

A STUDY ON SAFETY MEASURE OF WORKERS IN REDOVA LOGISTICS.

Submitted in partial fulfillment of the requirements for the award of

MASTER OF BUSINESS ADMINISTRATION

by

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Register No.41410103



SCHOOL OF MANAGEMENT STUDIES

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

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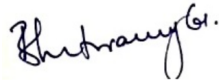
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This is to certify that this Project Report is the BONAFIDE work of **GOKULNATH S 41410103** who carried out the project entitled “**A Study on safety measure of workers in redova logistics**” under my supervision.



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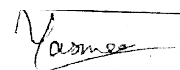


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DECLARATION

I **GOKULNATH S (41410103)** hereby declare that the Project Report entitled “**A STUDY ON SAFETY MEASURES OF WORKERS IN REDOVA LOGISTICS**” done by me under the guidance of **DR T.R KALAILAKSHMI,MA,MBA, M.PHIL,PH.D** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

DATE: 06/05/2023

PLACE: Chennai



GOKULNATH S

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GOKULNATH S

ABSTRACT

Safety measures are inevitable to any organization where workers are involved. It's an organization's responsibility to provide to its workers beyond the payment of wages for their services. The worker's Safety on and off the job within the organization is a vital concern of the employer. The working environment in a factory adversely affects the worker's Safety because of the excessive heat or cold, noise, odors, fumes, dust and lack of sanitation and pure air etc., which leads to accident or injury or disablement or loss of life to the workers. Providing a health and safer environment is a pre-requisite for any productive effort. These must be held in check by providing regular health check-up, protective devices and compensatory benefits to the workers. This research deals with the study on the Safety measures provided to the workers at Redova Logistics, chennai.

All levels of management must make Safety a priority. They must communicate this by going out into the worksite to talk with workers about their concerns and to observe work procedures and equipment. In each workplace, the lines of responsibility from top to bottom need to be clear, and workers should know who is responsible for different Safety issues.

This study would give an overview of the Safety measures existing at Redova Logistics, chennai. Since Safety are two important elements essential for improving the productivity of an organization, a study on the existing Safety measures would help the organization to perform better. This study would throw light on the perception of the workers regarding Safety. Redova Logistics can identify the areas where it can be improved, so as to improve the performance of the workers. This study would also help to analyze the satisfaction level of the workers towards Safety measures and suggest provisions to improve Safety.

Convenience sampling method has been used in the research work. Multiple choice questions have been chosen to collect the responses from 135 workers. The data collected has been analyzed through various tools. Numerous new findings has been derived from this research has helped to provide few suggestions to improve the Safety measures for its workers.

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CHAPTER I

INTRODUCTION

1.1 INTRODUCTION

Due to rapid industrialization, industrial workers are exposed to several types of hazards and accidents. Every year lakhs of workers are injured due to mechanical, chemical, electrical and radiation hazards and it leads to partial or total disablement. So in recent years, greater attention is given to Safety due to pressure from government, trade unions, labour laws and awareness of employers.

The efficiency of workers depends to a great extends on the environment in which the work. Work environment consists of all the factors, which act and react on the body and mind of an workers. The primary aim is to create an environment, which ensures the greatest ease of work and removes all causes of worries.

DEFINITION

According to STEPHEN. J "Organized effort and procedures for identifying work place hazards and reducing accidents and exposure to harmful situation and substance in is also include training and personnal in accident prevention".

Occupational Safety is a discipline with a broad scope involving many specialized fields. In its broadest sense, it should aim at:

- a) The promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations.
- b) The prevention among workers of adverse effects on health caused by their working conditions.
- c) The protection of workers in their employment from risks resulting from factors adverse to health.

- d) The placing and maintenance of workers in an occupational environment adapted to physical and mental needs.
- e) The adaptation of work to humans.

Successful occupational Safety practice requires the collaboration and participation of both employers and workers in Safety programmes, and involves the consideration of issues relating to occupational medicine, industrial hygiene, toxicology, education, engineering safety, ergonomics, psychology, etc.

Occupational health issues are often given less attention than occupational safety issues because the former are generally more difficult to confront. However, when health is addressed, so is safety, because a healthy workplace is by definition also a safe workplace. The converse, though, may not be true - a so-called safe workplace is not necessarily also a healthy workplace. The important point is that issues of both Safety must be addressed in every workplace.

Work plays a central role in people's lives, since most workers spend at least eight hours a day in the workplace, whether it is on a plantation, in an office, factory, etc. Therefore, work environments should be safe and healthy. Unfortunately some employers assume little responsibility for the protection of workers' Safety. In fact, some employers do not even know that they have the moral and often legal responsibility to protect workers.

1.2 INDUSTRY PROFILE

Logistics is regarded as the backbone of the economy, providing efficient and cost effective flow of goods on which other commercial sectors depend. Logistic industry in India is evolving rapidly, it is the interplay of infrastructure, technology and new types of service providers, which defines whether the logistic industry is able to help its customers reduce their costs in logistic sector and provide effective services.

Despite of the weak economic sentiments, the logistics industry continues to witness growth due to the growth in retail, e-commerce and manufacturing sectors. The Global Logistics sector was expected to grow 10-15% in the period 2022-23. Logistics industry is expected to reach over USD 2 billion by 2025. Rise of e-commerce logistics and increased domestic consumption will lead the way for the industry in the coming years. With a promise of growth and improvements, the service oriented logistics industry is ready to expand beyond the horizons in the latter half of this decade.

Recent scenario

The recent Indian logistics sector comprises of inbound and outbound segments of the manufacturing and service supply chains. Of late, the logistics infrastructure has gained a lot of attention both from business industry as well as policy makers. The role of managing this infrastructure, to effectively compete has been slightly under-emphasized. Inadequate logistics infrastructure has an effect of creating bottlenecks in the growth of an economy. The logistics management regimen has the capability of overcoming the disadvantages of the infrastructure in the short run while providing cutting edge competitiveness in the long term. There exist several challenges and opportunities for logistics sector in the Indian economy.

Challenges faced by the recent logistics industry in India

The most essential challenge faced by the industry today is insufficient integration of transport networks, information technology and warehousing & distribution facilities. Regulations exist at a number of different tiers, is imposed by national, regional and

local authorities. However, the regulations differ from city to city, hindering the creation of national networks.

Trained Manpower is essential both for the third party logistics sector as well as the manufacturing and retailing sectors, which is very weak at a practical level, i.e., IT, driving and warehouse as well as at a higher strategic level. The disorganized nature of the logistics sector in India, its perception as a manpower-heavy industry and lack of adequate training institutions has led to a shortfall in skilled management and client service personnel. There is a lack of IT standard, equipment and poor systems integration.

Popular Read: I have data. I need insights. Where do I start?

Poor facilities and management are the reason for high levels of loss, damage and deterioration of stock, mainly in the perishables sector. Part of the problem is insufficient specialist equipment, i.e. proper refrigerated storage and containers, but it is also partly down to lack of training. The practitioners and the academicians are now aware of the importance of logistics and supply chain; however the field is still under penetrated as far as research is concerned. It is essential to prioritize research and development so that the weaknesses in the industry can be taken care of and improved.

Solutions to some of the challenges

Infrastructure is the backbone of every country's growth and prosperity and for the logistics industry to flourish special emphasis has to be on building world-class road networks, integrated rail corridors, modern cargo facilities at airports and creation of logistics parks which need to be given a status equivalent to Special Economic Zones.

It is necessary to realize that the benefits which can bestly be practiced in logistics industry can be brought about by the companies by establishing training intuitions, so that there is improvement in the overall service quality of the sector. Good storage and Warehousing facilities are important for the growth of the logistics industry. With the

increase in the transportation of perishable products, the logistics agencies need to give a lot of importance to enhancing the Warehousing facilities.

Warehousing is required to go to the next level taking into account the changing dynamics of JIT manufacturing, global procurement and new models of sales and distribution. Emphasis on research and development is potent mainly because it encourages the use of indigenous technology which can make the industry cost competitive and can also bring about improvement in services thereby using better, effective and efficient services. Particular focus has to be on research in process excellence which can help to eliminate inefficiencies and bring Indian logistics on par with global practices.

Popular Read: Factors Influencing the Paradigm Shift in the Logistics Sector in India

Future prospects

The logistics firms are moving from a traditional setup to the integration of IT and technology to their operations to reduce the costs incurred as well as to meet the service demands. The growth of the Indian logistics sector depends upon its soft infrastructure like education, training and policy framework as much as the hard infrastructure.

To support India's fast paced economy growth of logistics industry is very essential. It is estimated that the Indian logistics industry will continue to show robust growth of 10-15% annually, leading the pace of growth of the economy at large.

The global economic outlook, indeed that of India is expected to significantly improve as India Inc begins to tackle the economic downturn. With a new government many policies are expected to be implemented which will give a fresh impetus to India's growth engine particularly in the corporate and SME sector which in turn will expand demand for the logistics sector.

With the implementation of GST, the logistics companies, which are currently forced to set up many small warehouses across multiple cities can set up just a few, big warehouses region wise and can follow the hub-and-spoke model for freight movement from the warehouses to the different manufacturing plants, wholesale

outlets, retail outlets and the various POS. This growth is backed by the boom in the e-commerce sector and expansionary policies of the FMCG firms.

This has increased the service geography of the logistics firms but they also have to meet the demands of quick delivery and tight service level agreements. The industry has moved from being just a service provider to the position which provides end to end supply chain solutions to their customers. Thus, all this has paved the way for further growth of Logistics and Warehousing industry in the coming years.

1.3.COMPANY PROFILE

Redova Logistics Pvt Ltd was founded by logistics professionals in 2001 with a vision to be recognized as the most dependable and responsive logistics service provider. Survival of the fittest is more than apt in today's competitive world. One has to provide qualitative services at the most competitive prices at the right place & at the right time. For this you need to have a reliable service provider so that you can concentrate on your core competencies.

With Redova Logistics Pvt Ltd– the leading service provider with a full menu of logistics services–your business will boom. Our logistics services are at the forefront, offering state-of-the-art 3rd party and 4th party logistics solutions to all customers. Redova Logistics Pvt Ltd is structured to provide logistics and supply chain solutions to the growing global industry.

OUR STRENGTHS:

We have Logistics Engineering team to overview productivity and process review within the warehouses , Cycle Count Team to monitor inventory integrity and MIS team to provide and design customized MIS. These are some of our key differentiator functions over the competition – enabling us to execute our promise to deliver continuous value.

Our performance in productivity, inventory integrity, resource quality and quantity are among the best in the industry. We rely heavily on customized MIS to demonstrate performance improvements on a continuous basis.

Crashing transaction times

Meeting agreed transaction times allow you to meet your delivery schedules. Improving these times by increasing productivity sharpens warehouse throughput and makes your invoices payable early. Crashing times actually adds to your working capital.

