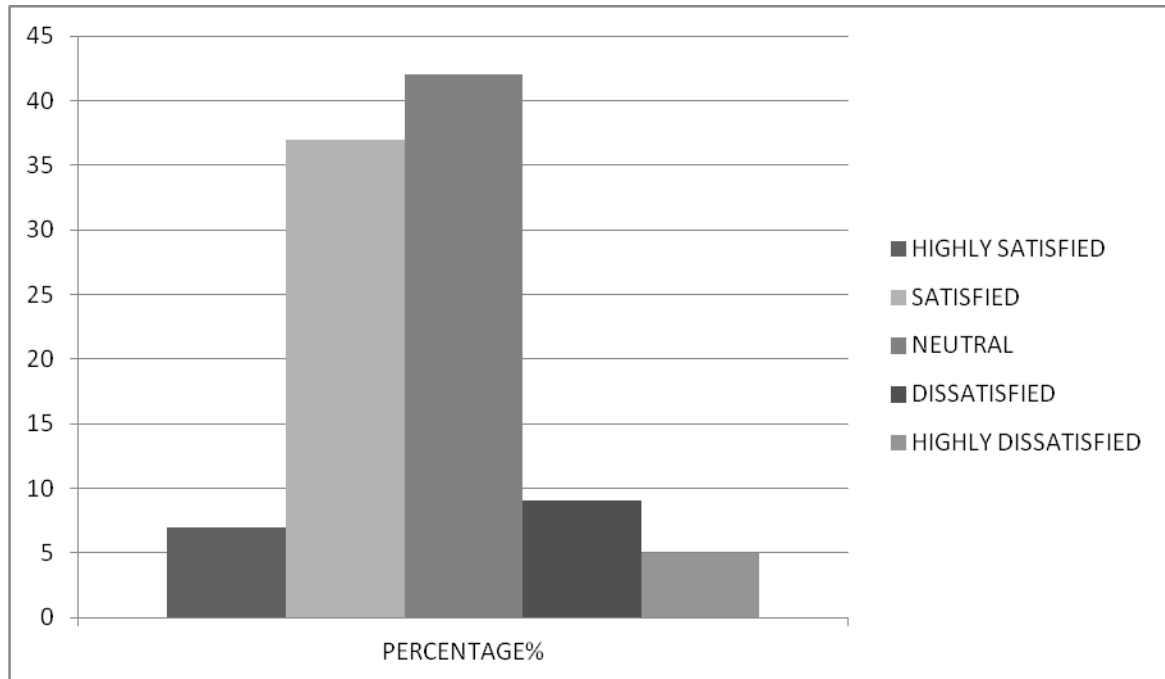
SATISFACTORY LEVEL	NO OF RESPONDENTS	PERCENTAGE%
HIGHLY SATISFIED	10	7
SATISFIED	56	37
NEUTRAL	63	42
DISSATISFIED	14	9
HIGHLY SATISFIED	7	5
TOTAL	150	100

INFERENCE:

From the study it reveals that, 7% of respondents are highly satisfied with PPE's, 37% of respondents are satisfied 42% of respondents give their response as neutral, 9% of respondents are dissatisfied and 5% of respondents are highly dissatisfied with the satisfactory level of PPE's.

CHART 4.1.20

CHART SHOWING RESPONDENTS OPINION ON SATISFACTORY LEVEL OF PPE



STATISTICAL TOOLS AND ANALYSIS

CHI- SQUARE TEST I – (ψ^2)

Chi-square is the sum of the squared difference observed (o) and the expected (e) data (or the deviation, d), divided by the expected data in all possible categories.

Null hypothesis (H_0):

There is no relationship between the age and the experience.

