

CAUSES AND PREVENTION OF INDUSTRIAL ACCIDENTS

Ms. Neha Chaudary, Mrs. B.P.S Jyothi, Dr. A. Sita Madhavi
Department of Management Studies
Geethanjali College of Engineering and Technology

ABSTRACT

This study has investigated factors and prevention measures of industrial accidents in Apollo computing Laboratories Pvt.Ltd and alternative ways to resolve them. This study collected information from purposively selected seventy employees with the help of questionnaire.

As accidents are unexpected, there is a need to take some actions against it by the management for the employee's welfare. From the statistical findings, it can be concluded that the accidents in the organization are minor and have occurred due to common things.

This study is based on some variables that are considered to determine the factors as well as the causes of accidents at the workplace which may be major or minor. The variables considered are employee relations, safety measures, work environment and management concern.

It may be suggested that the company need to work much on prevention measures, mitigating various risks in the organization and focus on the satisfaction of the employees to prevent accidents.

INTRODUCTION

1.1 Industrial Accidents

An accident is a sudden and unexpected occurrence of an event or any mishappening that interrupts the progress of work and can cause loss to human life. It occurs in various forms like dangerous procedures, infrastructure failures or certain human activities, which may cause loss of life or injury or damage to properties.

Accidents can be neither anticipated nor designed to occur. Thus, an accident may be an uncontrolled event which causes injuries to human life or may destroy any object or substance which may lead to huge loss.

An industrial accident can be defined as an event that is unexpected and uncontrolled that occurs in an industry and can cause personal injury to the employees, which arises in the course of the employment. Accidents occur due to faulty equipment or negligence or conflicts among the employees that can lead to minor accidents. Accidents can be prevented if the organizations take proper precautions. Proper training and knowledge should be provided about the consequences of accidents.

1.2 Types of Accidents

Accidents can be of various types that are based on the asperity and degree of injury.

An accident that can cause disability or death is called a major accident. A small injury that doesn't cause any disability to an employee is known as a minor accident.

When an employee gets injured showing external signs like fractured bone then it is an external injury. On the other hand, if the employee gets injured without showing any external signs then it is an internal injury. When an injury lasts for a shorter period, say, a day or a week then it is a temporary injury. In contrary, if the injury makes the person disable for a lifetime then it is a permanent injury. The type of disability that is caused by an accident may be partial or total, fatal or non-fatal.

1.2.1 Minor Accidents

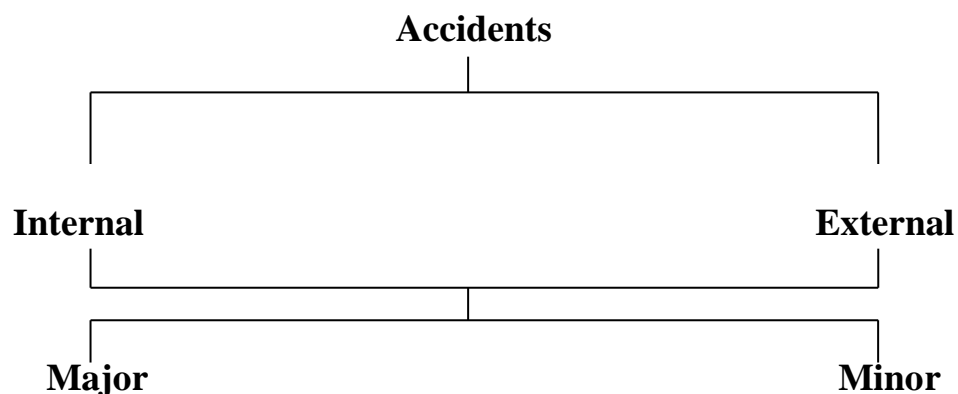
The accidents that last for a shorter period of time and don't cause any disability are minor accidents. These are less harmful to the worker. They prevent the employee from performing work for less than 48 hours from the time of the accident. Sometimes these accidents cannot be controlled and are needed to report to the higher management. The manager is responsible for reporting to higher authority so that the work will not be affected.

