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Industrial Hazards and Safety Measures in Automobile Sector

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ABSTRACT

The rate of globalization has led to a rise in employment in the unorganized sector, which is typically defined by flexible, risky, and insecure work that puts employees' health at serious risk. The study's objective was to evaluate the safety precautions and industrial risks in the automotive sector. Young people between the ages of 17 and 35 made up the majority of the auto mechanic industry, which was primarily controlled by men. The majority of apprentices were verbally negotiated with the shop or garage master and had only a minimal primary education. It was discovered that the workers were subject to biological risks like insect bites, chemical risks like asbestos exposure and fumes, physical risks like heat and burns, and psycho-social risks like working under pressure. The majority of car mechanics (74%) who had workplace injuries received no compensation, and it appeared that no regulatory agency was in charge of their health and safety. The study came to the conclusion that the nation's occupational health and safety policies do not adequately address the demands of the informal auto mechanic sector, despite the many risks that have been found in this field. Companies are required by the Occupational Safety and Health Administration to safeguard their employees against common workplace risks that could result in sickness or injury. The best method to make sure the workplace is as safe as possible is to identify and control any dangers at their source. However, OSHA also mandates that employers provide personal protection equipment to workers in businesses with heavy lifting and hazardous machinery in order to prevent injuries from any potential dangers.

Keywords: psycho – social hazards, Safety, OSHA, PPE

1. Introduction

1.1 Introduction to the research

In today's corporate environment, achieving profit is the top priority for all organizations, whether they are manufacturing or providing services. Many chores may be completed quickly thanks to the rapid advancement of technology. Although technology has shortened manufacturing times, there are a number of disadvantages to this development as well, such as the detrimental effects of highly explosive materials on workers' health. Studies have shown that an organization's success is directly impacted by its health and safety initiatives.

Workplace safety, technological advancements, the relationship between employees and supervisors, and rules and laws pertaining to health and safety at work are some of the elements that make up the health and safety climate. At no level can the implementation of a suitable health and safety program be taken for granted, since it plays a vital role in creating a positive health and safety climate in all businesses. Human resources function similarly for any organization as blood does for the human body. Therefore, an employer's first duty is to look after its employees. In India, the government plays a crucial role in establishing a workplace environment that promotes health and safety. The necessity to improve health and safety precautions has changed as a result of technological advancements because using high-tech machinery raises the risk of accidents and fatalities. It calls for the timely review of current health and safety policies as well as the implementation of at least one active policy pertaining to employee health and safety at work.

2. Theoretical background

2.1 Industrial health

One aspect of the healthcare industry that focuses on occupational health is industrial health. Medical officers, nurses, safety inspectors, employees protected by the ESI Act of 1948, and insurance for employees not covered by this act are all included in the category of industrial health. Because workplaces are built to make people as safe as possible, "industrial health" has grown significantly. Employees may encounter a number of risks at work. For instance, frequent accidents in the glass industry, repetitive stress injuries among office workers, and exposure to hazardous chemicals in manufacturing facilities. It is advised that workplaces implement preventative measures such as health and safety equipment, failsafe mechanisms to remove worker dangers, and routine safety inspections to avoid worker injuries. Another strategy to lower accident rates is to promptly identify occupational injuries. Measures like incident reports, which allow people to document the circumstances of injuries, and the use of on-site medical

personnel, which enable prompt responses to medical problems, are also included in industrial health. One emerging area of medicine is industrial health. In the past, the emphasis was on industrial accident problems including mine collapses, chemical spills, and machine injuries, among others. Because conditions like depression and anger control disorders may negatively affect other employees, workplace mental health is also a topic of concern. Industrial health measures are thought to be a crucial tool for improving the health of workers in the manufacturing sector. From Section 11 to Section 20 of the Factories Act of 1948, the government made a number of provisions to improve the health of the organization's workers. These provisions are listed here.

Cleanliness (sec-11): All factories must be kept sanitary and free of production-related wastewater.

Waste and effluent disposal (sec-12): Due to manufacturing processes, proper arrangements for waste and effluent treatment should be made in the organization, and this act gives the state government the authority to establish regulations pertaining to this arrangement.

Temperature and ventilation (sec-13): Every production facility should have adequate ventilation, and well-maintained equipment should be employed to keep the workplace at a comfortable temperature.

Dust and fume (sec-14): Every plant that conducts manufacturing operations and produces dust and fumes should have plans in place to lessen these kinds of workplace conditions.

Artificial humidification (sec-15): The government may establish regulations governing improved humidification by specified standards and control the process for artificially raising air humidity in any organization where this is done.

Congestion (sec-16): There must be enough room at work to prevent accidents brought on by plant congestion.

Lighting (sec-17): Employees should have access to adequate and appropriate lighting, whether it be artificial or natural, throughout working hours.

Drinking water (sec-18): Every manufacturing facility must have a functional system in place to supply and maintain clean drinking water for its workers, with the water clearly identified in a language that the majority of workers can understand.