We work on improving transaction cycle times by using modern Industrial Engineering techniques, as well as implementing learning achieved from experience and industry benchmarks.



On a larger plane - TTM (Time to Market), TTC (Time to Cash) etc. are our customer expectations that we have assisted them in bringing around remarkable results.

Innovative Solution

"Value addition" is the basis of any successful and sustained business relationship between two entities.

Redova Logistics Pvt Ltd offers innovative solution as one such value addition to our customers, where we contribute to our customer's value chain not only as a one-time value addition but of a continual nature due to Redova Logistics Pvt Ltd tradition of improving it, with time.

Apart from the best in class performance which is a trademark Redova Logistics Pvt Ltd service, a good example is the Redova Logistics Pvt Ltd "Business Industrial Engineering" (BIE) function which adds value to our customer businesses via innovative solutions upon and around their key W&D requirements of: Innovative Warehouse design to enable Higher throughput at lesser costs. MHE and MSE selection to suit the Volume, flow (direction & magnitude) and cycle time metrics for Optimal Cost-Benefit ratio.

Distribution network design based on data analysis of our customer's transaction numbers.

Continuous Improvement - Redova Logistics Pvt Ltd BIE function does this as a 'birth principle' than a customer need / expectation / requirement.

Managing Reliability in Processes

Redova Logistics Pvt Ltd recognizes the importance of stable processes in Warehousing and Transportation, which form most significant costs out of total Logistics costs.

Errors often creep even in routine transactions, the impact of which adversely affect customer satisfaction and may result in consequential problems of payment delays / defaults, loss of "repeat business" maybe profits as well.

Redova Logistics Pvt Ltd has been providing reliability levels of over 99+% to our customers with. We have achieved this based our process flow mapping, mechanism to measure them and take proactive steps to improve them. SOPs, DPMs, Daily Exception reporting and management are some of the tools we will use to achieve the said reliability for you.

Redova Logistics Pvt Ltd cherishes dependability as one of the core values.

SERVICES

1. Freight Forwarding

As more and more companies are migrating into the global marketplace, they've come to expect a freight forwarding service which is equal to the task of meeting their unique requirements. We are ready to answer that challenge with our vast network of international contacts and expert knowledge of the international freight forwarding.

- ❖ Door to Door Service
- ❖ Air Freight - Imports and Exports
- ❖ Sea Freight - Imports and Exports
- ❖ Multi-modal Transport
- ❖ Customs Clearance

Air Freight



Our airfreight services help you to ship your cargo to almost every destination worldwide.

Our specialists have many years of experience in the area of air cargo shipments. And with our good connection with major worldwide carriers, we are able to offer the best solution to compete with time, safety, cost and space.

Our focus is on prompt and timely delivery of your shipments along with constant communications so that you are in control of your cargo at all times.

Our services include:

- ✦ Import Cargo Handling
- ✦ Export Cargo Handling
- ✦ Import and Export Cargo Consolidation
- ✦ Dangerous and Valuable Cargo
- ✦ Door to Door Services

Sea Freight



Through our network of experienced professionals, strong world shipping connections and extreme flexibility, we are able to specifically respond to whatever your shipping needs may be.

Our experience, local market know-how, partnership with carriers, global network lets you take advantage of the following:-

- o Efficient load capacities
- o Routing geared to meet your time\cost requirements
- o Competitive prices
- o Flexible schedules

Our services include:

- ⌘ Full Container Load(FCL)
- ⌘ Less than Container Load(LCL)
- ⌘ Buyer Consolidation
- ⌘ Direct & Transhipment service options
- ⌘ Port to Port Services
- ⌘ Door to Door Services
- ⌘ Break Bulk

Project Cargo Handling



The complex requirements that encompass Project Cargo execution requires 'out of the box' thinking in order to create and implement effective solutions.

We provide the specialized expertise such as logistics capabilities, precise timing, wide geographical knowledge, and global connections to coordinate project cargo movements from origin to destination.

Our project handling capabilities include:

- ⌘ Freight negotiation (COA negotiation, long term rate validities).
- ⌘ Special equipment transport (flat racks, open tops, hard top platforms solution).

2. Third Party Logistics

Redova Logistics Pvt Ltd is one source for comprehensive logistics services. Our established operations offer supply chain, transportation and inventory management, warehousing operations, reverse logistics and more -- all custom-tailored to the individual needs of our customers. Our in-house consultants and operations experts provide valuable experience and expertise in a wide variety of areas including IT, automotive and e-commerce. The warehouses are equipped with the best material handling and storage equipment, controlled by an in-house developed Warehouse Management System.

Inbound Logistics



- Planning
- Purchase Order Management
- Milk Route Collections
- Hub & Spoke model for Consolidation
- Container Movement
- Stores Management and Line Feeding
- Just In Time Inventories
- Vendor Managed Inventories
- Performance Analysis and Process Optimization
- Space Management
- Planning & Forecasting
- Excise & Octroi
- Consolidation Centers
- Line Feeding
- Transportation

Outbound Logistics



- Setting up a Distribution network
- Providing certainty and committed service levels.
- Shared Public Warehouses
- Optimization to bring down Total Transaction Cost
- Pre Delivery Inspection
- Packaging
- Accessory fitting
- Audit
- Storage

- Inventory
- Invoicing
- Dispatch

Reverse Logistics



- After Sales
- Customer Feedback
- Claims Settlement
- Receiving
- Quality
- Payment
- From warehousing to transportation, our process strength and operational excellence extends to all core functions of contract logistics.
- We combine warehousing, transportation and value-added services to ensure a custom fit. Our facilities share common processes and systems, so you receive consistent reporting in addition to dependable customer service. IT enablers like Warehouse Management System simplifies all data exchange.
- We invest time and expertise to fully understand your business before designing plans to improve your supply chain. We take responsibility for the performance of all our suppliers and for ensuring availability of resources and equipment needed to control the flow of goods under our charge.

We seek to deliver advanced customer service quality by:

- Customizing dedicated facility or flexible shared facilities
- Optimizing performance of your existing assets. We are happy to work from your facilities if it increases efficiency.

Our services deliver:

- Inventory integrity
- Shorter lead times
- Increased productivity
- Greater responsiveness
- Fast and reliable start-ups
- Flexibility to meet growing volumes and resultant peaks and valleys
- Recruitment, training and motivation of workforces
- Transfer of industry best practices from other sectors and regions
- Rock-solid record keeping
- Transaction integrity
- Transaction history record keeping
- Comprehensive menu of standard reports

3. Warehousing and Distribution Services

Our range of warehouse offerings is amongst the most diverse in India. We provide the following types of warehousing services:

- Dedicated Warehouses
- Shared-user Warehouses
- Limited term project centric warehouses.

Dedicated

Warehouses

Best in class solutions

Customized to meet your specific requirements of design, layout, storage and handling, we can set up dedicated warehouses wherever you wish.

We are mobile, flexible and ready to go. From concept to operations, we use modeling to find an optimal location, identify the real estate using our database, and define the necessary systems and operating structure. We work closely with you right through the design and layout stages.

Our project management team integrates facility and systems operations and resource planning before hand over. Your distribution centre functions smoothly and you get visibility of the project from the very beginning.

SharedWarehouses

Flexibility all the way

Our Shared logistics facilities provide you flexibility on space and services without a sizable investment and long-term commitment.

These facilities can receive products and provide downstream distribution. Through shared resources - space, overheads, labour and equipment - our customers benefit from synergies that significantly reduce supply chain costs and improve efficiencies dramatically.

Smaller businesses requiring distribution operations without long-term lease or capital commitments can benefit from this. As can larger enterprises for a new acquisition, product launch or seasonal overflow. Leading manufacturers and retailers of the Automotive, Telecom and Retail, among other sectors, use our services.

In-Plant

Taking charge, giving control

We offer a range of programs within our customers' facilities. We can support your team – or be your team – by handling such tasks as labour or yard management, packing, designing, container stuffing, line feeds, water spider maintenance, and just-in-time deliveries.

We help you cut costs, increase productivity, and get the best out of your most valuable resource - your people. Quality and safety are part of our culture and we invest a substantial amount of time building consistent processes, aligned with your best practices and training, to achieve our goals of zero recordable incidents.

4. Installation Support Logistics

Our support to Installation Engineers combines several critical functions involving warehouse, transportation, up-lifting expertise and on site marshalling of manpower and lifting equipment.

The installation material is typically delicate, large, unwieldy and heavy and needs care for material and building protection. We also take care of local permissions.

We have special teams providing Telecom Installation Support logistics. Our flexible response to severe Transaction skew is greatly appreciated by our clients. We have a large vendor base which allows us to scale up on demand. Our transportation

management skills and computer software allow us to meet these requirements. We run complex programs that ensure high levels of accuracy.

We also manage local and specialized deliveries - from coordinating and training staff on product installation to retail merchandising and more. These include customized inside-the-home deliveries and installation services.

Our proven transportation solutions coupled with local market intelligence helps us in delivering these capabilities:

- Dependable Vendor Management
- Route understanding, planning & optimization
- Octroi Management
- Milk-Run Management
- Multi-Point Distribution Management
- Pan-India & regional Services Management

1.4 OBJECTIVES OF THE STUDY

Primary objective:

To study on the Safety measures with reference to Redova Logistics

Secondary Objectives:

- 1) To study the awareness of the workers about Safety in the work place.
- 2) To find the occurrence of accidents happened at the work place.
- 3) To identify the role of management in implementing Safety.
- 4) To find out the satisfaction level of the respondents towards Safety measures.

1.5. SCOPE OF THE STUDY

- This study would give an overview of the Safety measures existing at Redova Logistics, Chennai.
- Since Safety are two important elements essential for improving the productivity of an organization, a study on the existing Safety measures would help the organization to perform better.
- This study would throw light on the perception of the workers regarding Safety. Redova Logistics can identify the areas where it can be improved, so as to improve the performance of the workers.
- This study would also help to analyze the satisfaction level of the workers towards Safety measures and suggest provisions to improve Safety.

1.6 NEED OF THE STUDY

Workers often experience work-related problems and do not realize that the problems are related to their work, particularly when an occupational disease, for example, is in the early stages. Besides the other more obvious benefits of training, such as skills development, hazard recognition, etc., a comprehensive training programme in each workplace will help workers to:

- a) Recognize early signs/symptoms of any potential occupational diseases before they become permanent conditions.
- b) Assess their work environment.
- c) Insist that management make changes before hazardous conditions can develop

1.7 LIMITATIONS OF THE STUDY

- The study is applicable only to Redova Logistics, chennai. Therefore the results cannot be generalized for the whole industry.
- Due to time constraints the sample size had to be confined to 135.
- The respondents have replied to the queries recalling from their memory. Therefore recall bias and personal bias are possible.
- Since the data was collected using a schedule, the interviewer unable to understand and record the responses correctly.
- The respondents were unable or unwilling to give response.