Alternate hypothesis (H_1):

There is relationship between the age and the experience.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
TABLE SHOWING RESPONDANTS BASED ON AGE * TABLE SHOWING WORKING EXPERIENCE OF THE RESPONDENTS	150	100.0%	0	0.0%	150	100.0%

TABLE SHOWING RESPONDANTS BASED ON AGE * TABLE SHOWING WORKING EXPERIENCE OF THE RESPONDENTS Crosstabulation

			TABLE SHOWING WORKING EXPERIENCE OF THE RESPONDENTS					Total
			1-5 YRS	5-10YRS	10-15YRS	15-20YRS	ABOVE 20YRS	
TABLE SHOWING RESPONDANTS BASED ON AGE	Count	% within TABLE SHOWING RESPONDANTS BASED ON AGE	6	4	0	0	0	10
21-25YRS	60.0%	40.0%	0.0%	0.0%	0.0%			100.0%

		% within TABLE SHOWING WORKING EXPERIENCE OF THE RESPONDENT S	100.0 %	33.3%	0.0%	0.0%	0.0%	6.7%
		% of Total	4.0%	2.7%	0.0%	0.0%	0.0%	6.7%
		Count	0	8	26	0	0	34
	26- 30YR S	% within TABLE SHOWING RESPONDANT S BASED ON AGE	0.0%	23.5%	76.5%	0.0%	0.0%	100.0 %
		% within TABLE SHOWING WORKING EXPERIENCE OF THE RESPONDENT S	0.0%	66.7%	96.3%	0.0%	0.0%	22.7 %
		% of Total	0.0%	5.3%	17.3%	0.0%	0.0%	22.7 %
		Count	0	0	1	55	0	56
		% within TABLE SHOWING RESPONDANT S BASED ON AGE	0.0%	0.0%	1.8%	98.2%	0.0%	100.0 %
	31- 35YR S	% within TABLE SHOWING WORKING EXPERIENCE OF THE RESPONDENT S	0.0%	0.0%	3.7%	83.3%	0.0%	37.3 %

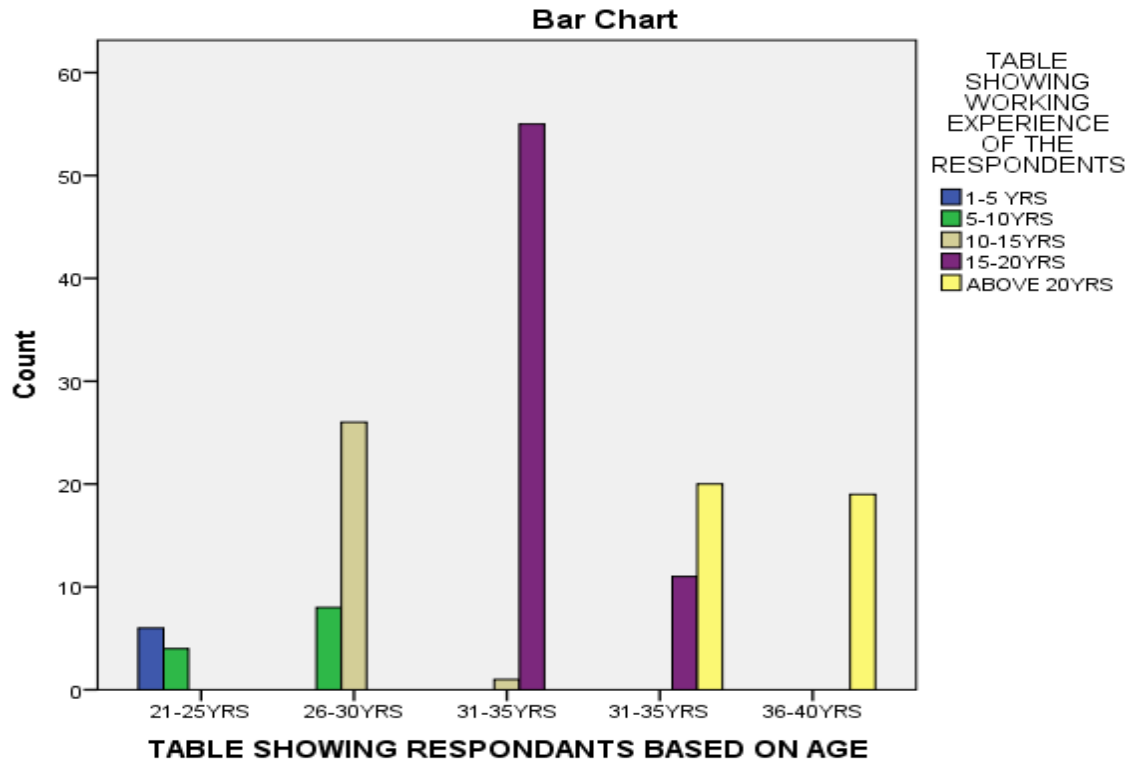
		% of Total	0.0%	0.0%	0.7%	36.7%	0.0%	37.3%
		Count	0	0	0	11	20	31
		% within						
		TABLE						
		SHOWING						
		RESPONDANT	0.0%	0.0%	0.0%	35.5%	64.5%	100.0%
		S BASED ON						
		AGE						
		31-35YRS						
		% within						
		TABLE						
		SHOWING						
		WORKING						
		EXPERIENCE	0.0%	0.0%	0.0%	16.7%	51.3%	20.7%
		OF THE						
		RESPONDENT						
		S						
		% of Total	0.0%	0.0%	0.0%	7.3%	13.3%	20.7%
		Count	0	0	0	0	19	19
		% within						
		TABLE						
		SHOWING						
		RESPONDANT	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
		S BASED ON						
		AGE						
		36-40YRS						
		% within						
		TABLE						
		SHOWING						
		WORKING						
		EXPERIENCE	0.0%	0.0%	0.0%	0.0%	48.7%	12.7%
		OF THE						
		RESPONDENT						
		S						
		% of Total	0.0%	0.0%	0.0%	0.0%	12.7%	12.7%
		Count	6	12	27	66	39	150
		Total						