1.2.2 Fatal Injury

Fatal accident means the injury that is resulted from a personal injury that results in the death of the person. Insurances are also provided by the organizations for the victims when met with an accident or serious injuries.

1.2.3 Non-Fatal Injury

The injuries that do not result in or capable of causing death are non-fatal injuries. For example, back injuries are the leading cause of non-fatal injury.



1.3 Causes of Accidents

Accidents do not just occur but there are always certain causes. If accidents are needed to be reduced in an organization then the causes should be known in detail.

The various causes can be as follows-

- Physical Causes
- Physiological Causes
- Psychological Causes

Physical Causes

Physical causes are related to plant and machinery, say, noisy or unbalanced machine parts, damaged tools and slippery floors, long working hours resulting in tiredness.

Physiological Causes

Physiological causes of accidents are related to the physical body of the employee e.g. a weak eye sighted person cannot find it difficult to perform the job. An old person cannot do heavy work. It also includes poor listening power, weak health, defective body parts, fatigue, fitness and high blood pressure.

Psychological Causes

Psychological causes are related to the individual employee mental disturbance at the workplace. If an employee works with a disturbed mind, it can lead to minor accidents and the employee will be regarded as a victim. To avoid such accidents an employee must follow the rules and regulations, avoid frustration, carelessness, nervousness, and depression.

1.4 Concept of Safety

Safety is beneficial in every aspect. The greatest desire in human life is security. Safety has become a prominent aspect for every human. Safety is the state in which risks or harm due to accidents to property or a person can be reduced or maintained.

In order to reduce accidents at workplace safety is essential. Every organization has at least minimum safety for the well being of the employees.

Many organizations provide different training programs for the employees so that the employees get the awareness on the impact of the accidents at the workplace and can learn to handle the accident if occurs and use required precautionary measures that are provided by the organization.

The employees should be more safety conscious to prevent accidents in the organization. Safety consciousness can be increased by displaying safety posters in the organization, welcome all safety suggestions, organizing safety competition; employees should identify the accident-prone areas.

In an organization, safety committees play a crucial role by making the employees to assume responsibilities. Employees, supervisors should be selected from different departments to be the members of the committees. Educational films related to safety can be shown to the employees by the committees. The main objective of a safety committee is to make the employee's safety conscious and to ensure that all the precautions are adopted properly.

1.5 NEED FOR THE STUDY

The expeditious growth in the industrialization of various machines and techniques at the workplace in the Indian companies is essential for its production and standard of living, have increased the number of problems.

One of the miserable problems is Industrial Accidents. Increased number of accidents has led to an increase in the human suffering. It damages not only human life and properties but also the loss of financial and other resources. But if proper care is taken ahead of time, then all these wastages can be prevented.

An effort has been made to study the causes and prevention measures of Apollo Computing Laboratories (P) Ltd.

1.6 SCOPE OF THE STUDY

This study is related to prevention of industrial accidents and the measures espoused in the Apollo Computing Laboratories (p) Ltd, ECIL to prevent accidents.

The main reason of this study is to know the challenges that are faced by the organization to put into effect the safety measures to prevent industrial accidents.

1.7 OBJECTIVE OF THE STUDY

- To study the causes of industrial accidents and to know the prevention measures implemented by the organization to reduce accidents.
- To know the impact of most relevant factors of industrial accidents.

1.8 RESEARCH METHODOLOGY

This study was conducted in order to create awareness among the employees about the accidents at the workplace. To make the report more accurate a proper methodology is required as a general framework. In order to solve the statement of the problem there was a need to gather the more appropriate data, hence primary data was collected through a questionnaire that was distributed to the employees of Apollo Computing Laboratories (P) Ltd, and the secondary data was collected through different websites to make it more precise.

