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THE EXTENT OF APPLICATION OF OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT IN ECONOMIC INSTITUTIONS

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ABSTRACT

Human resources represent a fundamental element in ensuring the continuity of industrial and service organizations alike, which necessitates the provision of a safe working environment that protects employees from various occupational hazards. This study aims to assess the extent to which occupational health and safety management is applied in the National Paint Company – Souk Ahras Unit. The study adopted a descriptive-analytical approach and relied on a questionnaire distributed to a sample of the company's employees. After collecting and statistically analyzing the data, the results revealed a moderate level of implementation of occupational health and safety management requirements within the studied institution. However, several shortcomings were identified, particularly in the consistency of applying safety procedures and in the availability of protective equipment, which require systematic attention and corrective measures. In light of these findings, a set of recommendations was proposed to strengthen occupational health and safety practices, enhance compliance, and improve the overall working environment in a manner that ensures employee well-being and contributes to sustainable institutional performance.

1 INTRODUCTION

Interest in the field of occupational health and safety began when humans first engaged in productive activity; however, its development accelerated after the Industrial Revolution and the accompanying health risks. Countries rapidly issued laws and regulations, and researchers and thinkers devoted significant attention to studying and analyzing this field. At the industrial-institution level, specialized departments for occupational health and safety were established to manage all related tasks. The increasing interest in this field is due to the human, economic, and social consequences of workplace accidents and occupational diseases. The phenomenon of workplace accidents reflects the level of safety within an industrial institution. Researchers have

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differed in their interpretations of the causes of such accidents: some attribute them to social and economic conditions or the worker's environmental climate, while others relate them to hereditary factors. However, most agree that human factors are the main cause of accidents. Workplace accidents are a phenomenon that requires investigation, analysis, documentation, and measurement within the institution to understand them and identify their actual causes.

Occupational diseases differ fundamentally from workplace accidents. They do not emerge suddenly but develop gradually because of specific work conditions. Individuals with hereditary predispositions are especially susceptible. The global prevalence of occupational diseases is increasing, driven by industrial expansion and the intensification of chemical, physical, biological, and environmental exposures.

Given the diverse risks faced by the workforce, it is essential to establish appropriate procedures that address these challenges while safeguarding and sustaining human resources. This includes planning, evaluating, and implementing various occupational health and safety programs, as well as providing protective equipment, first aid kits, alarm systems, and fire-extinguishing devices in workplaces to deal with emergencies.

The National Paint Company – Souk Ahras Unit – has adopted measures to safeguard its workforce against occupational risks. These measures include the implementation of structured occupational health and safety programs designed to ensure that employees carry out their duties under secure and supportive working conditions.

Based on the above, the following main research question is posed:

RQ: What is the reality of implementing occupational health and safety management from the perspective of workers at the National Paint Company – Souk Ahras Unit?

From this main question, the following sub-questions are derived:

SQ1: What mechanisms and roles characterize occupational health and safety?

SQ2: What is the current status of workplace accidents and occupational diseases in industrial institutions?

SQ3: To what extent are occupational health and safety procedures and equipment available at the National Paint Company – Souk Ahras Unit, and to what extent do workers comply with them?

Research Hypotheses

To address the research problem, the following main hypotheses are proposed:

H1: Occupational health and safety (OHS) management is implemented at a measurable level in Algerian economic institutionsFrom these main hypotheses, the following sub-hypotheses are derived:

SH1: Providing protective and safety equipment reduces workplace accidents.

SH2: A low level of occupational health and safety leads to workplace accidents.

SH3: non-compliance with safety regulations among workers increase the likelihood of workplace accidents and occupational diseases.

Importance of the Study

The significance of this study lies in the rapid and complex transformations within industrial institutions, which demand sustained attention to remain aligned with ongoing developments, particularly in occupational health and safety as a strategic priority. Its importance is further highlighted by the contemporary relevance of the topic, which has attracted considerable scholarly interest. Moreover, Algerian institutions face an urgent need to address these issues to adapt to current challenges, a need made even more evident in the aftermath of the COVID-19 pandemic.

