# The Effect of foam Types and Occupational Health and Safety Procedures on Improving the Performance of Workers in the LPG Boycott - Bechar

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***Abstract***

*This study aims to shed light on the types of ergonomics and the extent of their contribution to improving the performance of workers in the province of liquefied petroleum gas Bashar and this is because the nature of work in the province differs between a closed space and an open one, the descriptive analytical approach was used to describe the phenomena of ergonomics and its types, occupational health and safety and the phenomenon of worker performance, and the questionnaire tool was used in order to answer a set of questions by workers, the results were that the type of Organizational ergonomics has a significant impact on improving workers' performance compared to physical and occupational safety and health dimension has an impact on improving workers' performance in terms of prevention measures and equipment and compliance with strict laws and procedures in order to preserve human and material resources.*

**Keywords:** *ergonomics, physical ergonomics, organizational ergonomics, occupational health and safety, improving worker performance.*

**JEL classification:** J28; O15.

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## 1. Introduction

Ergonomics is the medicine of the relationship between the individual and his work environment, where he has the ability to perform his tasks in the best conditions and the best cases, maintaining his mental and physical health for as long as possible, and also expresses the suitability of conditions for the individual and helping him with various tools and equipment, and improving the physical environment to provide the best.

There is also an increasing interest in organizations in the work environment in which various tasks are performed. And it has become a clear indicator of the

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individual's performance style and shows the extent of his needs, to improve and develop this performance within a work environment that carries many factors, including social, organizational, physical that affect either the positively on the performance of the individual, and among the factors helping organizations in trying to adapt the work position of workers is the types of ergonomics There are types of ergonomics that are exposed in this study to see the extent of their contribution to improving the performance of workers represented in physical ergonomics, which are concerned with all possible physical conditions in the work environment and change from one environment to another, and ergonomics Organizational that is concerned with the organizational and procedural aspect of the organization and means the organizational environment, and is also exposed to a set of occupational health and safety procedures and their ability to control the behaviour of individuals and their reactions in dangerous conditions to avoid losses and can know the level of performance of workers in the face of unusual circumstances.

### 1.1 Based on the above, the problem can be posed as follows

How do Ergonomics and occupational health and safety procedures contribute to improving the performance of workers at the Liquefied Petroleum Gas Province Naftal Establishment - Bechar?

**Study hypotheses**: For the purpose of providing answers to the problem of the study, the following basic hypotheses were determined:

**Main hypothesis**: A types of ergonomics and occupational health and safety procedures contribute to improving the performance of workers in the Naftal enterprise.

**The first sub-hypothesis**: Physical and organizational ergonomics in different conditions contribute to improving the performance of workers in the Naftal institution.

**Second sub-hypothesis**: Occupational health and safety procedures, including occupational medicine, contribute to improving the performance of workers at Naftal

The importance of the study: The importance of the study is evident in:

- Highlighting the types of foam as a field that works to achieve comfort and security for workers and its importance in improving and developing the performance of workers in organizations as a complement to other studies that dealt with other themes in different organizations;
- Highlight the set of occupational health and safety measures in maintaining workers and their mental and physical health.

Objectives of the study: The study seeks to:

- Know how the performance of workers is related to the work environment in different conditions and how adapted it is to achieve the best;
- Trying to provide a study that serves researchers and those interested in the field of human resource management, psychology, work organization, and even institutions to benefit from the outputs of the study.

### 1.2 Study Methodology

In order to test the hypotheses that try to answer the problem posed above, the descriptive approach and the analytical approach were used, which allows the definition of the types of ergonomics and the performance of workers and the nature of the relationship between them, while addressing occupational health and safety procedures and their contribution to improving the performance of workers. Rely on the questionnaire tool to collect information by answering a set of questions for the topic topics and testing research hypotheses.

**Limitations of the study:** In order to achieve the objectives of the study and address the problem, the following limits were focused:

**Objective limits:** Emphasis was placed on selected types of ergonomics (physical ergonomics, regulatory ergonomics and occupational health and safety procedures) and the worker performance variable;

**Spatial boundaries:** A national institution has been selected as the LPG County Petroleum Corporation.

**Time limits:** April 2023

## 2. Literature review

### 2.1 Previous studies

- **Study by Hana Bouhara, Lamin Wadi 2016**

The study entitled The reality of the application of ergonomics in service institutions and the role of occupational health and safety programs in the prevention of work accidents, a field exploratory study (Civil Protection Authority as a model, the state of El Tarf, aimed to know the reality of ergonomics in a service institution and reveal the importance and role of programs for the prevention of work accidents and the adoption of methods for the purpose of improving working conditions under the framework of occupational health and safety, the study adopted as an analytical descriptive approach and an interview and observation tool for the purpose of collecting information by officials and specialists in the field of Security and prevention The results concluded that the work environment in the Civil Protection Department has acceptable professional conditions in both the physical and organizational aspects and that occupational health and safety programs play an active role in reducing accidents.