% within TABLE SHOWING RESPONDANTS BASED ON AGE	4.0%	8.0%	18.0%	44.0%	26.0%	100.0 %
% within TABLE SHOWING WORKING EXPERIENCE OF THE RESPONDENTS	100.0 %	100.0%	100.0%	100.0%	100.0%	100.0 %
% of Total	4.0%	8.0%	18.0%	44.0%	26.0%	100.0 %

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	348.430 ^a	16	.000
Likelihood Ratio	304.367	16	.000
Linear-by-Linear Association	123.103	1	.000
N of Valid Cases	150		

a. 15 cells (60.0%) have expected count less than 5. The minimum expected count is .40.



Degree of Freedom= $(r-1) * (c-1)$

$$= 4 * 4 = 16$$

Calculated value = 348.430

Tabulated value = 26.296

$Z = Z_{cal} > Z_{tab}$

$Z = 348.430 > 26.296$

Hence, the Alternate hypothesis [H1] is accepted

INFERENCE:

Since the calculated value is greater than the tabulated value, we accept the alternate hypothesis and hence there is a relationship between the age and the experience.

ONE-WAY ANOVA CLASSIFICATION

Null hypothesis (Ho):

There is a significance difference between opinion on visiting Thermox Polymers Ltd hospital regularly for health related issues and level of respondents visited pl hospital.

Alternate hypothesis (H1):

There is no significance difference between opinion on visiting Thermox Polymers Ltd hospital regularly for health related issues and level of respondents visited pl hospital.

Descriptives

TABLE SHOWING RESPONDENT'S OPINION ON VISITING THERMOX POLYMERS LTD HOSPITAL REGULARLY FOR HEALTH RELATED ISSUES

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
HIGHLY SATISFIED	13	1.00	.000	.000	1.00	1.00	1	1
SATISFIED	35	1.77	.426	.072	1.63	1.92	1	2
NEUTRAL	49	2.67	.474	.068	2.54	2.81	2	3
DISSATISFIED	34	3.26	.448	.077	3.11	3.42	3	4
HIGHLY DISSATISFIED	19	4.58	.507	.116	4.33	4.82	4	5
Total	150	2.69	1.080	.088	2.52	2.87	1	5