CHAPTER 2

REVIEW OF LITERATURE

2.1 LIST OF REVIEWS

According to J.A Clarke “occupational health deals with all aspects of Safety in the work place and has a strong focus on primary prevention of hazards”.

According to Safety at Work Act, “the a set of laws made in the UK in order to protect people at work and make sure that they do not have to work in dangerous condition, without the proper clothing or safety equipment etc

1. **A Baker; K Hailer; S A Ferguson (2002)**, suggested that the organization should provide good fencing facilities to avoid accidents in the industry. Safety also suggested that the organization should provide safety equipment to all workers, who work at height occasionally or daily. The occupational Safety implications associated with compressed and extended work periods have not been fully explored in the mining sector. Absenteeism and incident frequency rate data were collected over a 33 month period that covered three different roster schedules. The only significant change in absenteeism rates was an increase in the maintenance sector in the third data collection period.
2. **A Spurgeon; J M Harrington; C L Cooper (1997)**, emphasized that The European Community Directive on Working Time, which should have been implemented in member states of the European Community by November 1996. This paper reviews the current evidence relating to the potential effects on health and performance of extensions to the normal working day. Research to date has been restricted to a limited range of health outcomes--namely, mental health and cardiovascular disorders. Other potential effects which are normally associated with stress--for example, gastrointestinal disorders, musculoskeletal disorders, and problems associated with depression of the

immune system, have received little attention. It is concluded that there is currently sufficient evidence to raise concerns about the risks to Safety of long working hours.

3. **Connor Co Reynolds; M Anne Harris; Peter A Crompton; Meghan Winters(2009)** found that implemented health provisions give job satisfaction to majority of workers. The author suggested that the organisation should provide good fencing facilities to avoid accidents in the industry. The study also suggested that the organization should provide safety equipment to all workers, who work at height occasionally or daily. organisation can provide overcoat and mask to avoid health infection. Prabakar. Workers satisfaction & welfare measures a case study with special reference to Don Bosco College of Arts & Science” found that out of all the workers are joined.
4. **Dee W. Edgington; Alyssa B. Schultz (2008)**, emphasized that evidence of the association between health risks and the workplace economic measures of time away from work, reduced productivity at work, health care costs and pharmaceutical costs. A search of PubMed was conducted and high quality studies were selected and combined with studies known to the authors. A strong body of evidence exists which shows that health risks of workers are associated with health care costs and pharmaceutical costs. A growing body of literature also confirms that health risks are associated with the productivity measures. The paper shows that measures of success will continue to be important as the field of worksite health management moves forward.
5. **Graves carol gevecker; Matanoski genevieve m; Tardiff robert g (2000)**, suggested that safety to workers who handle large amounts of CCP has been addressed in numerous studies and reports. This review encompasses the world's literature on CCP and provides a weight-of-evidence analysis of the safety of CCP to workers in the United States. Since 1987, has produced neither primary skin irritation nor skin sensitization under normal conditions of manufacture and use. Finally, very few published complaints have come from the manufacturing sector where the closest and most voluminous contact occurs. Based on the weight of the evidence, NIOSH is anticipated to conclude that CCP is not a hazard to workers and has only a small possibility of producing mild and transient skin irritation.

6. **International Council on Nanotechnology, Rice University**, suggested that "Current Knowledge and Practices regarding Environmental Safety in the Nanotechnology Workplace", offers a review and analysis of existing efforts to develop "best practices." This report finds that efforts to catalogue workplace practices have not systematically documented current environment, Safety practices in a variety of workplace settings and geographies. Moreover, it finds that some existing documents are not publicly available.
7. **Johannson B; Rask K; Stenberg M (2010)**, analyzed that relevant research articles about piece rate wages and their effects on Safety. A total of 75 research articles were examined extensively and 31 of these were found relevant and had sufficient quality to serve the purpose of this study. The findings of these clear interest for health, musculoskeletal injuries, physical workload, pains and occupational injuries. The fact that 27 of the 31 studied articles found negative effects of piece rates on different aspects of Safety does not prove causality, but together they give very strong support that in most situations piece rates have negative effects on Safety.
8. **Karen J.M. Niven (2000)**, described that the evaluate economic evaluations of Safety interventions in healthcare. Problems were identified with valuing benefits in Safety because they frequently take many years to emerge and are difficult to measure. Understanding of economic techniques within the Safety professions was limited, resulting in wide-ranging assumptions being made as to the positive economic impact of Safety interventions. Healthcare managers, health economists, and Safety professionals have not traditionally worked together and have inherent misunderstandings of each other roles. The review concludes that the aim of future research should be to assist the National Health Service (NHS) to make valid decisions about Safety investment and risk control methods.
9. **L Ala-Mursula; J Vahtera; A Kouvonen; A Vaananen; A Linna (2006)**, argued that associations working hours paid, domestic, commuting, and total with sickness, absence, and to examine whether these associations vary according to the level of workers control over daily working hours. Long domestic and total working hours were associated with higher rates of medically certified sickness absences among both genders. Low control over daily

working hours predicted medically certified sickness absences for both the women and men. In combinations, high control over working hours reduced the adverse associations of long domestic and total working hours with medically certified absences. Workers control over daily working hours may protect health and help workers successfully combine a full-time job with the demands of domestic work.

10. **Lucia Artazcoz; Imma Cortes; Vincenta Escriba-aguir; Lorena Cascant (2009)**, focused that objectives of this study was to identify family and job characteristics associated with long work hours. The sample was composed of all salaried workers aged 16–64 years (3950 men and 3153 women) interviewed in the 2006 Catalan Health Survey. Factors associated with long working hours differed by gender. In men, working 51–60 h a week was consistently associated with poor mental health status, self-reported hypertension, job dissatisfaction, smoking, shortage of sleep. Among women it was only related to smoking and to shortage of sleep. The association of overtime with different health indicators among men and women could be explained by their role as the family breadwinner.

11. **Lucia Artazcoz; Imma Cortes; Vincenta Escriba-aguir; Lorena Cascant (2007)**, proposed that framework for epidemiological research on work and health that combines classic occupational epidemiology and the consideration of work in a structural perspective focused on gender inequalities in health. Gaps and limitations in classic occupational epidemiology, when considered from a gender perspective, are described. Classic occupational epidemiology has paid less attention to women's problems than men's. Research into work related gender inequalities in health has rarely considered either social class or the impact of family demands on men's health. The analysis of work and health from a gender perspective should take into account the complex interactions between gender, family roles, employment status and social class.

12. **Maynard, Andrew D**, summarized that the current level of development and government investment in nanotechnology research and development, how nanotechnology presents a potential challenge to conventional approaches to

understanding health hazards in the workplace, and how the United States National Institute of Occupational Safety and Health is working to address current and potential adverse health impacts in the workplace from nanotechnology.

13. N Nakanishia; H Yoshidaa; K Naganoa; H Kawashimob; K Nakamurac (2001), proposed that association of long working hours with the risk of hypertension. The work site is in Osaka, Japan. 941 hypertension free Japanese male white collar workers aged 35–54 years were prospectively examined by serial annual health examinations. 424 men developed hypertension above the borderline level. After controlling for potential predictors of hypertension, the relative risk for hypertension above the borderline level, compared with those who worked < 8.0 hours per day was 0.48, for those who worked 10.0–10.9 hours per day was 0.63. These results indicate that long working hours are negatively associated with the risk for hypertension in Japanese male white collar workers.

14. N. Haworth; C. Tingvall & N. Kowadlo (2000), said that the awareness of the role of work-related driving in crashes and the related costs, many private and government organisations have developed programs to improve fleet safety. The purpose of this project is to investigate the potential to introduce road safety based initiatives in the corporate environment. From the review, that the fleet safety initiatives which have potential to be effective are, Selecting safer vehicles, Some particular driver training and education programs, Incentives, Company safety programs. It is assumed that the degree of influence is likely to decrease as the type of vehicle moves from the fleet towards the private end of the continuum.

15. Peter Hasle and Hans Jorgen Limborg (1995), commented that regarding preventive occupational Safety Activities in Small Enterprises has been reviewed in order to identify effective preventive approaches and to develop a future research strategy. There is a lack of evaluation of intervention studies, both in terms of effect and practical applicability. However, there is sufficiently

strong evidence to conclude that workers of small enterprises are subject to higher risks than the larger ones, and that small enterprises have difficulties in controlling risk. The most effective preventive approaches seem to be simple and low cost solutions, disseminated through personal contact. It is important to develop future intervention research strategies, which study the complete intervention system of the small enterprises.

16. **Shouji Nagashima; Yasushi Suwazono; Yasushi Okubo; Mirei Uetani (2007)**, commented that the influence of working hours on both mental and physical symptoms of fatigue and use the data obtained to determine permissible working hours. The survey of day-shift male workers, using the Self-Rating Depression Scale (SDS) and Cumulative Fatigue Symptoms Index (CFSI). A total of 715 workers participated. In the group working 260–279 h/month, the odds ratios for SDS and ‘irritability’ and ‘chronic tiredness’ of the CFSI were increased. In the group working grater than equal to 280 h/month, the odds ratios on CFSI for ‘general fatigue’, ‘physical disorders’, ‘anxiety’ and ‘chronic tiredness’ were likewise increased. The research clarified that working hours should be lesser than 260 h/month in order to minimize fatigue symptoms in male day workers.

17. **Simon Chapple and Tracy Mears (1996)**, found that most OECD countries rely on a mixture of market forces, tort liability, compulsory insurance and government regulation to deal with workplace safety and health issues. There are also other non-efficiency reasons for government involvement in workplace safety and health. However, while markets may not be efficient, government intervention can fail to make any improvement and/or not satisfy cost-benefit criteria. While the empirical evidence is not clear cut, the balance of the evidence suggests that wages may include some consideration for Safety risks. Evidence also suggests that workers’ compensation systems increase the frequency and duration of claims for non-fatal injuries, but may decrease the number of fatal injuries.

18. **Scandinavian Journal of Work, Environment, and Health**, emphasized that number of important questions concerning the potential health and workplace

safety risks raised by the manufacturing, handling, and distributing of engineered nano particles. The emphasized the following questions; (1) the hazards classification of engineered nano particles, (2) exposure metrics, (3) the actual exposures workers may have to different engineered nano particles in the workplace, (4) the limits of engineering controls and personal protective equipment in protecting workers in regard to engineered nano particles, (5) the kind of surveillance programs that should be put in place to protect workers, (6) whether exposure registers should be established, and (7) if engineered nano particles should be treated as new substances and evaluated for safety and hazards.