- **Study by Barbora Dombekovà 2016**

This study aimed to answer the following question: Can the work environment help combat high health care costs? Is it possible to improve working environments, and thus reduce costs for companies and the state, with the help of ergonomic tools? A study was conducted in a selected company in the Czech automobile industry with the aim of answering the previous questions. An analysis was conducted of the level of health risks in the workplace. The study concluded the importance of improving the internal environment and work performance factors in a way that can provide workers

with comfort in performing their tasks and making them happy at work. Instead of resorting to absence due to health reasons that contribute to raising health care costs, the consequences of which affect the company and its profitability.

- **Study in Light, Mansour 2021**

The study aimed at the relationship of human energy engineering (ergonomics) with occupational safety and health systems and its impact on improving the performance of workers in Algerian industrial enterprises, to address the three concepts of human energy (ergonomics), occupational safety design and improving the performance of workers, where a set of agreements on occupational safety ratified by Algeria were identified, especially 155 on the security and health of workers, and 167 on security, health and construction, and Law No. 88 of January 27, 1988 on prevention, health, security and work medicine, and its texts issued on 08 In January 2005 all bodies related to occupational safety and health or health security were introduced. The results also concluded that in order to treat the problems of work accidents, it is necessary to work with the ergonomics approach of designing workplaces and its accessories with an appropriate design, then starting to practice the occupational safety approach and training workers on ways to avoid risks, in this way the performance of workers in facing risks and injuries improves with professional professionalism and high efficiency.

With regard to the current study similar to the previous second study in terms of study variables, but the difference in the method of treatment of the subject, where the previous study is a theoretical study related to how to address the problems of work accidents, while the current study was selected an economic institution to know the impact of types of ergonomics and occupational safety on the performance of workers in an applied manner.

### *2.2.1 Theoretical rooting of study variables:*

Ergonomics is one of the sciences that focuses on the mechanisms that help to improve the work environment for individuals for the purpose of matching the work position with the capabilities and skills of workers, and seeking to reduce the risk rates and the number of injuries and reduce the number of occupational diseases, which helps to improve the performance of workers in Use various work supplies and apply occupational health and safety instructions.

#### *2.2.1.1 Concept of Ergonomics and Its Types*

#### A. The concept of ergonomics

Ergonomics is considered an area of interest in the human resource based on the facilities it provides for the purpose of completing tasks safely and comfortably, many definitions of the concept of ergonomics have been presented, including:

- Jaffar2011 definition is the relationship between humans, machines, devices, work design and ergonomics (Jaffar, A.H, I.F, & N.S, 2011, p. 91);
- OSHA Academy 2017 definition: a way to design workstations, work practices and workflows to accommodate worker capabilities (OSH Academy, 2022, p. 1);
- Definition of MURREL 1949: Attempt to study and analyze work in order to adapt it to man, his abilities and skills "adapting work to man (Bakkar, 2017, p. 11);
- De Montmlin definition: It is communication technology in the form of a machine, and the system here also includes the work environment, which makes ergonomics necessarily a multidisciplinary field, and there are those who considered ergonomics as the quantitative and qualitative study of work among what it aspires to is to improve working conditions and develop the productivity of the enterprise. (Zamili and Mohsen, 2018, p. 15).
- The International Ergonomics Association (IEA, 2003) defines ergonomics (human factors) as the scientific discipline concerned with understanding interactions between humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to improve human well-being and overall system performance. Ergonomics experts contribute to the design and evaluation of tasks, jobs, products, environments, and systems to make them compatible with people's needs, capabilities, and constraints. (Cañas, Velichkovsky, & Velichkovsky, 2016, p. 2)

It can be said that ergonomics or what is also called human engineering or human energy is that science that studies the organization of work and the nature of the relationship between man and his work environment aimed at reducing psychological and physical stress and this is through coordination between the capabilities of the worker and the requirements of work.

### B. Types of ergonomics

Ergonomics are classified into several types:

- **Organizational ergonomics**: It is very concerned with the rationality of socio-technical patterns, by paying attention to the organizational structure, work rules and various procedures of its interest: communication, management of human resources, design of various new forms of work, within the framework of the interaction of all these factors, and is also interested in organizing the workshop taking into account the movement and time of the performance of workers; (Zamili and Mohsen, 2018, p. 18)
- **Physical ergonomics**: The type of ergonomics that is concerned with the anatomical, physiological, and biomechanical characteristics of the individual in his relations with physical activity, from related topics, there are working situations, physical conditions... (Al-Yazid, 2023, p. 622) Where the focus in this research paper is on the aspect of physical conditions of physical ergonomics, which has a great impact on the performance of workers, which are many and numerous, including, but

not limited to, (temperature, humidity, noise, lighting and ventilation, as it had the original aspect in building the questionnaire regarding the type of physical ergonomics.