Study Objectives:

- Presenting a conceptual framework clarifying the management of occupational health and safety.
- Clarifying the requirements of occupational health and safety in institutions.
- Identifying the current state of workplace accidents and occupational diseases in the economic institution.

- Determining the extent to which occupational health and safety requirements are applied at the National Paint Company – Souk Ahras Unit from the workers' perspective.

Methodology of the Study

Given the nature of the study, a clear and specific methodology is essential to achieve its objectives and obtain reliable results. Accordingly, the descriptive-analytical method was adopted, as it enables the collection of data and facts related to the problem, their interpretation, and the assessment of their significance. This approach provides detailed insights into the actual reality of the phenomenon under investigation. The study is based on 50 questionnaires, of which 40 were returned, yielding an 80% response. This dataset allows for the analysis of results and the examination of the proposed hypotheses.

2 THEORETICAL FRAMEWORK OF OCCUPATIONAL HEALTH AND SAFETY

The main objective of occupational health and safety is to protect the elements of production, especially the human element, from work-related accidents and occupational diseases in industrial institutions. Institutions must understand the components of these conditions and their impact on occupational health and safety, as working conditions represent the environment within which the worker performs their duties.

2.1 The Concept of Occupational Health and Safety

The field of occupational health and safety requires attention and study, especially by industrial institutions. Workers performing tasks within a specific work environment are exposed to multiple risks that negatively affect their health and productivity, as well as other production elements. Therefore, responsibility for occupational health and safety must be upheld by every individual inside and outside the institution.

2.1.1 Definitions of Occupational Health and Safety

There are several definitions, including:

- Occupational health and safety aims to protect workers from serious health impacts by addressing the various sources that lead to these risks, allowing workers to enjoy physical, psychological, and social well-being (Friend, M. A., & Kohn, J. P. 2022).
- It is a set of preventive and therapeutic measures that provide a safe work environment free from hazards, through professional protection for workers by eliminating or reducing risks. When some effects of risk remain, personal protective equipment must be used. A safe work environment includes appropriate lighting, humidity, and temperature within normal limits. Potential risks include wear, impact, fire, and misuse (Hasle, P., & Limborg, H. J. 2006).
- It is a set of preventive procedures that protect human resources through the participation of workers in designing such measures, thereby motivating them and improving morale, leading to professional safety and achieving organizational goals with high-quality output (Gallagher, C., Underhill, E., & Rimmer, M. 2003).
- Occupational safety is defined as a set of measures, procedures, and systems that provide professional protection for workers, reduce risks posed by equipment and machinery, and work to prevent or reduce accidents while ensuring a healthy work environment that helps workers perform efficiently.
- The occupational health and safety management system is an organized approach established by the employer to reduce the risks of injury and illness. It includes identifying, assessing, and controlling risks associated with operations at the workplace. It is an essential component of any activity, and its scope and complexity vary according to the nature of work and operational processes (Yorio, P. L., & Wachter, J. K. 2014).

Based on the above definitions, occupational health and safety can be defined as a field that includes a set of human and material principles and organizational procedures aimed at protecting human resources from work-related accidents, occupational diseases, and damages to material elements, to preserve them and enhance their productive efficiency.

2.1.2 Objectives and Importance of Occupational Health and Safety

Objectives

Occupational health and safety measures aim to minimize accidents and injuries among workers. Although the scope and depth of implementation differ, all programs focus on preserving workers (Vinodkumar, M. N., & Bhasi, M. 2010).

Importance

The importance of occupational health and safety lies in the following:

- Providing a safe work environment: It identifies risks in the workplace and evaluates them to establish necessary measures for controlling and preventing them.
- Ethical responsibility: Protecting the organization—including workers, facilities, buildings, and equipment—is a major ethical responsibility of those in charge of occupational health and safety.
- Economic significance: Direct and indirect costs of work accidents, injuries, and occupational diseases can lead to lost work time, decreased productivity, and material and moral losses.