19. Tompa, Emile PhD; Dolinschi, Roman MA; de Oliveira (2009), says that occupational Safety intervention literature to synthesize evidence on financial merits of such interventions. A literature search included journal databases, existing systematic reviews, and studies identified by content experts. We found strong evidence that ergonomic and other musculoskeletal injury prevention intervention in manufacturing and warehousing are worth undertaking in terms of their financial merits. The economic evaluation of interventions in this literature warrants further expansion. The review also provided insights into how the methodological quality of economic evaluations in this literature could be improved.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 METHODOLOGY

Research is an organized, systematic, data based investigation into a specific critical, objectives, scientific inquiry or problem undertaken with the purpose of finding answers of solution of it. Research design is the blue print for the collection measurement and analysis of data. Research is also known as art of scientific investigation. It is an attempt to pursue truth through the method of study, observation, comparison and experiments.

- **Primary Data Collection:**

These are fresh data which are collected for the first time. The data collection used for this study is questionnaire.

- **Secondary Data Collection:**

Secondary data consist of information that already exists somewhere and have been collected for specific purpose in the study. The secondary data for this study are newspapers, journals, magazines, internet etc.

- **Geographical Area:**

The study area taken for this study was Redova Logistics, Chennai

3.2 RESEARCH DESIGN

A Research design is an arrangement of condition for collection and analysis of data in a manner that aims to combine relevance to the research purchase with economy in procedure. Fundamental to the success of any research project is the sound research design. The research design took for the study was Descriptive Research Design.

3.3 SAMPLING TECHNIQUES

The sampling technique used in this study is “convenience sampling” when the population element for inclusion in the sample is based on the ease of access. It can be called as convenience.

3.4 NATURE OF DATA

Nature of data: Both primary and secondary data were used for study. Primary data was collected by using questionnaire and secondary data was collected from published and unpublished records like books, website, and journals. The secondary source used for this study is company profile, scope, need, review of literature.

3.5 SOURCE OF DATA

Data collection tool:

Data has been collected using a structured questionnaire.

Primary data:

Primary data is the original data collected by the researcher first hand. It is collected for the first time through field survey. The various sources for collecting primary data are questionnaire, observation, interview etc. The primary source used for the study is questionnaire.

Secondary data:

Secondary data is the information which is already available in published or unpublished form. The various sources of secondary data are books, periodicals, journals, directories, magazines, statistical data sources etc. The secondary source used for this study is company profile, scope, need, review of literature.

3.6 STRUCTURE OF QUESTIONNAIRE

Questionnaire was divided into two sections. First part was designed to know the general information about respondents and the second part contained the respondent's opinions about workers perception.

3.7 SAMPLE SIZE

The sample size of the study is 135

3.8 PERIOD OF THE STUDY

The duration of the study is from January 2023 to March 2023 which is 3 months of study.

3.9 TOOLS FOR ANALYSIS

Percentage analysis

It is simple analysis tool. In this method based on the opinions of the respondents, percentage and bar chart is calculated for the respective scales of each factor.

Formula:

Simple percentage = $\frac{\text{No of Respondents}}{\text{Total No of Sample Size}} \times 100$

Chi - Square Analysis:

- 1) There is a relationship between the awareness of workers and the Safety training.
- 2) There is no relationship existing between the effective disciplinary procedures and safe working environment.

Correlation:

Since the correlation value is 0.813, there is a high degree of positive relationship that exists between the maintenance of machines and the accidents happened.

Anova:

There is a significant difference existing between the Safety measures provided to the workers.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 TABLES AND CHARTS

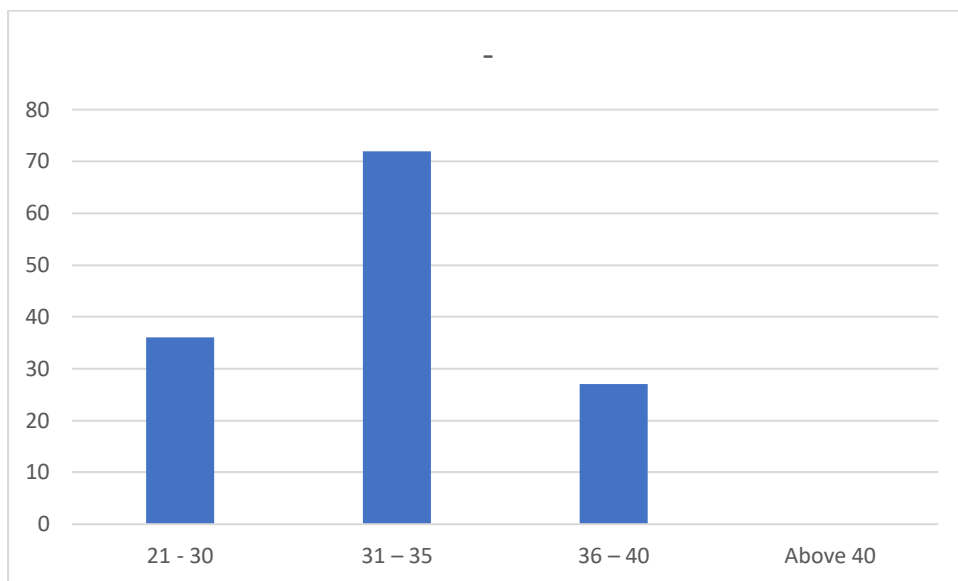
The Tables and charts are mainly used for interpreting the multiple choices questions and also used to conclude and giving suggestions of the study.

DATA INTERPRETATION

Data interpretation refers to the task of drawing influence from the collected facts. It is analytically and experimental study about the programs. Data interpretative is concern with the relationship within the collected data interpretation is concerned beyond the data of the study and includes the result of other research theory or hypothesis.

4.1 Table showing the age of the respondents

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	Below 20	-	-
B	21 - 30	36	27
C	31 – 35	72	53
D	36 – 40	27	20
E	Above 40	-	-
Total		135	100

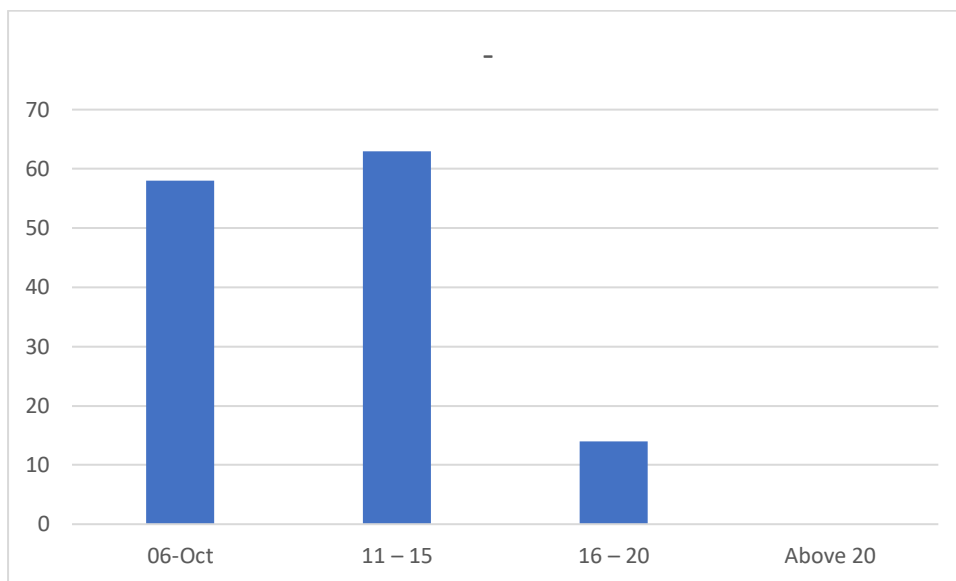


INFERENCE:

The above table shows the age of respondents 27% of the respondents are 21 – 30, 53% of the respondents are 31- 35, 20% of the respondents are 36- 40. Majority 53% of the respondents are 31- 35.

4.2 Table showing the experience (in years) of the respondents

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	Below 5	-	-
B	6 - 10	58	43
C	11 – 15	63	47
D	16 – 20	14	10
E	Above 20	-	-
Total		135	100

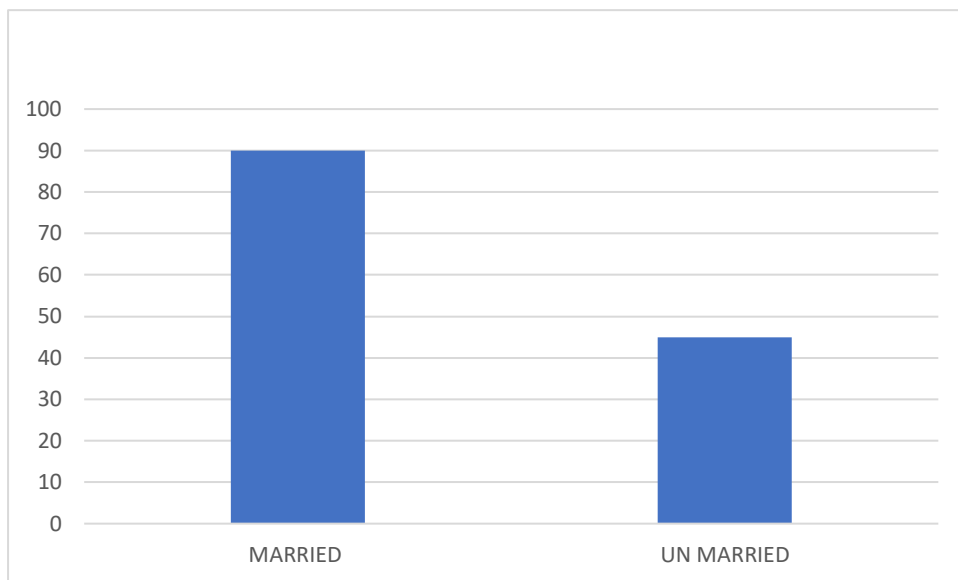


INFERENCE:

The above table shows the experience 43% of the respondents are 6- 10 years, 47% of the respondents are 11- 15, 10% of the respondents are 16- 20. Majority 47% of the respondents are 11- 15years.

4.3 Table showing the marital status

S NO	RANGE	NO OF RESPONDENTS	PERCENTAGE
A	MARRIED	90	66
B	UNMARRIED	45	44
TOTAL		135	100

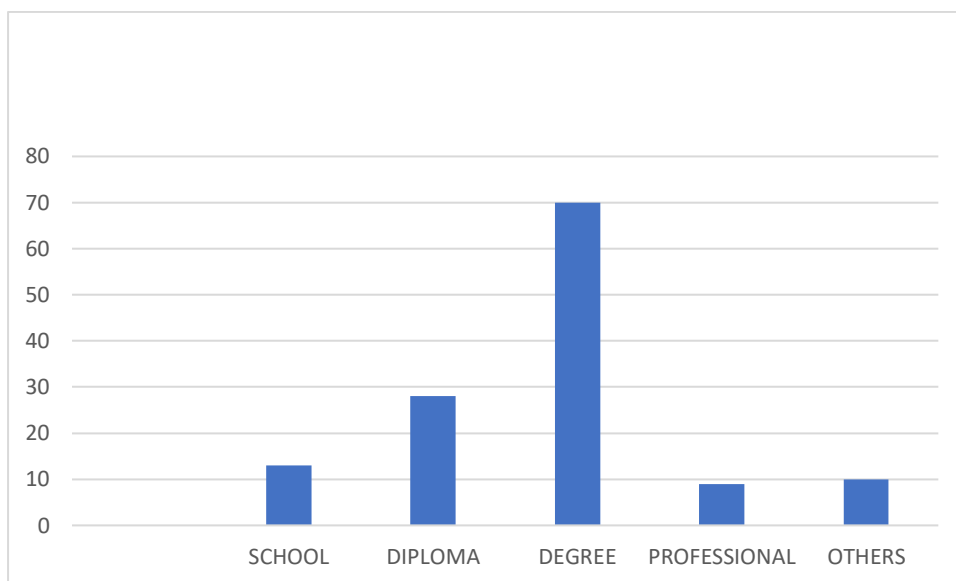


INFERENCE:

The above table shows the total marital status of the workers, 66% of the workers are married, 44% of the workers are unmarried. Majority 66% of the respondents are married.