Provide definitions of the physical conditions involved in the study, including but not limited to the following:

- **Lighting**: It is the amount of light incident at a certain distance, such as the workplace, and it is a wave that propagates at a high speed of 300,000km/s(Ashour, 2016, p. 133). Inappropriate lighting in the workplace also has varying risks that cause eye breakdown, as well as a situation where there is a lack of lighting, intense lighting or it is directly horizontal to the eye, and causes a bad psychological impact;
- Heat: It is the type of energy that causes the temperature of what the bodies reach, and the amount of heat is measured in calories, and Watson specified Thermal comfort is a mental comfort with which a person feels satisfied with the circumstances surrounding him, as the inappropriate temperature in the workplace, whether high or low, negatively affects the performance of individuals and increases their sense of discomfort, the temperature varies from place to place, that is, according to the nature of the work (Rima, 2021, p. 76) (Al-Yazid, 2023, p. 626).
- Noise: Auditory stimulus(s) that contain information unrelated to the performance or completion of the current task, and has multiple effects on alertness, attention and fatigue after completing the task (Al-Yazid, 2023, p. 626);
- Ventilation: Ventilation means introducing fresh air or expelling bad air from inside a factory. (or workplace), and the aim of providing appropriate ventilation inside the workplace is to create appropriate conditions and conditions and an atmosphere suitable for the performance of work with the necessary sufficiency while providing safety for workers inside those places, and poor ventilation leads to workers feeling sleepy, lethargic, tired and tight, as well as high temperature that is difficult for the body to reduce, which causes death(Al-Aziz and Zamoushi, 2022, p. 457) In order to match between individuals and their work, there are a number of points that should be taken into account: (Arqoub and Youssef, 2017, p. 298).

- The use of equipment (sizes, shapes, and how it fits for the event);
- Doing business and demanding personnel;
- Use of information (how information is presented and changes);
- physical environment (heat, humidity, lighting and vibrations);
- Social environment (team, administrative supervision, or administrative support).

### C. Types of ergonomics

Ergonomics was characterized by a set of goals, including:(Spring, 2006, pp. 221-222)

- Design or adapt machines, tools and tools so that they can be used in a way that increases productivity rather than fatigue;
- Arranging work tools, equipment and materials so that the worker can find them when he needs them quickly and easily without wasting time searching for them;

- Study the physical conditions suitable for work such as noise, lighting, temperature and humidity and the resulting accidents and fatigue.

*2.2.1.2 Occupational Health and Safety*

Occupational health and safety aim to ensure the maximum possible safe and healthy working environment for all employees, and this achievement of occupational health and safety by providing appropriate and safe conditions for the safe performance of tasks and the preservation of human material property,

Providing a safe work environment has become a strategic goal that all organizations seek to achieve because of its repercussions on the safety of workers and the protection of property and employers at the same time, which leads to reducing the economic and social burdens on the organization, and also reduces the psychological and physical effects to which workers are exposed, which prompted attention to the issue of occupational safety and health at the state level, represented in several forms, the most important of which is the enactment of laws and legislation that are keen to raise the level of safety and safety within Organizations. (Asfour, 2022, p. 39)

Laws and legislations work to control the be Havier of each of the organizations towards workers and control the be Havier of workers towards themselves and the direction of the organization, whenever these laws are officially applied and work to monitor the extent of their application to maintain the safety of individuals and property.

Occupational health and safety can be defined as the field that aims to protect workers from various risks associated with work and its conditions by addressing the technical or personal factors leading to these risks and improving the work environment and conditions in a way that provides the permanent enjoyment of appropriate physical, mental, psychological and social health by the worker, and it is also considered a set of procedures, rules and systems within a legislative framework aimed at preserving the human being from the risk of injury and preserving property from the risk of damage and loss (Belnour and Mansour, 2021, p. 78).

The importance of occupational health and safety is based on the total points that we summarize as follows (Hana and Lameen, 2016, p. 156):

- Reduce labor costs;
- Provide a healthy and low-risk work environment;
- Provide the appropriate working system;
- Organizing human relations between management and employees.

*2.2.1.3 Worker performance*

Worker performance is among the indicators that determine the success of organizations, which strive to improve this performance to match the requirements of the job and the physical and intellectual abilities of the individual worker.

### A. Performance concept

A set of definitions of performance have been presented, including those that serve the heart of the topic, summarized as follows:

- ❖ Carrying out the functional burdens of responsibilities and duties by the employee to achieve a specific goal Thomas Gilbert refers to the term performance and says that it is not permissible to confuse behaviour with achievement and performance Behaviour is what individuals do in the organization in which they know, while achievement is the remaining impact or results after individuals stop working, that is, it is a director or product The performance is the interaction between behaviour and achievement, that is, it is the sum of behaviour and results that Check together (Tabishat, 2016, p. 49);
- ❖ The effort exerted by an individual or group, with or without a machine, to achieve a specific goal within a certain period of time in order to provide a service or product or part thereof, this performance can be measured or judged by acceptance or rejection, and it is also defined as the work outputs provided by the employees, what they add, the quality of their relationships with others, their discipline and their commitment to regulations and instructions; (Zduri and Yourdima, 2017, p. 47).
- ❖ Performance is the extent to which an individual performs the tasks assigned to him within the organization in order to achieve its predetermined goals through three dimensions through which the individual's performance can be measured: the type of effort, the quality of the effort and the quantity of effort (Laraj and Mohammed, 2023, p. 786);