Training

Effective training that employs occupational health and safety (OHS) programs in the workplace contributes to reducing accidents, injuries, and chronic diseases, while also preserving machines and equipment and ensuring their proper use. The importance of OHS is also highlighted by (Reese, C. D. (2018) through the following points:

- Preserving the health and safety of employees.
- Providing a healthy work environment free from hazards.
- Strengthening human relations between management and employees.

2.1.3 Occupational Health and Safety: Tasks and Benefits of Implementation

Tasks of Occupational Health and Safety (OHS) can be summarized as follows:

- Determining the budget allocated for safety programs, defining their objectives, providing preventive and therapeutic services, coordinating these with various production and operational activities, as well as training specialized workers, and measuring their productivity.
- Analyzing and measuring accident rates, identifying their internal and external sources from the surrounding environment, and measuring key variables that affect safety levels.
- Identifying the various (tangible and intangible) outcomes of OHS programs and raising awareness about occupational accidents.
- Carefully selecting OHS equipment, identifying necessary tools, ensuring maintenance, and guaranteeing their continuity.
- Studying the causes and various sources of accidents, properly training workers on equipment operation, and enforcing required engineering and technical guidelines.
- Maintaining necessary records and information using sound scientific methods.
- Making appropriate decisions in an integrated and economically efficient manner that considers the human element as a capital asset in the production system.
- Linking various OHS methods with production management systems, services, and applied technological processes.

Benefits of Implementing Occupational Health and Safety

The benefits are as follows:

- *Direct benefits:*
  - Reducing work-related injuries and occupational diseases among workers.
  - Reducing workplace accidents and disasters at the organizational level.
- *Indirect benefits:*
  - Reducing injuries and accidents and preserving the workforce leads to increased productivity.
  - Reducing the costs associated with workplace accidents and injuries.
  - Reducing the costs of repairing damaged machinery contributes to facility development.

2.2 Workplace Accidents, Work Stress, and Occupational Diseases

Workplace accidents are a complex phenomenon, and researchers explain their causes in different ways. OHS specialists classify these causes into two main groups: human causes and material causes. In addition to these, several factors may increase or decrease accident rates. Occupational diseases are numerous and are defined according to country-specific lists. They significantly affect workers' health.

2.2.1 Workplace Accidents

Definition of Workplace Accidents

A workplace accident is an unexpected and unplanned event occurring during work, while heading to work, or as a result of work (Benchiha, K. H, 2023).

It is also defined as:

> "Any malfunction in the workflow system that disrupts its natural functioning is considered an accident requiring intervention and repair. Any accident that arises from a predictable and preventable cause through proper control of work equipment is also considered an occupational accident" (Brauer, R. L, 2016).

Classification of Workplace Accidents

Workplace accidents can be classified based on causes, consequences, or nature. Such classification helps in comparing similar types of accidents and understanding their nature, thus enabling accident reduction (Saadi, S., Bosfot, W., & Djebabra, M. 2024):

- *Classification by Cause:*
  - Accidents caused by human factors
  - Accidents caused by technical factors
  - Accidents caused by environmental factors
- *Classification by Consequence:*
  - Accidents disrupting workflow
  - Accidents affecting employees
  - Accidents affecting technical components
  - Minor accidents

2.2.2 Work Stress

Work stress can be defined as human reactions to physical stimuli and psychological influences, which appear in the form of fear, tension, or anxiety. Work stress may be positive or negative.

2.2.3 Occupational Diseases

Algerian law defines occupational diseases in Article 63 of Law 83-13 as:

> *"All symptoms of poisoning, infection, or impairment attributed to a specific occupational source or task."*

Based on previous definitions, occupational disease can be defined as a disease that affects an individual due to the nature of their job or professional activity and appears among workers practicing a certain profession more than the general population. Symptoms emerge after a period of performing the job or during it, such as poisoning, infection, or functional impairment.