4.4. Table showing the education qualification

S. NO	RANGE	NO OF RESPONDENTS	PERCENTAGE
A	SCHOOL	12	10
B	DIPLOMA	29	23
C	DEGREE	70	54
D	PROFFESIONAL	9	6
E	OTHERS	10	7
TOTAL		135	100

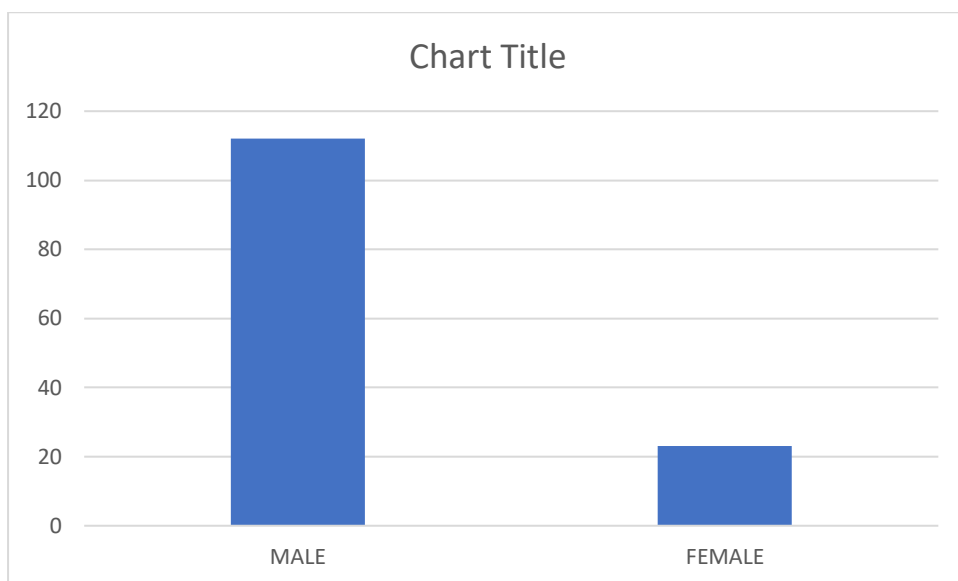


INFERENCE

The above table shows the education qualification of the workers, 10% of the respondents are school, 23% of the respondents are diploma, 54% of the respondents are degree, 6% of the respondents are professional, 7% of the respondents are others. majority 54% of the respondents are degree.

4.5. Table showing the gender of response

S.NO	RANGE	NO OF RESPONDENTS	PERCENTAGE
A	MALE	112	82
B	FEMALE	23	18
TOTAL		135	100

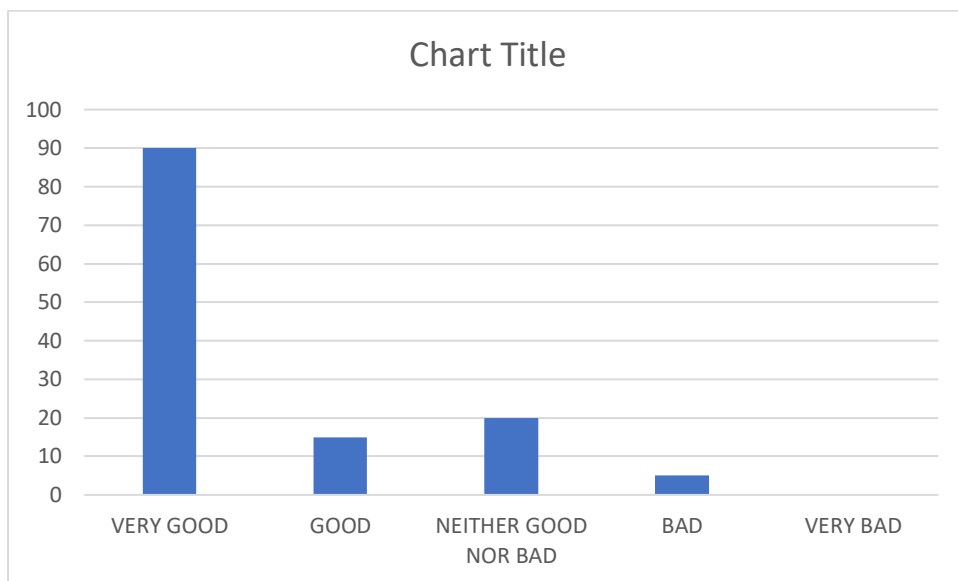


INFERENCE

The above table shows gender information, 82% of the respondents are male, 18% of the respondents are female. Majority 82% of the respondents are male.

4.6. Table showing the opinion of the working conditions.

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	VERY GOOD	90	69
B	GOOD	15	11
C	GOOD OR BAD	20	15
D	BAD	5	3
E	VERY BAD	0	0
TOTAL		135	100

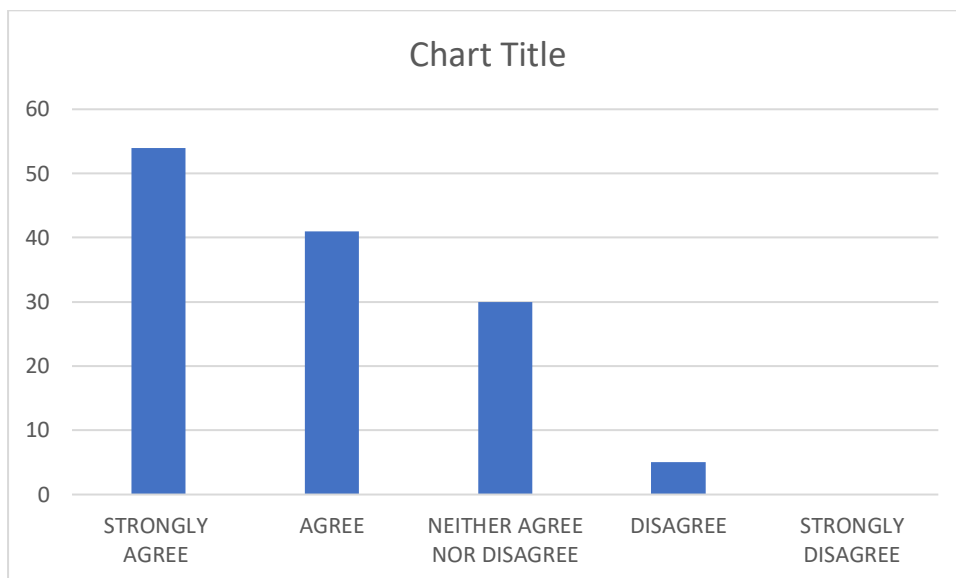


INFERENCE

The above table shows the workers opinion 69%of the respondents are very good, 11% of the workers are good, 15%of the workers are either good or bad ,3%of the respondents are bad majority 69% of the respondents are very good.

4.7 Table showing the training programs

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	STRONGLY AGREE	54	42
B	AGREE	41	32
C	AGREE NR DISAGREE	30	23
D	DISAGREE	5	3
E	STRONGLY DISAGREE	-	-
Total		135	100

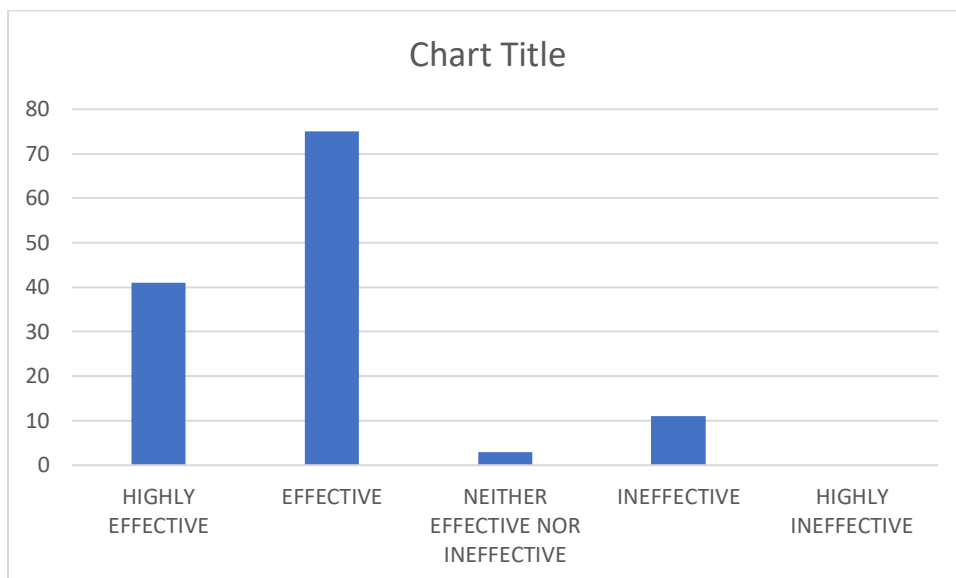


INFERENCE:

The above tables shows the workers training programs.42% of the are strongly agree, 32%of the respondnents are agree, 23% of the respondents are either agree or disagree, 5%of the respondents are disagree, majority 42% of the respondents are strongly agree

4.8 Table showing the how was the safety training programs

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	HIGHLY EFFECTIVE	41	31
B	EFFECTIVE	75	57
C	EFFECTIVE NOR INEFFECTIVE	3	2
D	INEFFECTIVE	12	9
E	HIGHLY INEFFECTIVE	-	-
Total		135	100