### B. Performance parameters

There are performance determinants that help to know it, especially in order to determine the nature of the work and what is required to accomplish it, which are: (Qadi and Satouri, 2020, p. 586)

- ❖ Effort: the amount of energy exerted by the worker in the performance of his work tasks, and this effort is related to the strength of motivation more than to performance and the amount of effort;
- ❖ Individual abilities and previous experience: determine the degree of effectiveness of the effort expended, as the worker who weakens his ability to work and his preparations acquired during the stages of his work and makes him make a great effort to continuous performance;
- ❖ The worker's perception of his job role includes the sum of perceptions and impressions of the behaviour and activities that make it up of how he practices his work in the organization.

### C. Steps of the performance improvement process

The performance improvement process is subject to sequential steps: (Louis R Gomez, Robert B, & David L, 2011, p. 240)

- Troubleshooting the problem of poor performance: trying to identify weaknesses in the individual that make it difficult to provide the desired performance;
- Analysis of the causes of this problem: that is, knowing what are the causes of weakness technical, physical, intellectual, organizational, social ... etc.;
- Develop an action plan and enable human resources to solve: From the standpoint of each problem a solution, suggestions and plans are sought to solve the problem and enable the individual to choose the most appropriate;
- Directing communication towards performance and providing feedback: To know the effectiveness of the chosen solution, you must communicate and follow up on the method of implementing the solution and achieving the goal of the improvement process, and exchanging information about this problem increases the strength of the solution.

## 3. Methods

### 3.1 Study Methodology:

The descriptive approach and the analytical method were relied upon as the most appropriate approach for such studies.

### 3.2 Population and sample of the study:

The community consists of individuals working in the GPL district and Bashar Agency, where 40 questionnaires were distributed and 36 questionnaires were retrieved on the basis of which the study was carried out.

### 3.3 Tools used in the study:

- **Study tool:** The topic was studied using the questionnaire and, in its analysis, the SPSS V27.0 program was relied upon in order to determine the credibility of the questionnaire and analyze it.
- **Study variables**: The questionnaire included two axes, as follows:
  - The first axis: personal information, which includes variables related to the personal and functional characteristics of the study members represented in gender, age, educational level, and professional experience.
  - **The second axis**: types of ergonomics, occupational health and safety, and worker performance.

The following table shows the questionnaire's axes and the number of questions for each axe.

**Table 1. Types of Ergonomics and Occupational Health and Safety Adopted in Worker Performance**

| Dimension | Ferry Number |
|---|---|
| Types of ergonomics: where they include<br>- **Physical dimension:** This dimension is determined by physical conditions such as lighting, heat, noise and ventilation.<br>- **After the organization of work: in this dimension, the** social and organizational environment (leadership, communication training) and physical infrastructure (design of the work site and organization of work supplies and equipment) are determined in this dimension. | From question 1 to question 15 |
| After occupational health and safety, the prevention requirements provided by the institution and the procedures followed for safety and work demand are determined | From question 16 to question 21 |
| Workers' performance is determined by the entrances to improving performance (individual, job, work environment) | From question 22 to question 27 |

*Source*: Prepared by researchers

### 3.4 Study model

The following figure represents the basic variables of the model

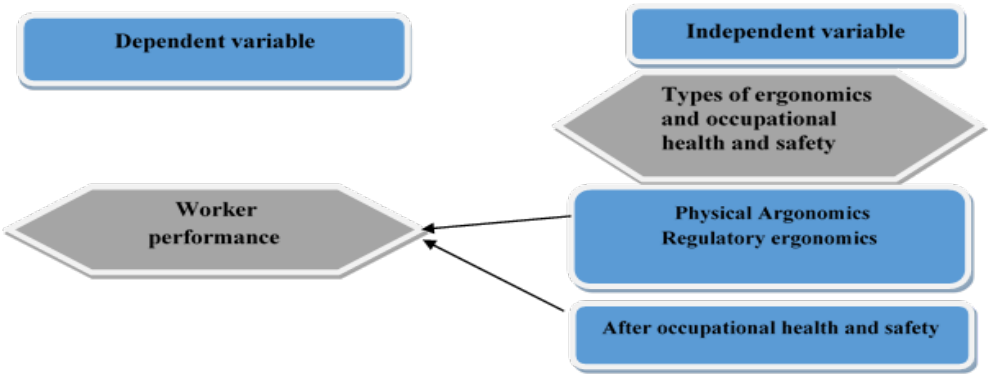


**Figure 1. Study model**
*Source*: Prepared by researchers

## 4. Results of the analysis of the validity of the questionnaire

### 4.1 Reliability Statistics

By calculating the Alpha Cronbach's coefficient, which is equal to 0.951, we notice that it is a result that indicates the consistency of the questionnaire questions

**Table 2. Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| ,951 | 32 |

*Source*: Prepared by researchers using a program SPSS V27.0

### 4.2 Questionnaire analysis

#### *4.2.1 The first axis: personal information, including variables related to the personal and functional characteristics of the study members*.