2.3 Occupational Health and Safety Procedures and Reasons for Adopting Them

2.3.1 Procedures of OHS Programs

OHS programs must be given appropriate attention in institutions to improve health and ensure workplace safety. Effective programs must be developed through a set of procedures aimed at protecting workers during work (Fernández. et al., 2009) These procedures include:

A. Planning OHS Programs in Industrial Institutions

Legal regulations form the legislative framework for OHS procedures. Laws include many rules and measures that ensure the safety and health of workers. The main principles of OHS program planning include:

- Setting specific OHS standards to guarantee human, machine, property, and economic protection.
- Organizing work by establishing rules and conditions that ensure a clean and contaminant-free workplace.
- Selecting the factory location properly, as proper site selection and compliance with construction standards help reduce future design-related costs.
- Providing medical care: first aid, periodic examinations, and medical treatment.
- Implementing an accurate statistical system.

Program planning also requires:

- Management commitment: Ensuring that management understands the importance of OHS and its human and economic benefits.

- Preventive awareness: Through regulations and instructions that guide safe practices in industrial institutions.
- Training: Based on learning theories and practical application, training aims to reduce workplace accidents by teaching safe behaviors.
- Identifying sources of hazards: These may arise from the physical work environment, unsafe behaviors, lack of experience, poor training, or inadequate OHS knowledge.
- Defining accident investigation procedures: Proper records and reports are essential for identifying real causes and improving programs.

B. Implementing OHS Programs in Industrial Institutions

After planning, implementation begins involving several internal and external parties (Goetsch, D. L. 2019):

- The Minister of Labor or the official responsible for enforcing labor laws.
- Labor inspectors, who ensure compliance with OHS provisions.
- The workplace safety committee within the institution.
- The employer or manager.
- The worker, who plays a crucial role in applying safety rules.

C. Evaluating OHS Programs

An assessment of occupational health and safety programs ensures their implementation within the organization, through continuous internal and external monitoring and inspection -are essential for:

- Ensuring compliance with OHS rules
- Identifying violations and investigating them
- Imposing appropriate penalties
- Studying accidents to determine causes and prevent recurrence
- Detecting program weaknesses and correcting them.

2.3.2 Reasons for Adopting OHS Procedures

The main motivations driving institutional attention to occupational health and safety include:

- Preserving the institution's reputation internally (among employees) and externally (in society).
- Reducing accidents and downtime, which lowers costs and increases productivity.
- Complying with government laws requiring safety measures.
- Responding to pressure from labor unions and workers.
- Reducing employee turnover and keeping up with competitors.
- Lowering the number of workplace-related accidents.

3 FIELD STUDY AT THE NATIONAL FAT PRODUCTION COMPANY – SOUK AHRAS UNIT

The methodology and procedures of the study are a key axis upon which the practical aspect is based, and through which the necessary data and information are obtained to conduct the statistical analysis in order to reach results that are interpreted in light of the collected data, and thus reach the goals that the study seeks to achieve.

3.1 Presentation of the Company and Field Study Methodology

The National Paint Company – Souk Ahras is a national economic institution specialized in producing various types of organic fats. It was established as a result of the restructuring of the National Chemical Industries Company (SNIC) in January 1983, in accordance with Decree No. 82/419 issued on 04/12/1982. On March 13, 1990, the company gained autonomy and was transformed into a joint-stock company (SPA) with a capital amounting to 200,000,000 DZD, which increased in 2005 to reach 500,000,000 DZD.

The National Fat Production Company has more than thirty years of professional experience and a production capacity of 125,000 tons of fats annually, in addition to 57,000 tons of semi-finished products (resins, emulsifiers, and dryers).

National Paint Company – Souk Ahras consists of six production units distributed across the national territory:

- *Eastern Region*: Souk Ahras Unit.
- *Central Region*: Akbou Unit in Bouira Province (headquarters), Cheraga Unit, and Semar Unit in Algiers.
- *Western Region*: Oran Unit and Sig Unit in Mascara Province.

3.2 Organizational Structure

The unit's organizational structure consists of the General Directorate, responsible for five main departments: Administration and Finance, Technical Affairs, Production, Commercial Affairs, and Laboratory. Each department includes several sub-services according to their roles and responsibilities. Additionally, there is the IT Service, Security Service, and the Planning, Monitoring, and Organization Office, all directly linked to the General Directorate.