Test of Homogeneity of Variances

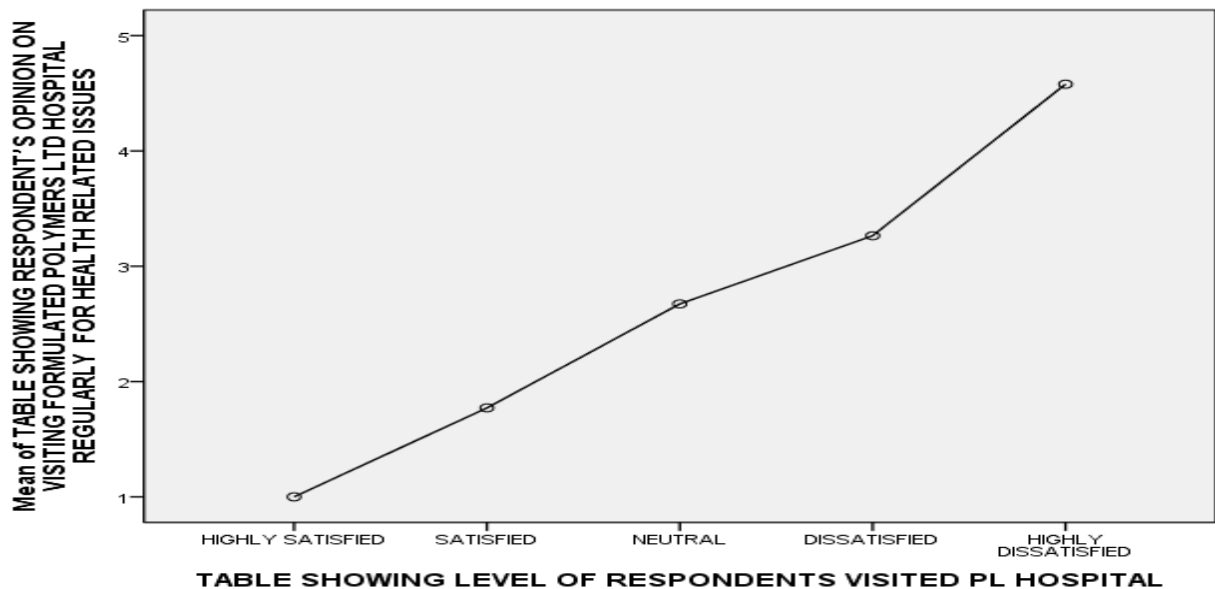
TABLE SHOWING RESPONDENT'S OPINION ON VISITING THERMOX POLYMERS LTD HOSPITAL REGULARLY FOR HEALTH RELATED ISSUES

Levene Statistic	df1	df2	Sig.
17.743	4	145	.000

ANOVA

TABLE SHOWING RESPONDENT'S OPINION ON VISITING THERMOX POLYMERS LTD HOSPITAL REGULARLY FOR HEALTH RELATED ISSUES

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	145.697	4	36.424	187.314	.000
Within Groups	28.196	145	.194		
Total	173.893	149			



Tabulated value = 2.46

Calculated value = 187.314

$$F = F_{cal} > F_{tab} \quad F = 187.314 > 2.46$$

Hence, the null hypothesis [H1] is accepted.

INFERENCE:

Since the calculated value is greater than the tabulated value, we accept the alternate hypothesis and hence there is a relationship between opinions on visiting Thermox Polymers Ltd hospital regularly for health related issues and level of respondents visited pl hospital

ANALYSIS USING KARL PEARSON'S CORRELATION

Correlation analysis is the statistical tool used to measure the degree to which two variables are linearly related to each other. Correlation measures the degree of association between two variables.

Null hypothesis (H0):

There is positive relationship between uncomfortable working environment and unsatisfied organizational climate.

Alternate hypothesis (H1):

There is negative relationship between uncomfortable working environment and unsatisfied organizational climate.

Correlations

		UNCOMFORTABLE WORKING ENVIRONMENT	UNSATISFIED ORGANISATIONAL CLIMATE
UNCOMFORTABLE WORKING ENVIRONMENT	Pearson Correlation Sig. (2-tailed) N	1 150	.834** .000 150
UNSATISFIED ORGANISATIONAL CLIMATE	Pearson Correlation Sig. (2-tailed) N	.834** .000 150	1 150

**. Correlation is significant at the 0.01 level (2-tailed).

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}}$$

$$r = .834$$

INFERENCE:

Since r is positive, there is positive relationship between uncomfortable working environment and unsatisfied organizational climate.