**Table 3. Results of the analysis of the variables of the first axis**

| Variables | | Iteration | Ratio |
|---|---|---|---|
| Sex | male | 35 | 97,2 |
| | female | 1 | 2,8 |
| lifetime | From 31 to 40 years old | 9 | 25,0 |
| | From 41 to 50 years | 17 | 47,2 |
| | Older than 50 years | 10 | 27,8 |
| Education level | Secondary or less | 22 | 61,1 |
| | Vocational/Technical Training Certificate | 13 | 36,1 |
| | academic | 1 | 2,8 |
| Function | frame | 1 | 2,8 |
| | Help | 35 | 97,2 |
| Professional Experience | Less than 5 years | 5 | 13,9 |
| | 6 to 10 years | 2 | 5,6 |
| | From 11 to 15 years old | 9 | 25,0 |
| | More than 15 years | 20 | 55,6 |

*Source*: Prepared by researchers using a program SPSS V27.0

From the above table, we notice that 97% of the sample, i.e. 35 out of 36 individuals surveyed are males, due to the nature of the work practiced, and we note that the largest percentage of the sample falls in the group between the ages of 41 to 50 years, reaching 47.2%, followed by the age group over 50 years by 27.8%, while the age group between 31 and 40 years reached 25% of the sample size, and with regard to the educational level, the group with a secondary educational level or less

represents 61.1% of the study sample, i.e. 22 individuals out of 36, while 36.1% of the sample size have a vocational or technical training certificate as a scientific qualification, while 2.8% Of the sample, which is represented by one individual with a university level, in addition to that 97.2% of the sample size are workers with the rank of assistant, and from the table we note that the category that has professional experience of more than 15 years represents 55.6% of the sample size, i.e. 20 individuals out of 36, while 25 % of the sample size have professional experience ranging between 11 and 15 years, and those with less than 5 years of experience reached 13. 9%, i.e., 5 individuals out of 36 individuals, while the percentage of individuals with professional experience ranging from 6 to 15 years was 5. 5%.

## 4.3. Answers of the sample of the study

### *4.3.1 Value of arithmetic averages and standard deviations of sample answers on the variable of types of ergonomics, occupational health and safety and worker performance*

From Table 4 we note that the weighted arithmetic averages for all paragraphs ranged between (2.31-3.44) and this indicates the lack of availability of types of ergonomics in the work environment according to the opinion of workers, and this is shown by the general average of each paragraph, where its value was 3.08, which made the general trend of the responses of the sample members about the types of ergonomics heading towards neutrality in answering the questions of the paragraphs of this dimension, The analysis of questions related to physical ergonomics gave a general trend of neutrality, which was explained by the weighted average of these questions, which amounted to 2.88, while it reached 3.31 for questions assigned to organizational ergonomics , which made the general trend tend to neutral. This can be explained by the lack of effect of types of ergonomics on the work environment in the organization, and this was recorded through the answers of the workers surveyed.

**Table 4. Values of arithmetic mean and standard deviations of agronomic species**

| Phrases | Strongly agree | | Agree | | Neutral | | Disagree | | Strongly disagree | | Weighted arithmetic mean | Standard deviation | Rank | General direction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Iteration | % | Iteration | % | Iteration | % | Iteration | % | Iteration | % | | | | |
| The height of the work surface is proportional to the level of vision and visibility of the work | 1 | 2,8 | 21 | 58,3 | 0 | 0 | 10 | 27,8 | 4 | 11,11 | 3,14 | 1,20 | 8 | neutral |
| The job site benefits from appropriate lighting, whether natural or artificial. | 1 | 2,8 | 24 | 66,7 | 0 | 0 | 5 | 13,9 | 6 | 16,7 | 3,25 | 1,25 | 6 | neutral |
| Means of cooling and heating at the job site are commensurate with the requirements of year-round work | 2 | 5,6 | 15 | 41,7 | 0 | 0 | 7 | 19,4 | 12 | 33,3 | 2,67 | 1,45 | 13 | neutral |
| Jobsite temperature suits work comfortably | 3 | 8,3 | 18 | 50 | 2 | 5,6 | 3 | 8,3 | 10 | 27,8 | 3,03 | 1,44 | 11 | neutral |
| Noise at the job site does not affect performance | 2 | 5,6 | 19 | 52,9 | 1 | 3,8 | 6 | 16,7 | 8 | 22,2 | 3,03 | 1,36 | 10 | neutral |
| Sound-muffling equipment and insulating walls are used on the job site to avoid noise pressure | 0 | 0 | 11 | 30,6 | 3 | 8,3 | 8 | 22,2 | 14 | 38.9 | 2,31 | 1,28 | 15 | neutral |
| The job site has air renewal and purification devices to avoid unpleasant odors and soften the atmosphere | 0 | 0 | 14 | 38,9 | 2 | 5,6 | 6 | 16,7 | 14 | 38,9 | 2,44 | 1,36 | 14 | neutral |
| Natural air inlets and exits are taken into account in the design of work sites. | 4 | 11,1 | 20 | 55,6 | 0 | 0 | 1 | 2,8 | 11 | 30,6 | 3,14 | 1,51 | 9 | neutral |
| The leader or supervisor seeks to motivate and guide workers to perform at their best | 2 | 5,6 | 24 | 66,7 | 1 | 2,8 | 2 | 5,6 | 7 | 19,4 | 3,33 | 1,29 | 5 | neutral |
| The institution is keen to have direct contact with workers by providing them with everything related to their work requirements | 4 | 11,1 | 22 | 61,1 | 0 | 0 | 3 | 8,3 | 7 | 19,4 | 3,36 | 1,36 | 3 | neutral |