3.3 Instruments Used in the Study

1. *Study Sample:*
   Because the company employs many workers and occupational health and safety concerns employees at all levels, a comprehensive study was not feasible. Therefore, 50questionnaires were distributed, and 40 were retrieved.
2. *Data Collection Tools:*
   Any scientific method requires suitable tools that enable the researcher to obtain the necessary data. Since this research deals with the extent of applying occupational health and safety management in an industrial company, the main tool used for data collection was the questionnaire, chosen for its appropriateness.

3.4 Questionnaire

To obtain information related to the topic, the questionnaire was divided into two main sections:

- *Section One:* General personal information, including gender, age, marital status, educational qualification, experience, and health condition.
- *Section Two:* Information about occupational health and safety for workers at the National Fat Production Company – Souk Ahras Unit. This section included 10 questions.

3.5 Analysis of Questionnaire Results and Hypothesis Testing

This is based on the statistical ratios and distributions used.

3.5.1 Analysis of Sample Responses to Section One.

The majority of the organization's employees (55%) are in the 41–50 age group, indicating a relatively experienced and skilled workforce (see Table 1).

Younger age groups (<30 years) are represented at a low percentage, which may indicate a lack of new hires or limited integration of young people into the organization.

Table 1. *Distribution of Sample by Age*

Age Group	Number	Percentage
Less than 30	8	20%
31 to 40	10	25%
41 to 50	22	55%
Total	40	100%

Source: Prepared by Author

The distribution of participants shows that the organization relies heavily on middle- to mature-age staff (see Table 1), which is an important factor when analyzing occupational health and safety perceptions, because experience can influence knowledge of safe behaviors in the workplace.

Table 2. *Distribution of Sample by Work Experience*

Experience	Number	Percentage
Less than 5 years	10	25%
6 to 10 years	22	55%
11 to 15 years	8	20%
Total	40	100%

Source: Prepared by Author

The findings indicate that the institution draws partially on work experience, yet this reliance remains modest. Workers with 6 to 10 years of experience represent 55% (the largest proportion), while those with 11 to 15 years represent 20% (the smallest proportion).

Table 3. *Distribution of the Sample by Health Status*

Health Status	Number	Percentage
Good	38	95%
Moderate	2	5%
Total	40	100%

Source: Prepared by the researcher.

These results indicate that most workers in the institution enjoy good health (95%), while a very small percentage (5%) suffer from some health issues.

3.5.2 Analysis of Sample Responses on the Second Section of the Questionnaire

Frequency is represented by N, and relative frequency by N%.

Table 4. *Response to Question 1 – Workers' Environment Has a Significant Effect on Their Health*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
1.	60%	30%	5%	5%	0%

Source: Prepared by Author

Overall agreement (Agree + Strongly Agree) is 90%, indicating that respondents agree that the workers' environment significantly affects their health. The remaining percentages are 5% neutral and 5% disagree (see Table 4).

Table 5. *Response to Question 2 – Work Environment Creates Stress and Pressure, Leading to Various Worker Illnesses*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
2	55%	25%	10%	5%	5%

Source: Prepared by Author

Overall agreement (Agree + Strongly Agree) is 80%, indicating that most workers agree that a stressful work environment may lead to illnesses. The remaining 10% are neutral, and 10% disagree (see Table 5)

Table 6. *Response to Question 3 – Workers' failure to comply with safety orders increases the risk of workplace accidents.*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
3.	20%	60%	15%	5%	0%

Source: Prepared by Author

Overall agreement (Agree + Strongly Agree) is 80%, indicating that respondents agree that Workers' non- compliance with safety regulations is a cause of workkplace accidents. The remaining percentages are 15% neutral and 5% disagree (see Table 6).

Table 7. *Response to the Question: Work Pressure Has Negative Effects on Workers' Health*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
4.	40%	50%	5%	5%	0%

Source: Prepared by Author

The overall agreement (Agree + Strongly Agree) is 90%, showing that most respondents agree that work pressure negatively affects workers' health. The remaining percentages are 5% neutral and 5% disagree (see Table 7).