This is a purposive study which is descriptive as well as exploratory (for Apollo Computing Laboratories) in nature. The main reason behind choosing this purposive study is to focus on specific characteristics of a population, for example, a gender, qualification, designation, work experience that are of interest, which will best enable the respondent to answer the research questions.

In this study, two variables that are, dependent and independent variables are correlated in order to identify the impact of one variable on other and also to know the relationship between both the variables. Those variables are then measured through a questionnaire that was distributed to the employees and after collecting the data, the data was analyzed through a statistical test.

The statistical test used in this study is Pearson Correlation which is calculated in Ms-excel. Each and every variable is correlated with related variable and based on the results interpretations are determined.

1.9 COMPANY PROFILE AND LIMITATIONS

Company Profile¹

ACL-Apollo Computing Laboratories (P) Ltd., established in 1992 at Hyderabad and is involved in Manufacturing of Electronic Systems in the domain of embedded computing. The Projects have been successfully completed, qualified for Military standards and are functioning in the systems. In order to meet Military standards these efforts have resulted in evolving a core competence in the embedded computing domain with the emphasis on engineering & quality assurance. ACL has developed and designed specialized products in these areas and are being widely used in the Defense & Aerospace sectors.

ACL has a Team of Experienced Scientists in the design, development, management & quality assurance of the Defense & Aerospace Projects, supported by Engineers with domain-specific experience. The Design & Development Activity focuses on Embedded Computing, Test Systems, Rugged Systems and RF & Micro Wave Products. The goal of ACL is to participate & contribute the National Projects of Defense & Aerospace and in the related indigenization Programmes by plowing back the rich experience gained earlier in these domains.

With proven expertise and experience, they help to solve the problems more quickly. They encourage our people to strive for nothing short of excellence and thus they will come up with a solution to the need that optimizes the cost/performance requirements. ACL has been recognized as a Military grade quality production unit for Production of the Missile Interface Units, Stores Interface Box, On-Board Computers, On-board computer interfaces, CCPMC-1553B modules for various strategic National Programme.

Their Organization is approved by CEMILAC as Design Agency for Airborne Equipments / LRUs (On Board Systems and Ground Systems)

Their Organization is ISO 9001-2008 certified by M/s. TÜV SÜD South Asia.

There are many other Defense & Aerospace projects being done / in the anvil, which are enabling wider involvements of ACL in the National programmes.

¹ Source: apollocomputing.com

ACL Objectives

- To design products that takes advantage of the latest state-of-the-art technologies.
- To provide high quality, high-performance and innovative products (both Hardware and software).
- To provide incrementally expandable, scalable, modular, and upgradeable computing solutions.
- To provide cost-effective solutions for turnkey projects using open systems.
- To undertake quantity production.
- To provide training in the emerging technologies.
- To play a role in the indigenization programs of Defense & Aerospace.

The organization's key differentiators include industry-specific analyses, cross-functional interactions, and end-user interactions to design and integrated solutions that not only enables cost optimization but also greatly improve the productivity of employees and in turn enhance process performance.

Quality Policy

The organization is committed to Quality in all its products, services & involvements and will aim to achieve it by focusing on people, processes, tools, technology, approach & methodologies and on continuous improvements in effectiveness, maturity, capability & culture. First Time Right is ACL's motto. To accomplish this, ACL will endeavor to leave nothing to chance and thereby ensure peace of mind.

Quality Approach

All aspects of design, development, fabrication, assembly, integration, testing, acceptance, production & maintenance of many Military grades & Aerospace Projects have been handled by ACL, in qualifying various projects to the stringent specifications. Quality consciousness is

inherently imbibed in the actions & thoughts of all individuals. The organizational structure and the mandatory formalisms at ACL provide the apt platform for Quality Assurance & Control.

Limitations

- The data was collected only from the supervisors and middle managers. The findings and conclusion of the study may not be applicable to other industries.
- The present study is based on the judgment of the supervisors and it is presumed that the supervisor's judgment is good enough to provide bias-free information.