| Phrases | Strongly agree | | Agree | | Neutral | | Disagree | | Strongly disagree | | Weighted arithmetic mean | Standard deviation | Rank | General direction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Iteration | % | Iteration | % | Iteration | % | Iteration | % | Iteration | % | | | | |
| The Foundation is keen to provide accurate training programs that take into account (the timing of the program, the place of training, the training needs of trainers and trainees) | 5 | 13,9 | 19 | 52,8 | 4 | 11,1 | 2 | 5,6 | 6 | 16,7 | 3,42 | 1,30 | 2 | I agree |
| The Foundation seeks to organize periodic training meetings to exchange ideas and experiences between workers and executives | 2 | 5,6 | 21 | 58,3 | 6 | 16,7 | 5 | 13,9 | 2 | 5,6 | 3,44 | 1,00 | 1 | I agree |
| The institution relies on modern methods to evaluate the performance of workers to correspond to the nature of their work | 3 | 8,3 | 18 | 50 | 7 | 19,4 | 1 | 2,8 | 7 | 19,4 | 3,25 | 1,27 | 7 | neutral |
| The institution is interested in the structural designs of work sites and the compatibility of work requirements with the physical and technical capabilities of workers | 1 | 2,8 | 24 | 66,7 | 3 | 8,3 | 2 | 5,6 | 6 | 16,7 | 3,33 | 1,20 | 4 | neutral |
| Institutional provides sanitary facilities and resting areas at work sites | 3 | 8,3 | 19 | 52,8 | 0 | 0 | 3 | 8,3 | 11 | 30,6 | 3,00 | 1,49 | 12 | neutral |
| **Weighted average of ergonomic species** | | | | | | | | | | | **3,08** | | | **neutral** |

*Source*: Prepared by researchers using a program SPSS V27.0

### *4.3.2 Value of arithmetic averages and standard deviations of sample answers on the occupational health and safety variable.*

**Table 5. Values of Arithmetic Mean and Standard Deviations of the Occupational Health and Safety Variable**

| Phrases | Strongly agree | | Agree | | Neutral | | Disagree | | Strongly disagree | | Weighted arithmetic mean | Standard deviation | Rank | General direction |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Iteration | % | Iteration | % | Iteration | % | Iteration | % | Iteration | % | | | | |
| The institution provides prevention and safety supplies according to the needs of workers, taking into account their physical measurements | 6 | 16,7 | 18 | 50 | 1 | 2,8 | 5 | 13,9 | 6 | 16,7 | 3,36 | 1,38 | 5 | neutral |
| The Foundation monitors the quality and validity of protective supplies | 5 | 13,9 | 19 | 52,8 | 1 | 2,8 | 4 | 11,1 | 7 | 19,4 | 3,31 | 1,39 | 6 | neutral |
| Signs and instructions are placed for employees regarding site safety and security | 5 | 13,9 | 24 | 66,7 | 2 | 5,6 | 2 | 5,6 | 3 | 8,3 | 3,72 | 1,06 | 2 | I agree |
| The President follows up on the extent of workers' commitment to the application of safety procedures and laws at the work site | 3 | 8,3 | 26 | 72,2 | 2 | 5,6 | 0 | 0 | 5 | 13,9 | 3,61 | 1,13 | 3 | I agree |
| The work doctor is keen to educate workers about the risks surrounding the work site | 4 | 11,1 | 22 | 61,1 | 1 | 2,8 | 5 | 13,9 | 4 | 11,1 | 3,47 | 1,21 | 4 | I agree |
| The institution is keen to conduct periodic medical examinations for workers to ensure that they are free from occupational diseases resulting from work methods | 6 | 16,7 | 23 | 63,9 | 2 | 5,6 | 4 | 11,11 | 1 | 2,8 | 3,81 | 0,95 | 1 | I agree |
| Weighted Average Occupational Health and Safety | | | | | | | | | | | 3,55 | | | I agree |

*Source*: Prepared by researchers using a program SPSS V27.0

From Table 5 we note that the weighted arithmetic averages for all paragraphs ranged between (3.31-3.81) and this indicates the availability of the health and safety dimension in the work environment according to the opinion of workers, and this is shown by the general average of each paragraph, where its value reached 3.55, which made the general trend of the responses of the sample members about the variable of occupational health and safety and its relationship to improving the performance of workers It is moving towards approval of this in their work environment in the organization.