CHAPTER - V

FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS OF THE STUDY:

The study conducted in Welfare, Health & Safety Measures of employees, each activity has different factors based on that the findings have been revealed.

1. Personal Details:

- From the study it reveals that 7% of respondents have under the age of 21-25 yrs, 22% of the respondents under 26-30 yrs of age, 37% of respondents under 31-35 yrs of age & 21% of respondents under 36-46 yrs & 13% of respondents are under the age of above 40 yrs.
- From the study it has revealed that, 52% of respondents are male and 48% of the respondents are female.
- From the study reveals that, 3% of respondents are unmarried and 97% of respondents are married.
- From the study it has revealed that, 96% of respondents are permanent and 4% of respondents are temporary in their job.
- From the study it has revealed that, 4% of respondents have 1-5 yrs of experience, 8% has 6-10 yrs of experience, 18% has 11-15 yrs of experience, 44% has 16-20 yrs of experience and 26% of respondents have above 20 yrs of experience.
- From the study it has revealed that, education qualification up to SSLC 6%, +2 11%, ITI/Diploma 13%, UG degree 43% and PG degree 27%. Most of the respondents have been up to UG degree.
- From the study it has revealed that, respondents earning monthly income below Rs 10000 are 4%, Rs 10000-20000 are 29%, Rs 20000-30000 are 49% and above Rs 30000 are 18%. Most of them come under the income group of Rs 20000 to 30000.

WELFARE FACILITIES

2. Intra Mural Facilities

- From the study it has revealed that, for drinking water 38% of the respondents are satisfied and 37% are not satisfied.
- For restroom, 35% of respondents are satisfied.
- For canteen, 55% of respondents are not satisfied.
- For washroom, 44% of respondents are satisfied.
- For washbasins, 44% of respondents are satisfied.
- For crèches, 34% of respondents are satisfied and 31% of respondents not satisfied

2. Extra mural facilities:

- From the above table it reveals that, For housing 38% of respondents are satisfied and 24% of respondents are not satisfied.

- For recreation, 44% of respondents are satisfied, 22% of respondents gives neither positive nor negative scale and 34% of respondents are not satisfied.
- For education, 34% of respondents are satisfied and 31% of respondents are not satisfied.
- For medical, 36% of respondents are satisfied and 27% of respondents are not satisfied.
- For loan, 53% of respondents are satisfied and 22% of respondents are not satisfied.
- For transport, 38% of respondents are satisfied, 25% of respondents gives neither positive nor negative scale and 37% of respondents are not satisfied.

3. Contemporary Welfare facilities:

- From the study it reveals that, For working environment, 58% of respondents are satisfied, 25% of respondents gives neither positive nor negative scale and 17% are not satisfied.
- For employee counseling, 43% of respondents are satisfied, 22% of respondents gives neither positive nor negative scale and 35% of respondents not satisfied.
- For stress, 36% of respondents are satisfied, 38% of respondents gives neither positive nor negative scale and 26% of respondents are not satisfied.
- For support from superiors and peers, 36% of respondents are satisfied and 27% of respondents are not satisfied.

HEALTH FACILITIES

4. Pollution Factor

- From the study it reveals that, For dust, 78% of respondents gives are not affected, 13% of respondents are somewhat affected and 9% of respondents are affected.
- For smoke, gas and fumes, 60% of respondents are not affected, 20% of respondents are somewhat affected and 20% of respondents are affected.
- For noise, 58% of respondents are not affected, 23% of respondents are somewhat affected and 19% of respondents are affected

5. Environmental Factors

- From the study it reveals that, From bad weather, 69% of respondents are not affected, 13% of respondents gives neither positive nor negative scale and 18% of respondents are affected.
- From badly maintained areas, 58% of respondents are satisfied, 17% of respondents gives neither positive nor negative scale and 25% of respondents are not satisfied.