LITERATURE REVIEW

2.1 Impact of Industrial Accidents²

In this article, Benach.J, Benavides F.G, Jarque.S said that the Industrial accident is a serious concern to look at in any organization, not only in organization but also outside.

² Name of authors: Benach.J, Benavides F.G, Jarque.S, Title: Health and well being at work,
Published on: 27 April 1999,
Source: <https://www.eurofound.europa.eu/publications/article/1999/the-impact-of-industrial-accidents>

Millions of industrial accidents take place throughout the world. Some accidents involve time off work, some are serious and some are fatal. Many experts believe that the accidents are occurring due to improper functioning of prevention systems. Hence, the systems are needed to be developed to secure the society. This can be done by improving sources of information into the causes of industrial accidents and also developing safety measures.

Industrial accidents are the major problem in Spain. Accidents are not decreasing in Spain and experts think that the precautions are not appropriate and are needed to be developed.

In Spain, the Ministry of Labor and Social Affairs gave an idea of the magnitude of the problem that the industrial accident is having an impact on the health of the workers that causes loss of life or property or causing serious injuries which results in absence from work, loss of productivity and health costs. Every year around eight employees are suffering from the type of accident and three to four employees die every day. Many companies have started to reduce accidents, still, there is little enforcement of law and the law on Prevention of Occupational Risk is not guaranteed. Substantially the right approach is needed to be determined for the prevention of accidents at the workplace.

2.2 Types and Causes³

In this article, Smriti Chand has found that, every country has its own regulations and that are to be followed by every citizen of that particular country.

The U.S. Occupational Safety and Health Administration (OSHA) supervise the safety of more than 130 million workers each year. Despite these regulations, the accidents are common and uncontrollable.

Employers are needed to be trained in the organizations and defected equipment is needed to be replaced, equipment is to be maintained at the workplace with proper supervision.

There are several types of accidents as well as the causes. Some of them are-

Slips and falls- Workers should provide footwears that are not slippery to avoid accidents like muscular pains due to fall.

³ Name of author: Smriti Chand, Title: Industrial Accidents-Types and Causes

Source: <http://dramarnathgiri.blogspot.com/2016/09/industrial-accidents-types-and-causes.html>

Falling objects- If the things are not placed in the right place or placed at height then they can fall on anyone and result in an accident. Employees are to be trained in placing the right object in the right place.

Chemical burns/exposure- Chemical burns and exposure occur when the chemicals are not properly labeled and don't have subsequent procedures to handle it.

Improper lifting/Overexertion- These can cause serious pain in the back, limbs, spine or can cause injuries also if the equipment is not handled properly. The workers should have the knowledge of how to handle and lift the equipment or other heavy objects.

Accidents occur when the procedures are not handled properly or improper handling of materials or misuse of equipment.

2.3 Workplace accidents affect employers⁴

This section mainly focuses on workplace accidents and impact on employers in an organization. Safety procedures and equipment are the first lines of defense at a job. Because of human error and unanticipated occurrences, workplace accidents are self-evident facts. Employers must know how to deal with eventuality, coordinate and help the employee and ensure smooth functionality in the organization.

One of the factors that an employer has to deal with, is financial cost like salary cost, productivity losses, retraining, repairs, medical and travel expenses, additional supervision.

The preponderance of accidents leads to loss of life, permanent or temporary damage

⁴ Name of author: Brent George, Title: How do workplace accidents affect employers,
Published on: 28 April 2014
Source: <https://www.brentgeorgelaw.com/how-do-workplace-accidents-affect-employers/>

or something. It includes the physical effect on employees like, retired due to permanent injury, incapable to handle material, unrelenting headaches, and unrelenting pains. These injuries can range from months to several years.

In addition, Workplace accidents can have psychological effects too, like, anxiety and depression that can reduce the output of the organization. After work activities can affect the employee's peace of mind at the workplace.