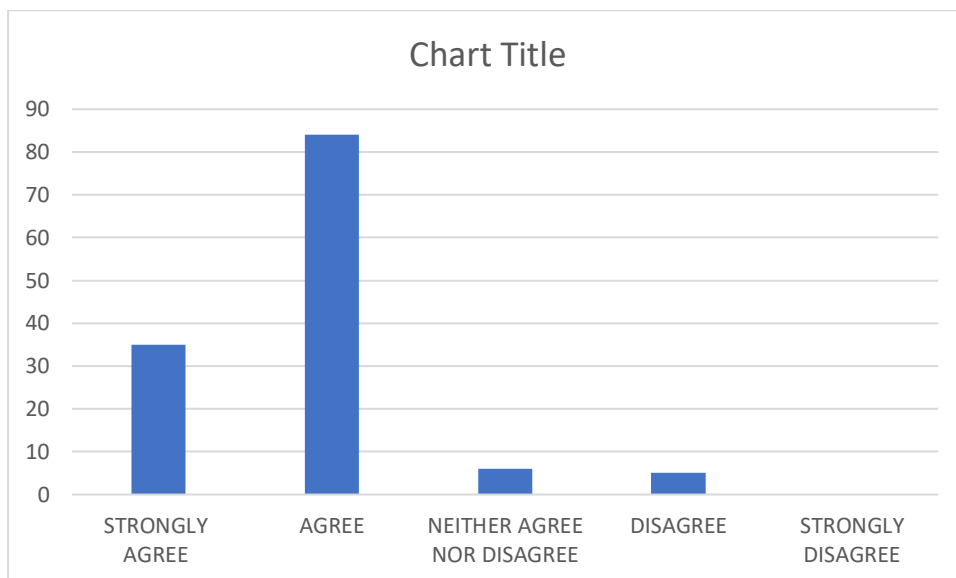


INFERENCE

The above table shows the safety training program 31% of the respondents are highly effective. 57% of the respondents are effective, 2% of the respondents are effective nor ineffective, 9% of the respondents are ineffective, majority 57% of the respondents are effective

4.9 Table showing the workplace to avoid accidents

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	STRONGLY AGREE	35	26
B	AGREE	84	65
C	AGREE NOR DISAGREE	7	5
D	DISAGREE	6	4
E	STRONGLY DISAGREE	-	-
Total		135	100

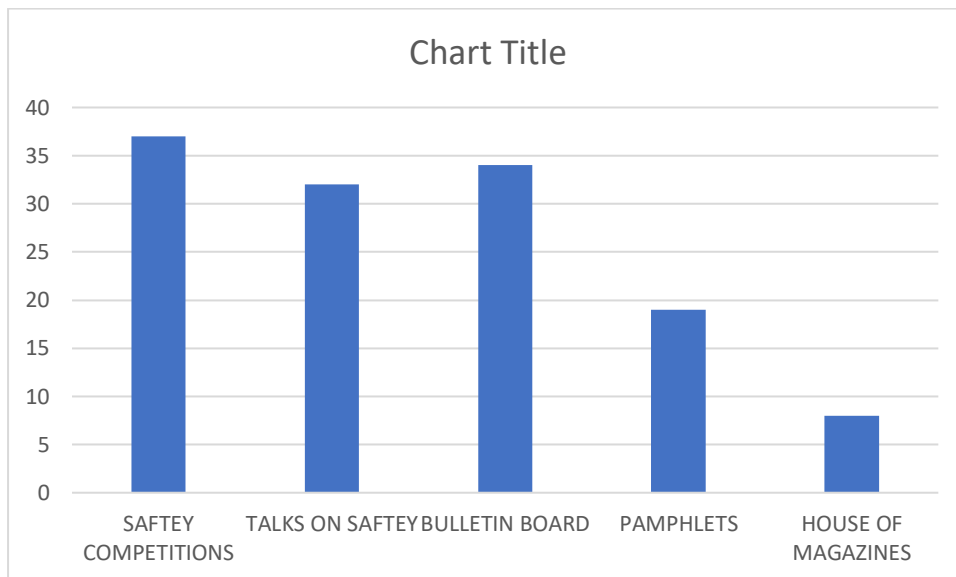


INFERENCES

The above table shows the workplace accidents, 26% of the respondents are strongly agree, 65% of the respondents are agree, 5% of the respondents are either agree nor disagree, 4% of the respondents are disagree, majority 65% of the respondents are agree.

4.10 Table showing safety measures undertaken.

S.NO	RANGE	NO OF RESPONDENTS	PERCENTAGE
A	SAFETY COMPETITIONS	37	28
B	TALKS ON SAFETY	32	24
C	BULLETIN BOARDS	34	26
D	PAMPHLETS	19	14
E	MAGAZINE	7	5
TOTAL		135	100

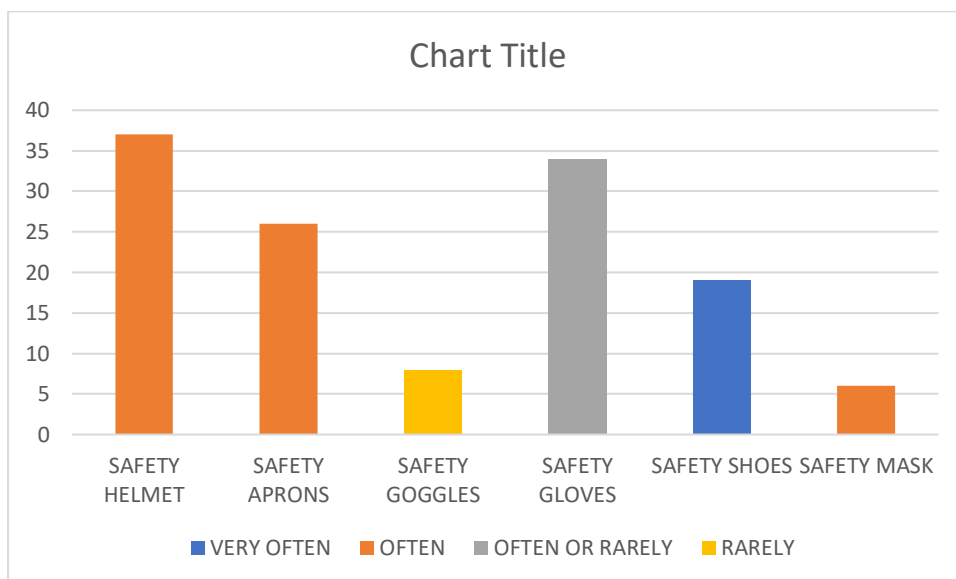


INFERENCE

The above table shows the measure undertaken 28% of the respondents are safety competition, 24% of the respondents are talks on safety 26% of the respondents are bulletin boards majority 28% of the respondents are safety competitions

4.11 Table showing safety measure

SNO	RANGE	NO OF RESPONDENTS	PERCENTAGE
A	SAFETY HELMET	32	24
B	SAFETY APRONS	26	20
C	SAFETY GOGGLE	8	6
D	SAFETY GLOVE	34	26
E	SAFETY SHOES	19	14
F	SAFETY MASK	6	4
TOTAL		135	100



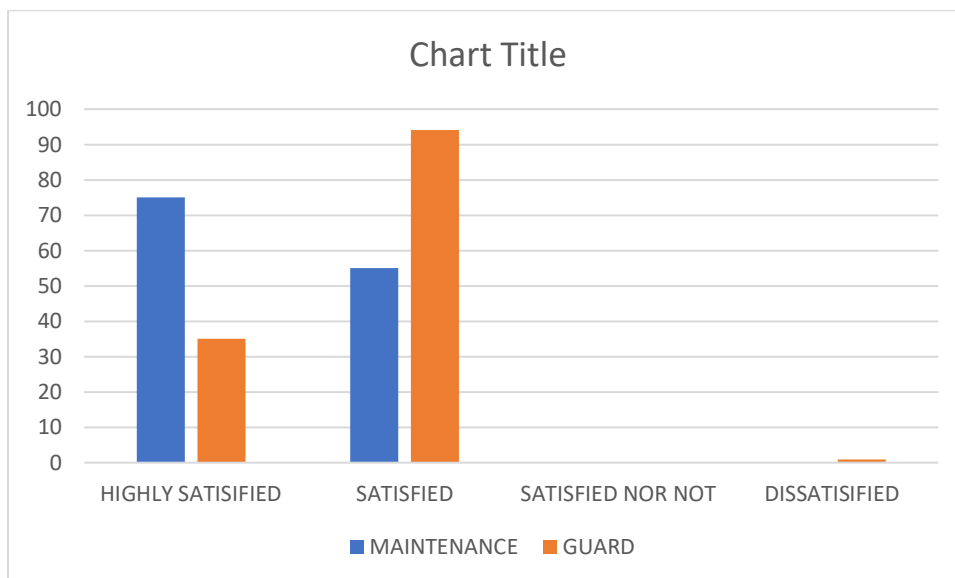
INFERENCE:

The above table shows the safety measures for the workers 24% of the respondents are safety helmets, 20% of the respondents are safety aprons, 6% of the respondents are safety goggles, 26% of the respondents are safety gloves, 14% of the respondents are safety shoes, and 4% of the respondents are safety masks.

are safety goggles , 26% of the respondents are safety glove, 14% of the respondents are safety shoes, majority of the respondents are safety gloves.

4.12 Table showing the machine tools satisfication

SNO	RANGE	NO OF RESOPONDENTS	PERCENTAGE
A	HIGHLY SATISFIED	75	58
B	SATISFIED	35	42
C	NEUTRAL		
D	DISSATISFIED		
TOTAL	HIGHLY DISSATISFIED	135	100

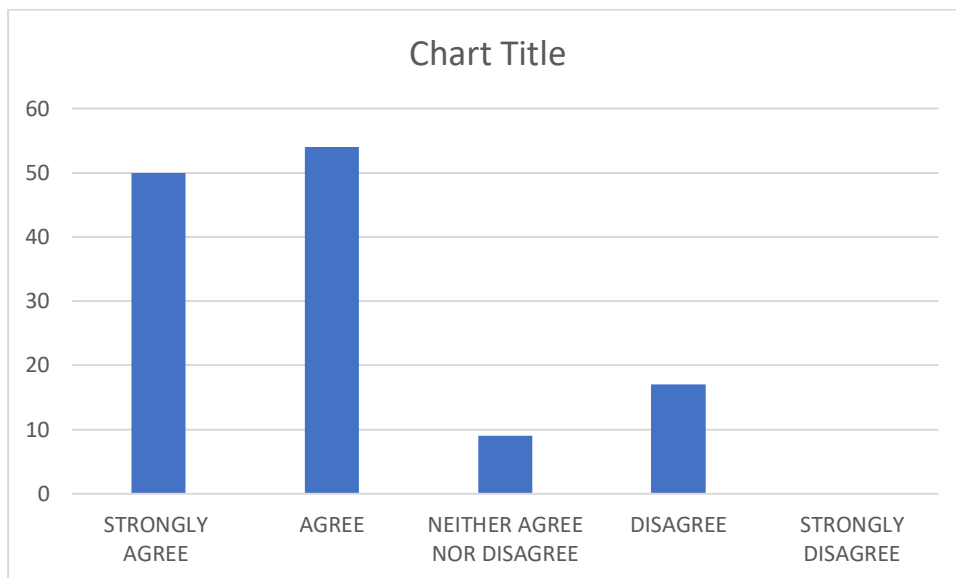


INFERENCE

The above table shows the machine and tools satisfication, 58% of the respondents are highly satisfied, 42% of the respondents are satisfied. Majority 58% of the respondents are highly satisfied.