Latrines and Urinals (sec-19): Every plant has enough latrines and urinals of the designated types for its workers at all times while they are on the property. Additionally, there need to be a separate restroom at work for female employees.

Spittoons (sec-20): Spittoons should be positioned in a convenient location for workers in every factory to maintain a clean and hygienic workplace. Depending on the size of the factory, the state government may enact regulations that increase or decrease the number of spittoons at work. The 1948 Factory Act includes all of these provisions for the health of workers who are directly or indirectly involved in the industrial process. All of these clauses are legally binding and necessary for a manufacturing facility.

3. Hazards in automobile sector

3.1 Automobile sector

One of the biggest automobile markets in the world is India. 7.1% of the nation's Gross Domestic Product (GDP) comes from the automobile sector. Approximately 31% of small automobiles sold abroad as of the 2014–15 fiscal year are made in India. Eighty-one percent of the Indian market is made up of the two-wheeler segment. The expanding middle class and youthful population are the primary causes of the enormous two-wheeler market. Additionally, businesses' growing focus on serving rural clients contributed to the sector's expansion. The market share of the Passenger Vehicle (PV) category as a whole is 13%. India ranks among the world's top exporters of automobiles. The auto industry is expected to boost its exports significantly in the near future, according to experts. Commercial car exports increased 18.36% between April and January 2016 compared to April and January 2015. Furthermore, it is anticipated that by 2020, a number of suitable and acceptable measures taken by the federal government and state governments will position India as a global leader in the two-wheeler (2W) and four-wheeler (4W) markets.

- Market size
- Growing investment in automobile companies in India
- Government initiatives to speed up growth of Indian automobile industry
- Road ahead
- Origin of health and safety measures: the industrial revolution

The industrial revolution of the eighteenth century led to the replacement of manual and artisanal production methods with machine and technology-based production. Britain became a center of industry as a result. Additionally, it sped up manufacturing expansion and created a huge demand for skilled personnel. An acute shortage of skilled workers began to pursue the employers. Employers began considering new machinery, specialized workers, and child labor as a result of the thriving competition and demand. The increasing demand for labor was cost-effectively explained by child labor and village labor. However, it presents a significant obstacle for companies. A number of severe and hazardous industrial mishaps at factory premises were caused

by a lack of industrial ability and knowledge. Employers faced new kinds of challenges due to foreign machinery and hazardous substances. The government was forced to take action against businesses that are not taking employee safety seriously because to the sharp increase in other job-related accidents, the unidentified consequences of chemical work, and mining fatalities. The government enacted a number of laws to enforce health and safety regulations. The government mandated safety measures for both public and private companies through these laws.

- Factories act 1833
- Health and safety at work act 1974
- Hazards in automobile industry
- Poor maintenance
- Permanent hazards
- Undertrained employees
- Insufficient first aid
- Carelessness
- Unrestricted access
- Falls
- Powered industrial trucks

4. Analysis of existing status of health and safety measures

4.1 Statement of the research problem

Industrial the term "health and safety climate" describes how employees collectively perceive the safety of their workplace, which serves as a backdrop for daily duties. The idea of "safety climate" highlights how crucial it is for businesses to manage employee health and safety. It is a crucial component of every organization to improve social perception and efficiency.The working conditions that the company offers its employees make up the health and safety atmosphere. The organization's health and safety climate is largely determined by how well its health and safety policies are implemented. Industries are fiercely competing with one another in this highly competitive, globalized economy, and every employee needs a comfortable workplace that supports their health and safety while they are on the job. Government-enacted laws put pressure on businesses to abide by the rules in order to improve the health and safety of their workers. The main focus of this study is the health and safety policies implemented by the automotive industry, the degree of employee satisfaction, and the perceptions of employees on the health and safety environment in the Haryana automobile industry. It seeks to draw attention to the health and safety provisions offered to employees and the extent to which they are available in the Haryana automobile industry. The goal of the study is to determine the general health and safety environment in the automotive industry.

4.2 Objectives of the study

1. To assess the current state of industrial health and safety protocols used by the automotive industry.

2. To assess how satisfied workers are with the company's industrial health and safety protocols.

3. To assess the organizations' adherence to emergency health and safety protocols.

4. To learn how workers feel about the environment for industrial health and safety.

5. To provide practical recommendations for improving the industrial health and safety environment in the automotive industry.

4.3 Employees' satisfaction regarding industrial health and safety measures

The second goal is to find out how satisfied workers are with the company's industrial health and safety policies. Every employee in a company has a varied perspective due to their various demographic circumstances. Regarding age, marital status, location, category of qualifications, work experience, and department, no two employees are same. Additionally, there is variance in their perspective.

Therefore, the study's demographic base is crucial for understanding the various employee perspectives. Management can determine the degree of employee satisfaction based on their opinions and take the appropriate steps to improve it.

4.4 Analysis of employees' perception regarding industrial health and safety climate

To learn how workers feel about the workplace's safety and health environment. We employed a few statements to gauge employees' perceptions of the industrial health and safety climate in order to accomplish the fourth goal. Here we have described four components that were derived via factor analysis.