6. Risk Factor

- From the study it reveals that, 76% of respondents positively agree that there is risk of catching disease, 9% gives their response as neutral and 15% of respondents negatively disagree and there is no risk of catching disease.
- For accidents while working, 57% of respondents positively agree, 27% of response as neutral and 16% of respondents negatively disagree.

7. Hospital Facilities

From the study it reveals that, 62% of respondents have visited Thermox Polymers Ltd hospital for health related issues and 38% of respondents have not visited the hospital regularly.

- From the study it reveals that, respondents are not regularly visiting PL hospital for health issues are 14% due to more waiting time involved, 32% due to more procedure involved, 44% gives their response that service is not good, 7% give their response that there is lack of medical resource and 3% of respondents gives other reasons.
- From the table it reveals that, 3% of respondents are highly satisfied, 26% are satisfied, 39% of respondents give their response as neutral, 24% of respondents are dissatisfied & 8% of respondents are highly dissatisfied with the hospital facilities.

SAFETY

8 Psychological Factors

- From the study it reveals that 54% of respondents positively agree that it is uncomfortable working environment 30% gives their response as neutral & 16% of respondents negatively disagree.
- For Lack of concern for safety 56% of respondents positively agree, 25% gives their response as neutral & 19% of respondents negatively disagree.
- For stress became a regular habit for the non use of PPE's 48% of respondents positively agree, 42% gives their response as neutral & 10% of respondents negatively disagree.

9 Awareness Factors

- From the study it reveals that 60% of respondents positively agree that there is inadequate knowledge about the work & machines for the non use of PPE's 21% of respondent's gives their response as neutral and 19% of respondents negatively disagree.
- For inadequate safety training 44% of respondents positively agree, 30% of respondents give their response as neutral and 26% of respondents negatively disagree.

10 Maintenance Factors

- From the study it reveals that, for poor quality of PPEs 36% of respondents positively agree, 39% of respondents give as neutral and 25% of respondents negatively disagree.
- For lack of maintenance 48% of respondents positively agree, 47% of respondents give their response as neutral and 5% of respondents negatively disagree.
- For equipments non available 24% of respondents positively agree, 47% of respondents give their response as neutral and 29% of respondents negatively disagree.
- For lack of supervision 56% of respondents positively agree, 30% of respondents give as neutral and 14% of respondents negatively disagree.

5.2 SUGGESTION:

WELFARE

- Canteen facilities should be provided in the documentation complex for the traffic department employees
- Dining hall arrangement should be provided for the employees with proper facilities.
- Pure drinking water facilities should be provided at the working places of the employees.
- For the employees children's education allowance should be improved, for lower cater level employees full school fees should be given for the needy students.
- Working environment for the employees should be improved, employee's faces difficulty in working during summer season so centralized air conditioner should be fixed.

HEALTH

- Employee's health has been affected with pollution factors so the administration office should be reengineered with dust free glass doors& windows.
- Employees have been satisfied with the Thermox Polymers Ltd hospital, even though employees need referrals for outside treatment so, it should be given to the needy employees.

SAFETY

- Awareness regarding safety should be given to the workers related to the use of Personal Protective Equipments like documentary films, seminars taken over by speaker & real life examples like direct talk among the workers with the affected worker by the non use of PPE's.
- There should be proper supervision in the working areas; while the worker is not using respective PPE's for the specified work then strict action should be taken over the worker, as simple mistake leads to a big problem.
- Workers should not get irritate to use PPE's, so well equipped and newly designed Personal Protective Equipments should be given to them so it will make a desire towards PPE's and they will became a regular user of PPE's.

5.3 CONCLUSION

The world is competitive to be successful for an organization the employees plays a major role they should be motivated, satisfied, self contented in their field of specialization. Retaining of employees in an organization needs a lot of effort like better treatment, good pay factor and status in the society.

Welfare measures for the employees, working environment facilities are like power given to them in carrying out their activities, so the welfare measures should be implemented effectively.

Apart from this one should be fittest in the working place which helps a lot in the productivity and smooth running of an organization. Employees are considered as the assets of an organization to their wellbeing importance should be given, so health and safety of employees must be given importance to increase the productivity of an organization.