Another factor that affects workplace accidents is an employer-employee relationship.

The recovered employee will maintain the relationship with his/her coworkers. But studies have shown that it is difficult for an employee to maintain a relationship with his/her employer. The relationship between them becomes demarcate.

If the employee were treated like he/she was treated before accident then he or she becomes more resentment. Employers should identify these changes to reduce post accidents in order to soothe negative feelings.

RESEARCH METHODOLOGY

3.1 Problem identification

In an organization, safety issues have always a major concern. This study focuses on the identification of employee relations and works environment that influences the cause of accidents.

3.2 Research design

The research design of this study is descriptive as well as exploratory in nature in order to understand the employee relations, characteristics and common practices of the organization. This study is exploratory because the research is conducted for the first time in Apollo Computing Laboratories.

3.3 Research Method

3.3.1 Sample Design

Sample design selected for this study is judgment sampling which is a non-probability sampling technique. The judgment sampling is chosen because special efforts are made to locate and gain access to individuals who do have required knowledge of safety at the workplace.

3.3.2 Sample Size

An appropriate number of sample size that is, 70 was put to use for the purpose of collection of data from the selected employees of Apollo Computing Laboratories Private Limited.

3.4 Sources of information

3.4.1 Primary Data

The primary data is obtained from the employees of Apollo Computing Laboratories Private Limited through circulation of the structured questionnaire. This questionnaire contains close-ended questions. The personal data of employees were also collected which were open-ended questions. The data was also obtained through an unstructured interview with the general manager of the organization to get more information.

3.4.2 Secondary Data

The secondary data is obtained from different websites.

3.5 Tools and techniques for data analysis

For data analysis, Ms-excel is used and the statistical tool used for the data is Pearson Correlation. This statistical tool is used in order to determine the relationship between one variable with another or vice versa.

Limitations

The data was collected only from the supervisors and middle managers. The findings and conclusion of the study may not be applicable to other industries.

The present study is based on the judgment of the supervisors and it is presumed that the supervisor's judgment is good enough to provide bias-free information.

DATA ANALYSIS AND INTERPRETATION

	<i>Industrial Accidents</i>	<i>Employee Relations</i>	<i>Safety Measures</i>	<i>Work Environment</i>	<i>Management Concern</i>
Industrial Accidents	1				
Employee Relations	0.79167668	1			
Safety Measures	0.29608753	-0.8333456	1		
Work Environment	0.77668296	0.18134049	0.5374438	1	

Management Concern	0.97155043	0.48100912	0.8627624	0.85085292	1
-------------------------------	-------------------	-------------------	------------------	-------------------	----------

The above table shows the relationship between two variables that are considered as the main factors for industrial accidents whether it is major or minor. The analysis was done by considering the four major factors in relation to the industrial accidents that are mentioned in the above table and those factors are employee relations, safety measures, work environment, and management concern.

The analysis is done based on the responses of the employees of Apollo Computing Laboratories Pvt. Ltd and the responses were collected from the questionnaire that was distributed to the employees of the organization.

For the analysis, the Pearson Correlation test is used to find out the relation between two variables that is, independent and dependent variables and the test is done on ms-excel for more accurate results.

4.1 Employee Relations

4.1.1 Questions

Q1. What are the causes of accidents at the workplace?

Q2. Do any other work assigned to you that is not part of your job?

Q3. Have you experienced any accidents at the workplace?

4.1.2 Analysis

In this section, the respondents were asked to fill questionnaire which is comprised of questions such as causes of accidents, assigning extra work that is not part of their current job, involvement in fights or arguments, proper conflict mechanism system.

It is found that most of the respondents think, the employee relations are not proper that leads to a lack of peace of mind and employees work with a disturbed mind which causes minor accidents at the workplace.