Table 8. *Response to Question 5: Social Pressure Causes Work Accidents*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
5.	40%	35%	15%	10%	0%

Source: Prepared by Author

Overall agreement is 75%, indicating that respondents agree that social pressures contribute to work accidents. The remaining percentages are 15% neutral and 10% disagree (see Table 8).

Table 9. *Response to Question 6: First Aid Availability in the Workplace*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
6.	35%	50%	10%	5%	0%

Source: Prepared by Author

Overall agreement is 85%, indicating that the company provides first aid facilities in the workplace. The remaining responses are 10% neutral and 5% disagree (see Table 9).

Table 10. *Response to Question 7: Availability of Personal Protective Equipment (PPE)*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
7.	40%	50%	0%	10%	0%

Source: Prepared by Author

Table 10 shows that overall agreement is 90%, showing that most respondents confirm the availability of PPE. The remaining 10% disagree.

Table 11. *Response to Question 8: Availability of Warning Systems: Are warning systems available to alert workers to danger?*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
8.	50%	40%	10%	0%	0%

Source: Prepared by Author

Table 11 shows that overall agreement is 90%, indicating that workers agree that warning systems are present in the company. The remaining 10% are neutral.

Table 12. *Response to Question 9: Legislation System Covers Compensation and Worker Insurance?*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
9.	45%	40%	15%	0%	0%

Source: Prepared by Author

Overall agreement is 85%, indicating that respondents agree that the company has a legislative system covering compensation and insurance. 15% remain neutral (see Table 12).

Table 13. *Response to Question 10: The company imposes Strict Penalties for Non-compliance with Safety Measures*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
10.	35%	45%	10%	10%	0%

Source: Prepared by Author

Table 13 shows that overall agreement is 80%, indicating that most respondents agree that the company enforces strict penalties for non-compliance. The remaining 10% are neutral, and 10% disagree.

Table 14. *Average Overall Responses*

Question	Agree	Strongly Agree	Neutral	Disagree	Strongly Disagree
Average	40%	45%	10%	6%	0.5%

Source: Prepared by Author

The results show an overall agreement of 85% (Table 14), confirming that the respondents agree on issues related to occupational health and safety, which supports the first hypothesis: *there is an application of occupational health and safety management at the National Paint Company – Souk Ahras.*

4 CONCLUSION

After examining the application of occupational health and safety management in a selected Algerian economic company (National Paint Company – Souk Ahras), both theoretically and practically, it is evident that occupational health and safety management plays a crucial role in preserving production elements, especially human resources.

The study confirms the importance of occupational health and safety procedures through providing protective measures, medical care, guidance, and everything that reduces work accidents and occupational diseases.

4.1 Study Results

The study results can be summarized as follows:

- Occupational health and safety focus on protecting human resources from risks, work accidents, and occupational diseases.
- Workers in industrial settings are exposed to various physical, social, and organizational conditions, which, if unsuitable, may cause accidents and occupational diseases.
- The company organizes a dedicated health and safety management system; responsibility for safety is shared among all, not just the management. the Workers agree that Workers' failure to comply with safety regulations contributes to accidents.
- The company enforces strict penalties for non-compliance, along with laws on compensation and worker insurance, as confirmed by respondents.
- Work accidents are complex phenomena influenced by material and human factors, age, experience, etc.
- Occupational diseases occur gradually due to prolonged exposure to harmful conditions, unlike sudden accidents.

4.2 Study Recommendations

Based on the study, the following recommendations emerge:

- Provide health education for all workers and encourage adherence to occupational safety through awareness programs.
- Enforce strict penalties for violations of safety rules.

- Conduct training programs for workshop workers, who are most exposed to accidents and occupational diseases.
- Perform regular medical check-ups to detect occupational diseases early.
- Assess potential risks to prevent work accidents and occupational diseases.
- Focus on preventive maintenance to avoid conditions that may cause accidents.
- Improve working conditions, especially in workshops and elevated areas, and reduce dust exposure to limit occupational diseases.

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