ANNEXURE

A STUDY ON EMPLOYEE'S WELFARE, HEALTH AND SAFETY MEASURES IN THERMOX POLYMERS LTD

QUESTIONNAIRE

1. PERSONAL DETAIL

B) AGE:

21-25YRS () 26-30YRS ()

31-35YRS () 36-40YRS () ABOVE 40YRS ()

C) GENDER :

MALE () FEMALE ()

D) MARITAL STATUS:

SINGLE () MARRIED ()

E) SERVICE STATUS:

PERMANENT () TEMPORARY ()

F) EXPERIENCE:

Upto 5 years	5 to 10 years	10 to 15 years	15 to 20 years	Above 20 years

G) QUALIFICATION:

SSLC	HSC	ITI/DIPLOMA	UG	PG

H) MONTHLY INCOME:

BELOW 10000	10001 TO 20000	20001 TO 30000	ABOVE 30000

WELFARE FACILITIES

2. INTRA MURAL FACILITIES:

PARTICULARS	HIGHLY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	HIGHLY DISSATISFIED
Drinking water					
Restroom\ sickroom					
Canteen					
Wash basins					
Cretches					
Washroom					

Satisfactory level of facilities provided inside the work place.

3. EXTRA MURAL FACILITIES:

Satisfactory level of facilities provided outside the workspace

Particulars	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied
Housing					
Recreation					
Education					
Loan facilities					
Transport					
Medical facilities					

4. CONTEMPORARY WELFARE FACILITIES:

Satisfactory level of contemporary welfare facilities provided in the Thermox Polymers Ltd

Particulars	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied
Quality of work life					
Employee counseling					
Coping with stress					
Good working condition					

5. Is the welfare facilities motivates you to retain in the current job

() Yes

() No

6. Rank the welfare amenities available to you based on your preference(rank from 1 to 3)

Particulars	Rank
Intra mural facilities	
Extra mural facilities	
Contemporary welfare facilities	

7. Do you need any improvement in the welfare facilities available to you(if yes) please.....

.....

HEALTH

The following are the factors which affects your health due to your working conditions(please tick the approximate mark through which you are affected)

8. POLLUTION:

Factors	Highly affected	Affected	Unaffected	Not applicable
Air pollution from dust				
Pollution from smoke,gas and fumes				
Noise pollution				

9. ENVIRONMENT:

Factors	Highly affected	Affected	Unaffected	Not applicable
Working outside in bad weather				
Badly maintained areas				

10. RISK FACTOR:

Factors	Very high	high	Neutral	Low	Very low
Chances of catching diseases					
Risk of traffic accidents while working					

11. HOSPITAL FACILITIES:

Do you visit Thermox Polymers Ltd hospital regularly for health related issues?

() Yes () No

If no why

() waiting time is more () more procedure involved
() service is not good () lack of medical resource? Others

If yes, satisfactory level of hospital facilities provided inside the work place

() highly satisfied () satisfied () neutral () dissatisfied () highly satisfied

12. Do you want any extra facilities to be provided related to your health facilities?

(if
yes) please.....
.....

SAFTEY

The factors indicated below are responsible for non use of personal protective equipments(PPE) among the worker(Please give an appropriate tick mark based on your opinion)

13. PSYCHOLOGICAL FACTOR:

Factors	Highly agree	Agree	Neutral	Disagree	Highly disagree
Uncomfortable working environment					
Unsatisfied organization climate					
Lack of					

concern for own safety					
Stress became a regular habit					

14. AWARENESS FACTOR:

Factor	Highly agree	agree	neutral	disagree	Highly disagree
inadequate knowledge about the work and machines					
Inadequate safety training					

15. MAINTAINANCE FACTOR:

Factor	Highly agree	Agree	Neutral	Disagree	Highly disagree
Poor quality of PPE					
Lack of maintenances					
Equipments not available					
Lack of supervision					

16. Satisfactory level personal protective equipments provided at your work place.

- Highly satisfactory ()
- Satisfied ()
- Neutral ()
- Dissatisfied ()
- Highly dissatisfied ()

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