4.1.3 Interpretation

There is a less significant relationship between accidents experienced and employee relations ($p > 0.05$) where $p = 0.791$. Employee relations are not good it can lead to disturbance and employees work with disturbed mind due to which minor accidents occur. Whether the accidents are minor or major, they can effect on the employees as well as the organization. The organization's productivity and growth can suffer. So, the organization must ensure that the factors that are causing the accidents must be taken into consideration for better performance from the side of the employees and to gain higher productivity.

4.2 Safety Measures

4.2.1 Questions

Q1. Do proper measures are provided by the company for accidents?

Q2. What type of measures is provided by the company?

4.2.2 Analysis

In this section, the questionnaire is comprised of questions such as the provision of safety measures, types of safety measures, quality of safety measures.

Based on respondent's answers, it is found that the safety measures are providing by the company but they are yet to be improved and employees are not satisfied with it.

The quality of the safety measures that are providing to the employees should be developed more and the organization can also provide additional benefits if required, to the employees so that they

get satisfied with whatever the organization is providing and this satisfaction lead to higher productivity and greater benefits.

4.2.3 Interpretation

There is a least significant relationship between safety measures provided in the organization and types of safety measures ($p < 0.05$) where $p = -0.83334$. The organization is providing safety measures but they are yet to be improved.

Based on the responses the analysis is done and the employees are not satisfied with the quality of material and they think that it should be developed for better results.

The organization should also take the employees needs into consideration.

4.3 Work Environment

4.3.1 Questions

Q1. The organizational support for the employees is satisfactory?

Q2. The working environment in the organization is secure?

4.3.2 Analysis

In this section, the responses of the employees were positive. The questionnaire comprised of questions such as security, organizational support. The employee satisfaction is determined in this section and it is also determined that whether the organization is secure or not.

Based on the responses that were obtained with the help of the questionnaire, it can be said that employees are satisfied with the working environment in the organization and they have agreed that the environment is safe and secure.

4.3.3 Interpretation

There is a significant relationship between secured work environment & satisfaction of employees with the organizational support ($p > 0.05$) where $p = 0.776$. That means the environment is secured and the employees are satisfied.

The main aim of each and every organization is to think of their employee's safety and security and to provide better facilities for them when compared to their competitors. So that the employees work without any disturbance and feel secure in the organization.

4.4 Management Concern

4.4.1 Questions

Set 1

Q1. Are there any instructions related to the safety provided to the employees?

Q2. Are these instructions effective to minimize accidents in the workplace?

Set 2

Q1. Does the company provide any safety training to the employees?

Q2. Was the training satisfactory?

4.4.2 Analysis

In this section, the respondents were asked to fill out a questionnaire which is comprised of questions such as providing safety training programs, safety instructions or manuals.

It is found that most of the respondents think the management concern is appropriate and effective enough to prevent accidents.

4.4.3 Interpretation

There is a significant relationship between the instructions provided and the effectiveness of the instructions and also between the provision of safety training and satisfaction with the training where $p=0.971$. That means the instructions and training provided by the organization is effective enough to prevent accidents.

The organization may have to expend some amount on the safety training program but this expense is helpful for the organization to avoid loss of property or workforce. This kind of training may be useful for the employees to deal with the dangerous situations easily.

4.5 Pearson Correlation

The data is analyzed by using Pearson Correlation in Ms-Excel because this statistical tool is appropriate for knowing the relationship between dependent and independent variables. Based on the above calculations, it can be said that there is a significant relationship between industrial accidents and working environment due to the positive correlation value ($p=0.776$) that means the working environment is safe.

There is a least significant relationship between industrial accidents and employee relations with value ($p=0.140$) that means employee relation is one of the factors for minor accidents at the workplace. The relationship between industrial accidents and safety measures is less significant ($p=0.29$) which means the safety measures are not appropriate and are yet to be developed.

The other factor that is a management concern is very highly significant due to the positive correlation value ($p=0.915$).

So, it can be concluded that employee relations and working environment are the factors that can lead to minor accidents at the workplace.