### *4.3.3 Value of arithmetic averages and standard deviations of sample answers on the variable of worker performance.*

**Table 6. Values of arithmetic averages and standard deviations of the workers' performance dimension**

| Phrases | I strongly agree | I agree | neutral | Disagree | Strongly disagree | Weighted arithmetic mean | Standard deviation | Rank | General direction |
|---|---|---|---|---|---|---|---|---|---|
| | Iteration | Iteration | Iteration | Iteration | Iteration | | | | |
| | % | % | % | % | % | | | | |
| **Know the points of meaning and work to improve them** | 5 | 25 | 3 | 2 | 1 | 3,86 | 0,83 | 3 | I agree |
| | 13,9 | 69,4 | 8,3 | 5,6 | 2,8 | | | | |
| **I focus on and maintain the positive aspects of my performance (discipline, punctuality and compliance with labor laws)** | 9 | 22 | 0 | 2 | 3 | 3,89 | 1,12 | 2 | I agree |
| | 25 | 61,1 | 0 | 5,6 | 8,3 | | | | |
| **The institution is keen to reconcile the requirements of the work and the capabilities of the worker** | 4 | 22 | 1 | 4 | 5 | 3,44 | 1,25 | 6 | I agree |
| | 11,1 | 61,1 | 2,8 | 11,1 | 13,9 | | | | |
| **The Foundation provides facilities for the purpose of simplifying the performance of tasks** | 4 | 22 | 4 | 2 | 4 | 3,56 | 1,13 | 4 | I agree |
| | 11,1 | 61,1 | 11,1 | 5,6 | 11,1 | | | | |
| **I can adapt and adapt to changes and emergency situations in the workplace** | 5 | 22 | 2 | 2 | 5 | 3,56 | 1,23 | 5 | I agree |
| | 13,9 | 61,1 | 5,6 | 5,6 | 13,9 | | | | |
| **I seek to improve my skills and abilities at work in line with the work environment** | 8 | 25 | 1 | 1 | 1 | 4,06 | 0,79 | 1 | I agree |
| | 22,2 | 69,4 | 2,8 | 2,8 | 2,8 | | | | |
| **Average after worker performance** | | | | | | 3,73 | | | I agree |

*Source*: Prepared by researchers using a program SPSS V27.0

From Table (6) we note that the weighted arithmetic means for all paragraphs ranged between (3.44-4.06), and this indicates that the institution, according to the opinion of the sample members, seeks to develop the performance of workers during paragraph, as its value reached 3.73, which made the general trend of the respondents' responses about the workers' performance dimension. Move towards agreement in answering the questions of the paragraphs of this dimension.

### 4.4 Study the correlation and its degree between variables:

**Table 7. Pearson's coefficient of correlation between variables**

| | | Types of ergonomic | Occupational Health and Safety | Worker performance |
|---|---|---|---|---|
| Types of ergonomic | Pearson Correlation | 1 | ,792** | ,668** |
| | Sig. (2-tailed) | | ,000 | ,000 |
| Occupational Health and Safety | Pearson Correlation | ,792** | 1 | ,723** |
| | Sig. (2-tailed) | ,000 | | ,000 |
| Worker performance | Pearson Correlation | ,668** | ,723** | 1 |
| | Sig. (2-tailed) | ,000 | ,000 | |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | |

*Source*: Prepared by researchers using a program SPSS V27.0

Through the above table, we note that the correlation coefficient between the performance of workers and the types of ergonomics is 0.668, meaning that there is a correlation between them, meaning that the types of ergonomics have an impact on the performance of workers by 67%, and it is also noted through the table that there is a strong relationship between the variable of occupational health and safety and the performance of workers, as it affects by 72% the performance of workers, and this is shown by the Pearson correlation coefficient, which is equal to 0.723.

### 4.5 Test hypotheses and discuss the results of the study

The applied study hypotheses of the main hypothesis and sub-hypotheses will be tested using simple linear regression analysis based on the decision rule which states that the null hypothesis is accepted if it is α<Sig and we reject the null hypothesis if it isα>Sig. Significance level (0.05=α).