F-1: Management Demonstration element: This element includes all policies and procedures implemented by management to improve health and safety inside the company. These are About 54.9% of the variance can be explained by the following: strict disciplinary action, team formation from many departments, continuous progress in H&S, quick rectification of defects, and an effort to be the best in the field.

F-2: Readiness for Health and Safety: This component covers all procedures that contribute to preserving workers' health and safety at work. The organization assists employees in reducing stress connected to their jobs, conducts periodic health checks on staff, ensures that supervisors pay proper attention to safety precautions, and rigorously investigates accidents and injuries to account for around 4.6% of variance.

F-3: Readiness for Health and Safety: This component covers all procedures that contribute to preserving workers' health and safety at work. The organization assists employees in reducing stress connected to their jobs, conducts periodic health checks on staff, ensures that supervisors pay proper attention to safety precautions, and rigorously investigates accidents and injuries to account for around 4.6% of variance.

F-4: Preventive actions are included in this component in order to lower the amount of workplace casualties. These employees are knowledgeable about the risks involved in their jobs. About 4.2% of the variance can be explained by the following: prevention plans are developed based on information provided by risk evaluation; instruction manuals or work procedures are developed to aid in preventive action; and safety prevention plans are reviewed and updated on a regular basis when job conditions change.

4.5 PPE for industrial safety and hazards

Companies are required by the Occupational Safety and Health Administration to safeguard their employees against common workplace risks that could result in sickness or injury. The best method to make sure the workplace is as safe as possible is to identify and control any dangers at their source. However, OSHA also mandates that employers provide personal protection equipment to workers in businesses with heavy lifting and hazardous machinery in order to prevent injuries from any potential dangers.

Employer requirements are outlined in the following OSHA general industry PPE regulations, which are available online at www.osha.gov:

Conducting a workplace hazard assessment to detect and manage health and physical risks.

Identifying and supplying workers with the proper PPE

Instructing workers on how to use and maintain the PPE

PPE maintenance, including replacing damaged or worn-out equipment; regular reviews, updates, and assessments of the PPE program's efficacy

Sample methods and variables

The questionnaire and sample procedures used to analyze employee safety and health issues are as follows.

5. Statistical techniques used for data analysis

The acquired data has been subjected to statistical techniques in order to verify the hypotheses made during the study process. For the data analysis, both descriptive and inferential statistical tools were employed. Students' tests, ANOVA tests, and factor analysis were employed in inferential statistics, while descriptive statistics such as percentage, mean, and standard deviation were utilized to analyze the data. Percentage approach: This study employed the percentage method to compare two or more data sets. Descriptive statistics serve as its foundation. It reduced everything to a single base, enabling them to be compared to one another. Level of significance: A level of significance, which is stated as a percentage, must be established in order to reject or accept the hypothesis. In essence, when the null hypothesis is true, we reject it. The significance level is set at 5% in each instance, which indicates that there is a 5 in 100 chance of an error occurring and that the confidence level is 95%. The degree of dispersion of the mean values and the error that results from guessing the population mean from which the sample was drawn were evaluated using the standard deviation. It is a commonly used metric for measuring variability that shows the degree of deviation from the mean. A low standard deviation indicates that the data points are near the mean, while a high standard deviation indicates that the data is dispersed over a wide range of values. The t-test is used to determine whether or not there is a significant difference between the means of the two samples. Additionally, the purpose of this study is to determine whether there are notable differences in the current situation, employee happiness, and employee perceptions based on factors such as marital status (married or unmarried), location (rural or urban), qualification type (technical or general), and job experience (yes or no).

6. Conclusion

In order to include health and safety measures into their overall management system, organizations need have a clear management structure. It was specifically directed at people who control the business's operations. Its goal is to provide useful guidance and suggestions for creating a workplace health

and safety management system. The goal is to boost innovation and productivity in the automotive industry while incorporating health and safety advancements. Since there is no other means to eradicate occupational illnesses, injuries, and deaths, these initiatives are crucial. Because workplaces and technologies are always evolving, health and safety is a dynamic concern. To help realize the goal of a safe and healthy workplace, strategies are developed. All organizations will have to coordinate their efforts over time in order to concentrate on these tactics. Therefore, it shouldn't be ignored. Employee motivation and job satisfaction, which impact both productivity and retention, are significantly influenced by workers' well-being. Management should pay attention to employees' periodic medical examinations; if a disease is discovered, appropriate corrective action can be implemented. In order to prevent accidents and injuries, floors and stairs should be maintained promptly. Spittoons and clean drinking water facilities should be placed in the right locations to create a healthy sanitation environment. To lower the risk of an accident, the workplace should have better lighting and artificial humidification systems. The firm should provide these facilities in accordance with the requirements to reduce any serious accidents. The appointment of a medical surgeon is highly vital for periodic checks of employees' health and safety officer for checks of safety measures at workplace. In order to improve the health and safety environment within the company, management should consult staff members about their issues and solicit their ideas on how to simplify the functional area.

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