4.6 ANALYSIS OF CORRELATED VARIABLES

4.6.1 Awareness and Prevention

Variables	Awareness	Prevention
Awareness	1	-
Prevention	0.839512	1

Table 1.1

Interpretation

From the above table 1.1, the value between the variables i.e., awareness and prevention is 0.839512 which is greater than 0.5 i.e., $p > 0.5$. Here p is the correlation coefficient which shows a magnitude that is 0.839512.

This value indicates that there is a significant relationship between awareness of accidents and prevention of accidents and both the variables are highly correlated.

It can be concluded that awareness of accidents among the employees is more in the organization and accidents can be prevented.

4.6.2 Accidents experienced and Employee relation

Variables	Accidents experienced	Employee relation
Accidents experienced	1	-
Employee relation	0.79167680	1

Table 1.2

Interpretation

From the above table 1.2, the value between the variables i.e., Accidents experienced and Employee relation is 0.791676 which is greater than 0.5 i.e., $p > 0.5$. Here p is the correlation coefficient which shows a magnitude that is 0.791676.

This value indicates that there is a significant relationship between accidents experienced in the organization and relation among the employees where both the variables are highly correlated. It can be concluded that the employee relation is not proper in the organization which can lead to disturbance and employees work with disturbed mind due to which minor accidents occur.

4.6.3 Safety provision and Types of safety measures

Variables	Safety	Types
Safety	1	-
Types	-0.83334	1

Table 1.3

Interpretation

From the above table 1.3, the value between the variables i.e., Safety provision and types of safety measures provided for employees is 0.83334 which is less than 0.5 i.e., $p < 0.5$. Here p is the correlation coefficient which shows a magnitude that is -0.83334.

This value indicates that there is a negatively significant relationship between Safety provision and types of safety measures provided for employees where both the variables are negatively correlated.

It can be concluded that the organization is providing safety measures but they are yet to be improved.

4.6.4 Working on things that are not part of the job and accidents experienced

Variables	Other things	Accident experienced
Other things	1	-
Accident experienced	-0.7916766	1

Table 1.4

Interpretation

From the table 1.4, the value between the variables i.e., working on things that are not part of the job and accidents experienced at workplace which is less than 0.5 i.e., $p < 0.5$. Here p is the correlation coefficient which shows a magnitude that is -0.7916766.

This value indicates that there is a negatively significant relationship between working on things that are not part of the job and accidents experienced at workplace where both the variables are negatively correlated.

It can be concluded that the employees are involved in other things that are not part of their job and the employees are experiencing minor accidents.

4.6.5 Rules and its effectiveness

Variables	Rules	Effectiveness
Rules	1	-
Effectiveness	0.531596	1

Table 1.5

Interpretation

From the table 1.5, the value between the variables i.e., rules in the organization and the effectiveness of the rules into the company which is equal to 0.5 i.e., $p=0.5$. Here p is the correlation coefficient which shows a magnitude that is 0.531596.

This value indicates that there is a significant relationship between rules in the organization and the effectiveness of the rules into the company where both the variables are negatively correlated.

It can be concluded that the rules are appropriate enough for the employees to follow them and the rules provided by the organization is effective to prevent accidents.

4.6.6 Instructions and Prevention of the accidents

Variables	Instructions	Prevention
Instructions	1	-
Prevention	0.9715504	1

Table 1.6

Interpretation

From the table 1.6, the value between the variables i.e., instructions in the company and the prevention of accidents is greater than 0.5 i.e., $p > 0.5$. Here p is the correlation coefficient which shows a magnitude that is 0.9715504.

This value indicates that there is a highly significant relationship between instructions provided by the organization and the prevention of accidents where both the variables are highly correlated.

It can be concluded that the instructions are provided properly in the company which are followed by the employees and that helps them to prevent from accidents.