4.13 Table showing the workplace properly designed to avoid accidents

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	Strongly agree	50	38
B	Agree	54	41
C	Neutral	9	6
D	Disagree	18	13
E	Strongly disagree	-	-
Total		135	100

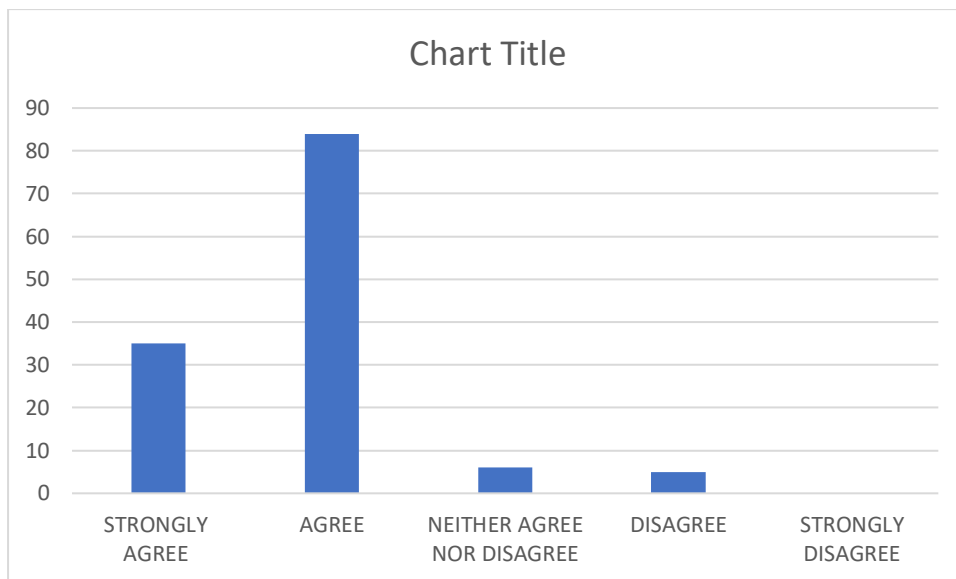


INFERENCE:

The above shows the work place design to avoid accidents. 38% of the respondents are strongly agree, 41% of the respondents are agree, 6% of the respondents are neutral, 13% of the respondents are disagree. Majority 41% of the respondents are agree.

4.14. Table showing the safety visit

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	STRONGLY AGREE	35	26
B	AGREE	84	65
C	AGREE NOR DISAGREE	7	5
D	DISAGREE	6	4
E	STRONGLY DISAGREE	-	-
Total		135	100

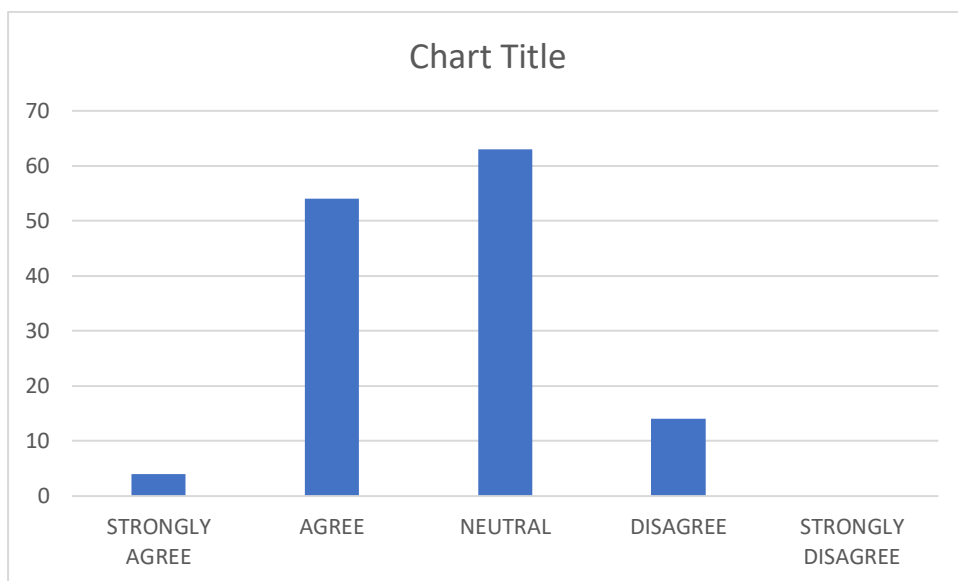


INFERENCE

The above table shows the safety officer visit, 26% of the respondents are strongly agree, 65% of the respondents are agree, 5% of the respondents are either agree nor disagree, 4% of the respondents are disagree, majority 65% of the respondents are agree.

4.15 Table showing the warning alarm conditions

S NO	RANGE	NO. OF RESPONDENTS	PERCENTAGE %
A	STRONGLY AGREE	4	3
B	AGREE	54	40
C	NEUTRAL	63	47
D	DISAGREE	14	10
E	STRONGLY DISAGREE	-	-
Total		135	100



INFERENCE

The above table shows the warning alarm, 3% of the respondents are strongly agree, 40% of the respondents are agree, 47% of the respondents are neutral, 10% of the respondents are disagree. Majority 47% of the respondents are neutral.

4.2 CHI-SQUARE ANALYSIS:

Analysis between awareness of workers and Safety training.

Null hypothesis (H_0): There is a relationship existing between the awareness of workers and the Safety training.

Alternative hypothesis (H_1): There is no relationship existing between the awareness of workers and the Safety training.

4.2.1 Table showing the awareness of workers and Safety training.

Number Of Respondents	Yes	No	Total
	63	72	135
	72	63	135
Total	135	135	270

FORMULA:

$$\chi^2 = \sum (O_i - E_i)^2 / E_i$$

Where,

O = Observed Frequency

E = Expected Frequency = $\frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$

Grand Total

i = 1, 2, 3,n

4.2.2 Table showing the analysis between awareness of workers and Safety training.

O_i	E_i	$(O_i - E_i)$	$(O_i - E_i)^2$	$(O_i - E_i)^2 / E_i$
63	67.5	-4.5	20.25	0.3
72	67.5	4.5	20.25	0.3
72	67.5	4.5	20.25	0.3
63	67.5	-4.5	20.25	0.3
Total				1.2

Degree of freedom:

$$= (r - 1) (c - 1)$$

$$= (2-1) (2-1)$$

$$= 1$$

χ^2 Table value at 5% Level of significance = 3.841

χ^2 Calculated value = 1.2

$$\chi^2_{cv} < \chi^2_{TV}$$

So, H_0 is accepted, H_1 is rejected.

INFERENCE:

Hence, there is a relationship between the awareness of workers and the Safety training.

Analysis between effective disciplinary procedures and safe work environment.

Null hypothesis (H_0): There is a relationship existing between the effective disciplinary procedures and safe working environment.

Alternative hypothesis (H_1): There is no relationship existing between the effective disciplinary procedures and safe working environment.

4.2.3 Table showing the effective disciplinary procedures and protected working environment.

Number Of Respondents	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
	76	59	0	0	0	135
	54	45	36	0	0	135
Total	130	104	36	0	0	270

FORMULA:

$$\chi^2 = \sum (O_i - E_i)^2 / E_i$$

Where,

O = Observed Frequency

E = Expected Frequency = $\frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$

Grand Total

i = 1, 2, 3,n

4.2.4 Table showing the analysis between effective disciplinary procedures and protected working environment.

O_i	E_i	$(O_i - E_i)$	$(O_i - E_i)^2$	$(O_i - E_i)^2 / E_i$
76	65	11	121	1.861
59	52	7	49	0.942
0	18	-18	324	18
0	0	0	0	0
0	0	0	0	0
54	65	-11	121	1.861
45	52	-7	49	0.942
36	18	18	324	18
0	0	0	0	0
0	0	0	0	0
Total				41.606

Degree of freedom:

$$= (r - 1) (c - 1)$$

$$= (2-1) (5-1)$$

$$= 4$$

χ^2 Table value at 5% Level of significance = 9.488

χ^2 Calculated value = 41.606

$\chi^2_{cv} > \chi^2_{tv}$

So, H_0 is rejected, H_1 is accepted.

INFERENCE:

Hence, there is no relationship existing between the effective disciplinary procedures and safe working environment.

4.3 CORRELATION ANALYSIS:

Analysis between the maintenance of machines and the accidents happened.

X – Maintenance of machines.

Y – Accidents happened.

4.3.1 Table showing the analysis between the maintenance of machines and the accidents happened.

X	Y	X ²	Y ²	XY
4	4	16	16	16
54	23	2916	529	1242
63	81	3969	6561	5103
14	27	196	729	378
0	0	0	0	0
135	135	7097	7835	6739

FORMULA:

$$\begin{aligned} r &= \frac{(N \sum xy - \sum x \sum y)}{\sqrt{(N \sum x^2 - (\sum x)^2)} \sqrt{(N \sum y^2 - (\sum y)^2)}} \\ &= \frac{5(6739) - (135)(135)}{\sqrt{5(7097) - (18225)}} \sqrt{5(7835) - (18225)} \\ &= 0.813 \end{aligned}$$

INFERENCE:

Correlation for the maintenance of machines and the accidents happened.	VALUE	RESULT
	0.813	GOOD

4.4 ANOVA:

Analysis between the Safety measures provided to the workers.

Null hypothesis (H_0): There is no significant difference existing between the Safety measures provided to the workers.

Alternative hypothesis (H_1): There is a significant difference existing between the Safety measures provided to the workers.

4.2.31 Table showing the number of respondents and the workings.

MEASURES	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	TOTAL	TOTAL
First-Aid	113	22	0	0	0	135	13253
Temperature	32	103	0	0	0	135	11633
Enough space	22	81	32	0	0	135	8069

Maintaining latrines,urinals	22	77	36	0	0	135	7709
Training before handling machines	63	50	22	0	0	135	6953
TOTAL	252	333	90	0	0	675	
TOTAL	18730	26083	2804	0	0		47617

1. Correction factor = $(T_1)^2 / n = (675)^2 / 25 = 18225$

2. Sum of the squares of columns:

$$SSC = \sum (C_j)^2 / R - CF$$

$$= [(252)^2 / 5 + (333)^2 / 5 + (90)^2 / 5 + (0)^2 / 5 + (0)^2 / 5] - 18225$$

$$= 18274$$

$$\text{Degree of freedom} = C - 1$$

$$= 5 - 1$$

$$= 4$$

3. Sum of the squares of total:

$$SST = T_2 - CF$$

$$= 47617 - 18225$$

$$= 29392$$

4. Sum of the squares of residual error:

$$SSE = SST - SSC$$

$$= 29392 - 18274$$

$$= 11118$$

$$\text{Degree of freedom} = C (R - 1)$$

$$= 5 (5 - 1)$$

$$= 5 \times 4$$

$$= 20$$

4.2.32. Table showing the analysis of variance.

Sources of variation	Sum of squares	Degree of freedom	Mean sum of squares
Between columns	18274	4	4568.5
Residual error	11118	20	556
Total	29392	24	

$$F \text{ calculated value} = 4568.5 / 556 = 8.217$$

Degree of freedom (4, 20) and Level of significance = 5%

$$F \text{ table value} = 2.87$$

$F_{\text{cal}} < F_{\text{tab}} = H_0$ is accepted

Here, the calculated value is greater than the table value. Hence we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1).