#### *4.5.1 First hypothesis*

- **H0**: There is no statistically significant effect of ergonomic types (physical, organizational) on the performance of workers in the institution under study at the level of significance (5≥α%)
- **H1**: There is a statistically significant effect of ergonomic types (physical, organizational) on the performance of workers in the institution under study at the level of significance (5≥α%)

**Table 8. Analysis of the relationship between types of ergonomics (physical, organizational) and worker performance**

| Independent variables | Correlation coefficient Worker performance | F-test model quality test | Coefficient of determination R2 | T-test | Sig | prototype |
|---|---|---|---|---|---|---|
| Dimensions of ergonomics (physical dimension, after work organization) | 0,668 | 27,330 | 0,446 | 5,228 | 0.001 | Y= (0.759) X+0.248 |

*Source*: Prepared by researchers using a program SPSS V27.0

From the table, we can see that the correlation value of i R between the types of ergonomics (physical, organizational) and the performance of workers was (0.668), which indicates a correlation between them by 67%, and the coefficient of determination R2 = (0.446) That is, 45% of the change in the improvement of workers' performance is due to the change in the types of ergonomics and the rest is due to other causes and factors. That is, there is a statistically significant effect of the types of ergonomics on improving the performance of workers so that the level of significance (sig= 0.001), which is greater than the level of significance 0.05 and therefore reject There is a statistically significant relationship between the types of ergonomics and improving the performance of workers, and the linear regression equation can be written as follows: **Y= (0.759) X+0. 248**.

### *4.5.2 Second hypothesis:*

- **H0** There is no statistically significant effect of the occupational health and safety dimension on the performance of workers in the institution under study at the significance level (5≥α%).
- **H1** There is a statistically significant effect of the occupational health and safety dimension on the performance of workers in the institution under study at the significance level (5≥α%)**.**

**Table 9. Analysis of the relationship between the occupational health and safety dimension on worker performance**

| Independent variables | Correlation coefficient Worker performance | F-test model quality test | Coefficient of determination R2 | T-test | Sig | prototype |
|---|---|---|---|---|---|---|
| After occupational health and safety | 0,723 | 37,169 | 0,522 | 6,097 | 0.001 | Y=(0.886 )X+0.246 |

*Source*: Prepared by researchers using a program SPSS V27.0

From the above table, we note that the value of the correlation i R between the dimension of occupational health and safety and the performance of workers amounted to (0.723), where it expresses a strong correlation between them, and the coefficient of determination reached (R2 = 0.522), meaning that 52% of the change in workers' performance The reason is due to the change in the dimension of occupational health and safety and the rest is due to other reasons and factors with a statistically significant impact of the dimension of occupational health and safety on the performance of workers so that the level of significance (sig =0.001), which is less than the level of significance 0.05 and therefore reject the null hypothesis and accept There is a statistically significant relationship between the dimension of occupational health and safety and the performance of workers, and the linear regression equation can be written as follows: **Y = (0.886 )X + 0.246**.

## 5. Discussion of the results and Conclusion

### 5.1 Discussion of the results

Based on the various results obtained, it can be said that the types of ergonomics, both physical and organizational, have an impact on the performance of workers, but not to the extent required, where the weighted average of the answers is very weak, and this shows that there is a lack of attention to physical conditions and organizational relations in the workplace, according to workers, although there are initiatives for management to improve the physical and organizational environment, but they are insufficient to improve workers' performance and direct it for the better.

As for occupational health and safety, we find that it has a clear impact through the direction of the answers to OK, where each of the procedures adopted by the administration of providing protective equipment and ensuring its use by workers, as there is a special aspect of work medicine that the administration emphasizes is very important in communication between workers in identifying various risks and working to avoid them, this logically leads to improving the performance of workers by avoiding all risk conditions well behaved with them to avoid accidents and injuries.

### 5.2 Conclusion

In this research paper, the focus was on the types of ergonomics represented in physical ergonomics, regulatory ergonomics, occupational health and safety and their impact on the performance of workers, and the Naftal Corporation, Liquefied Gas Province, was chosen as the field of study, where it was noted that there are two main dimensions that have an impact on improving the performance of workers, namely the dimension of organizing work represented in the nature of relations with workers, and training programs designed to improve performance, and the second dimension is the dimension of occupational health and safety and the role of the labor doctor in the institution, where the institution is keen to Enforcement and compliance with laws and regulations,

Recommendations: Some recommendations can be included that allow further improvement and development of workers within the enterprise, including:

1.Work to improve the physical conditions and the physical working environment taking into account the nature of the region;

2.Further strengthen the relationship between superiors and subordinates and open up the discussion behind the scenes;

3.Develop work mechanisms for the convenience of workers;

4.Provide protective supplies suitable for the region and working conditions;

The performance of workers is a behavior that translates into the extent of management's interest in this resource and work to improve it needs controls and conditions that must be taken into account, among these circumstances, we mention the physical and organizational conditions that express the most important types of ergonomics and the field of occupational health and safety, which aims to achieve security and safety within organizations and ensure the application of labor agreements and safety procedures to preserve the organization's property and human resource in it. Organizations must provide the appropriate environment for work and develop working methods in order to avoid accidents, injuries and even occupational diseases that are an obstacle to their success.

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