4.6.7 Work environment and Satisfaction of employees

Variables	Work environment	Satisfaction
Work environment	1	-
Satisfaction	0.862762	1

Table 1.7

Interpretation

From the table 1.7, the value between the variables i.e., Work environment and satisfaction of the employees with the work environment which is greater than 0.5 i.e., $p > 0.5$. Here p is the correlation coefficient which shows a magnitude that is 0.862762

This value indicates that there is a highly significant relationship between Work environment and satisfaction of the employees with the work environment where both the variables are highly correlated.

It can be concluded that the work environment is secure for the employees and the employees are satisfied with their work environment.

4.6.8 Provision of welfare and satisfaction of the employees

Variables	Welfare	Satisfaction
Welfare	1	-
Satisfaction	0.125541	1

Table 1.8

Interpretation

From the table 1.8, the value between the variables i.e., Provision of welfare and satisfaction of the employees with the welfare which is less than 0.5 i.e., $p < 0.5$. Here p is the correlation coefficient which shows a magnitude that is 0.125541.

This value indicates that there is a least significant relationship between provision of welfare and satisfaction of the employees with the welfare where both the variables are least correlated.

It can be concluded that the welfare is not sufficient for the employees and employees are not satisfied with it. Welfare facilities should be provided more and in a proper way.

4.6.9 Negligence with the machines and accidents experienced

Variables	Negligence	Accidents experienced
Negligence	1	-
Accidents experienced	0.288578	1

Table 1.9

Interpretation

From the table 1.9, the value between the variables i.e., negligence with the machines and the accidents experienced due to negligence which is less than 0.5 i.e., $p < 0.5$. Here p is the correlation coefficient which shows a magnitude that is 0.288578.

This value indicates that there is a least significant relationship between negligence with the machines and the accidents experienced due to negligence where both the variables are least correlated.

It can be concluded that the negligence with the machines is less and due to less negligence less accidents are experienced.

FINDINGS

- The employee relation at the workplace is not appropriate. They involve in arguments & sometimes in fights due to which the employees work with the disturbed mind. So it can lead to minor accidents.
- The organization is providing safety measures to the employees but the employees are not fully satisfied with those safety measures, hence they are yet to be improved.
- The working environment is secured and satisfactory.
- Management concern is effective enough to reduce accidents in the organization, rules and instructions are provided appropriately.

CONCLUSION

In this study, a review of literature helps the researcher to apprehend the existing research and the research gap using different variables. It also helps in developing new interpretations of the existing study. Different researches have shown that there is a number of factors that lead to accidents at the workplace, it may be unsafe conditions or unsafe acts or mishandling of machines or stress at work. The main reason of this study is to prevent accidents and let the employees be safe in the working organizations. According to the results, it can be said that safety measures are yet to be improved.

Accidents can be prevented if the organization focuses on internal industry relations and on the reasons for the internal conflicts.

Accidents are occurring in this organization due to internal conflicts.

Employees often perform their duties with less peace of mind. Hence proper conflict management mechanism helps in preventing the accidents.

SUGGESTIONS

- Provision of safety training is limited to fire safety only. The organization should focus more on personal protection and employee safety awareness.
- Proper internal conflict mechanism and employee grievance redressal the mechanism are to be introduced & developed in the organization to avoid accidents.
- The quality of safety measures are needed to be improved and are to be provided sufficiently.

FUTURE SCOPE

- This study reveals the impact of the working environment, employee relations and Safety measures on industrial accidents.
- For future researchers, the main emphasis can be given to large chemical units.
- This study could also be extended by using other factors like technical causes or psychological reasons.

BIBLIOGRAPHY

<https://www.eurofound.europa.eu/observatories/eurwork/articles/the-impact-of-industrial-accidents>

<http://www.yourarticlelibrary.com/industries/industrial-accidents-types-and-causes-of-accidents-explained-with-diagram/35400>

<https://www.brentgeorgelaw.com/how-do-workplace-accidents-affect-employers/>