INFERENCE:

There is a significant difference existing between the Safety measures provided to the workers.

CHAPTER 5

FINDINGS, SUGGESTION & CONCLUSION

5.1 FINDINGS

1. The above table shows the age of respondents 27% of the respondents are 21 – 30, 53% of the respondents are 31- 35, 20% of the respondents are 36- 40. Majority 53% of the respondents are 31- 35.
2. The above table shows the experience 43% of the respondents are 6- 10 years, 47% of the respondents are 11- 15, 10% of the respondents are 16- 20. Majority 47% of the respondents are 11- 15 years.
3. The above table shows the total marital status of the workers, 66% of the workers are married, 44% of the workers are unmarried. Majority 66% of the respondents are married.
4. The above table shows the education qualification of the workers, 10% of the respondents are school, 23% of the respondents are diploma, 54% of the respondents are degree, 6% of the respondents are professional, 7% of the respondents are others . majority 54% of the respondents are degree.
5. The above table shows gender information, 82% of the respondents are male, 18% of the respondents are female. Majority 82% of the respondents are male.
6. The above table shows the workers opinion 69% of the respondents are very good, 11% of the workers are good, 15% of the workers are either good or bad , 3% of the respondents are bad majority 69% of the respondents are very good.
7. The above tables shows the workers training programs. 42% of the are strongly agree, 32% of the respondents are agree, 23% of the respondents are either agree or disagree, 5% of the respondents are disagree, majority 42% of the respondents are strongly agree
8. The above table shows the safety training program 31% of the respondents are highly effective. 57% of the respondents are effective, 2% of the

respondents are effective nor ineffective, 9% of the respondents are in effective, majority 57% of the respondents are effective

9. The above table shows the workplace accidents, 26% of the respondents are strongly agree, 65% of the respondents are agree, 5% of the respondents are either agree nor disagree, 4% of the respondents are disagree, majority 65% of the respondents are agree.
10. The above table shows the measure undertaken 28% of the respondents are safety competition, 24% of the respondents are talks on safety 26% of the respondents are bulletin boards majority 28% of the respondents are safety competitions
11. The above table shows the safety measures for the workers 24% of the respondents are safety helmets, 20% of the respondents are safety aprons, 6% of the respondents are safety goggles, 26% of the respondents are safety glove, 14% of the respondents are safety shoes, majority of the respondents are safety gloves.
12. The above table shows the machine and tools satisfaction, 58% of the respondents are highly satisfied, 42% of the respondents are satisfied. Majority 58% of the respondents are highly satisfied.
13. The above shows the work place design to avoid accidents. 38% of the respondents are strongly agree, 41% of the respondents are agree, 6% of the respondents are neutral, 13% of the respondents are disagree. Majority 41% of the respondents are agree.
14. The above table shows the safety officer visit, 26% of the respondents are strongly agree, 65% of the respondents are agree, 5% of the respondents are either agree nor disagree, 4% of the respondents are disagree, majority 65% of the respondents are agree.
15. The above table shows the warning alarm, 3% of the respondents are strongly agree, 40% of the respondents are agree, 47% of the respondents are neutral,

10% of the respondents are disagree. Majority 47% of the respondents are neutral.

5.2 SUGGESTIONS

- 1) The company has to create the awareness for the workers regarding Safety.
- 2) They have to provide effective arrangements to the workers for communicating their Safety matters.
- 3) It is better to provide frequent Safety training, at least once in a year.
- 4) The company has to provide enough drinking water facility available at all the time.
- 5) The management has to take necessary steps to reduce the stress level of the workers.
- 6) Orientation programmes can be conducted to make the workers to feel that their work environment is safe to work.
- 7) The maintenance department has to maintain the machines properly to reduce lead-time.
- 8) Proper training has to be given to the workers to avoid frequent accidents.
- 9) Meditation practices can be given to avoid electric shocks, finger injuries etc. due to lack of concentration.
- 10) Safety committee has to be formed to monitor the Safety issues.
- 11) The company has to conduct the regular inspections to ensure higher level of safety in the workplace.
- 12) Cordial relationship has to be maintained between the management and the workers to implement the Safety policies and measures in a smooth manner.

5.3 CONCLUSION

It is revealed from the study that, the Safety measures adopted in Redova Logistics are provided to the workers according to the provisions of the factories act. It reveals that the awareness of the workers about Safety in the workplace is inadequate. Also repeated accidents like electric shocks, finger injuries are occurred in the workplace. Suitable ideas were suggested to avoid those accidents and to improve the Safety measures. The role of management in implementing Safety in the organization is very effective. Most of the workers were satisfied with the Safety measures adopted in the company. If the company implements effective disciplinary procedures; it will help the company to go with their policies and also to maintain Safety in the organization.

ANNEXURE 1

A STUDY ON SAFETY MEASURES OF WORKERS IN REDOVA LOGISTICS

QUESTIONNAIRE

1. Name
2. Department
3. Gender male female
4. Age below 20 20- 30 years 30- 40 years 40- 50 years
above
5. 50Marital status
Married unmarried
6. Educational qualification
school level diploma degree professional others
7. Experience
below 3years 3-6 years 6-9 years 9- 12 years above 12
years
8. Monthly income
below 5000 5000- 8000 8000-12000 12000-15000
above 15000
9. What is your opinion about working condition?
Very good good neither good or bad bad
very bad
10. Wheather safety training programs are conducted for the workers are good?
strongly agree agree neither agree nor disagree disagree
strongly disagree

11. If yes, how was the safety training programs ?

highly effective effective neither effective nor ineffective

ineffective highly ineffective

12. Management provides awareness programs relating to safety?

strongly agree agree neither agree nor

disagree disagree strongly disagree

13. What are the measures undertaken by REVODA LOGISTICS to bring about awareness for safety needs?

safety competition's talks on safety bulletin

boards/slogans

pamphlets house magazines

14. What is your opinion about the following ?

How often are you using following measures

Very often often neither often nor rarely rarely

Safety helmets

Safety aprons

Safety goggles

Safety glove

Safety shoes

Safety mask

15. What is your opinion the following ?

The machines equipment and tools are:

- a. Highly Satisfied satisfied neither satisfied nor dissatisfied
dissatisfied

Maintenance :

Guards:

16. Whether layout of the workplace properly designed to avoid accidents?

- strongly agree agree neither agree nor disagree
disagree strongly disagree

17. do you think safety measure help to reducing the severity of accidents ?

- strongly agree agree neither agree nor disagree
disagree strongly disagree

18. Do you think immediate action taken to investigate accidents ?

- highly satisfied satisfied neutral dissatisfied
highly dissatisfied

19. are you satisfied with the number of emergency exit provided in the company ?

- highly satisfied satisfied neutral dissatisfied
highly dissatisfied

20. Do you think emergency exit is spacious in your company?

- strongly agree agree neutral disagree
highly disagree

21. The safety officer visits the factory regularly?

- strongly agree agree neutral disagree
highly disagree

ANNEXURE 2

BIBLIOGRAPHY

- 1) Arunmonappa (1994), "**Industrial relations**", 8th edition.
- 2) Ajay garg (1995), "**Labour laws**", 8th revised edition.
- 3) C.B.Mamoria, Satishmamoria, Gankar (2009), "**Dynamics of industrialrelations**", 19th edition.
- 4) C.B.Guptha(2000), "**Human Resource management**".
- 5) C.R.Kothari (1997), "**Research methodology- methods and techniques**", 2nd edition.
- 6) Joseph M Putti (1980), "**The management of securing and maintaining the workforce**", S Chand & Co Ltd. Ram Nagar, New Delhi.
- 7) O.R.Krishnaswami, M.Ranganatham, "**Methodology of research in social sciences**", Himalaya publishing house.
- 8) P.N.Arora, S.Arora, "**Statistics for management**" Himalaya publishing house.
- 9) Richard I. Levin, David S. Rubin (2002), "**Statistics for Management**", 7th edition.
- 10) Sewasinghchauhan(1993), "**Labour welfare administration in India**", 1st edition.

Websites:

- 1) www.hr.com
- 2) www.humanresources.about.com
- 3) www.ilo.com
- 4) www.britannica.com
- 5) www.definition-info.com

References:

- 1) <http://www.ncbi.nlm.nih.gov/pubmed/20106469>
- 2) http://journals.lww.com/joem/Abstract/2009/09000/A_Systematic_Review_of_Occupational_Health_and.6.aspx
- 3) <http://www.ehjournal.net/content/8/1/47>
- 4) <http://jech.bmj.com/content/63/7/521.abstract>
- 5) <http://www.emeraldinsight.com/Insight/viewContentItem.do;jsessionid=9F2CDB6B5111CA6756D2D26B9121610?contentType=Article&contentId=1718276>
- 6) <http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&contentId=1728145>
- 7) http://jech.bmj.com/content/61/Suppl_2/ii39.abstract
- 8) <http://occmed.oxfordjournals.org/cgi/content/abstract/57/6/449>
- 9) <http://oem.bmj.com/content/63/9/608.abstract>
- 10) <http://oem.bmj.com/content/60/1/43.abstract>
- 11) <http://jech.bmj.com/content/55/5/316.abstract>
- 12) <http://www.monash.edu.au/muarc/reports/muarc166.html>
- 13) <http://cat.inist.fr/?aModele=afficheN&cpsidt=1519328>
- 14) http://ethics.iit.edu/NanoEthicsBank/popular_search.php?cmd=search&words=workplace+safety&mode=normal
- 15) <http://oem.bmj.com/content/54/6/367.abstract>
- 16) <http://www.dol.govt.nz/publication-view.asp?ID=53>
- 17) <http://www.cdc.gov/niosh/docs/2007-123/pdfs/2007-123.pdf>
- 18) http://cohesion.rice.edu/CentersAndInst/ICON/emplibary/Phase%20I%20Report_UCSBICON%20Final.pdf
- 19) http://www.icohweb.org/newsletter/icoh_newsletter_2004_04.pdf
- 20) <http://www.ncbi.nlm.nih.gov/pubmed/19030766?dopt=Abstract>