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معايير لوقاية عمال مصانع الملابس في ضوء نظم السلامة المهنية

Protection Standards for Garment Workers in light of Occupational Safety Standards

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الملخص

يعتبر قطاع صناعة الملابس من أهم القطاعات التي تعتمد على الآلات والمعدات، ولها دور حيوي في تشغيل عدد ضخم من الأيدي العاملة، وهناك العديد من الاصابات المهنية التي يتعرض لها العاملون نتيجة ظروف العمل. يهدف البحث إلى تحديد العوامل المؤثرة على صحة وأداء العامل داخل مصانع الملابس الجاهزة، وقياس مدى تطبيق نظم السلامة والصحة المهنية داخل مصانع الملابس الجاهزة. وتتضح أهمية البحث في أنه استجابة للبرنامج الوطني الإستراتيجي للسلامة والصحة المهنية كأحد مبادرات وزارة الموارد البشرية والتنمية الاجتماعية في خطة التحول الوطني (ضمن رؤية المملكة 2030)، ويسهم في توعية العاملين وأصحاب العمل حول معايير السلامة والصحة المهنية. اتبع البحث المنهج الوصفي مع الدراسة التحليلية من خلال تحليل بيئة العمل والظروف المحيطة بالعامل، واستُخدمت أداة جمع بيانات "الاستبانة"، ومن أهم نتائجه اقتراح معايير لوقاية العاملين من المخاطر المهنية والحفاظ على بيئة عمل صحية، كما أوصى البحث بتصميم برامج تدريبية للعاملين بقطاع صناعة الملابس للتدريب على مبادئ السلامة والصحة المهنية.

Abstract

Garment manufacturing is one of the significant sectors that relies heavily on machinery and equipments. It has a vital role in employing a huge number of manpower. However, Garment and textile workers are exposed to many occupational diseases and injuries due to work conditions.

The research aims to identify the reality of applying occupational safety and health requirements within garment factories and to propose protection standards to protect workers from occupational risks and to maintain a healthy work environment. The importance of the research is evident in response to the National Strategic Program for Occupational Safety and Health as one of the initiatives of the Ministry of Human Resources and Social Development of the National Transformation Plan (Saudi Vision 2030),

The research used the descriptive approach to describe and analyse the reality of occupational safety and health within the ready-made garment factories. In addition to raise awareness on Occupational Safety and Health Standards among garment workers and their employers. "Questionnaire" tool used for data collection. One of the most important results of the research is to propose standards to protect workers from occupational risks and to maintain a healthy work environment.

The research recommends designing training programs for workers in the garment industry on safety principles and occupational health.

Introduction

Raising awareness of matters related to the safety of personnel and equipment, and access to a safe work environment, can ensure workers' safety, in order for this to reflect positively on increasing production and maintain its continuity.

Human resources are the cornerstone of the development process of any society, and attention to the health and safety of the individual is one of the basic components of society as it is a basic requirement of life and human right, and the human element is the basis of human development and is the essence of any industrial facility, performance and productivity are measured. The measure of the efficiency of the human element, which allows the institution to survive and continue, and the human element is the vital resource in all sectors, and to protect human resources, a sound work environment and healthy capabilities must be provided, so that those resources enjoy all the elements of efficiency, effectiveness and productivity (Atef , 2011).

The human element is the most important and highest value among the factors of production, as it is the irreplaceable and indispensable element, so it must receive attention, care, and be preserved humanly, psychologically, and healthily.

The garment industry sector is one of the most important branches in the industrial sector and is considered one of the most important productive sectors that depend on machines and equipment, and it still has a vital role in operating a large number of manpower, and it also contributes to providing some local needs of clothing (Al-Sabiani ,2011).

Among the consequences of the mechanization of production processes, and the shift to the use of machines and equipment, especially in industrial establishments, are

work injuries, which cause losses to the human element itself, in addition to the losses borne by industrial establishments from work stoppage, and the compensation paid to the worker and his treatment expenses. Industrial establishment is characterized by the risks surrounding the human element.

In the past few years, there has been a development in both the economic and industrial field in the Kingdom, accompanied by a development in the professional field, which made equipment and machinery an essential aspect in industrial establishments, which can have many risks to the health of the human element. The report of the General Organization for Insurance revealed Social Affairs 2019 AD reported the registration of (93) deaths at work, the data of which were registered by employers in the private sector, and (119) cases of injury that were cured of one case, which requires the development of regulations related to the protection of workers and industrial facilities, protecting the human resource from occupational risks and diseases It has a positive impact on society and, consequently, the national economy (Al-Daghim,2017).

Despite the technical progress, the role of the human resource is effective in planning and implementing the activities of industrial establishments, so it is necessary to develop ways of protection for the worker and rules to maintain his safety from occupational hazards and diseases.

The diseases that a person gets as a result of their work or profession are called occupational diseases, and the injury can be a result of exposure to various harmful factors, such as: chemical factors, physical factors, biological factors, and the work environment, based on the nature of their work.

Unlike a work injury, which is usually caused by a one-time accident, occupational

diseases are usually caused by permanent and repeated exposure to the cause of the damage over a certain period of time and not momentarily.

(Quwaider,2016) defines occupational diseases as a disease that affects the health of the worker as a result of practicing a specific profession, long or short, according to the requirements of the profession and the conditions of the work environment. (Lu ,2008) stated that there are many occupational diseases that workers in the garment industry are exposed to, resulting from physical hazards, electrical hazards and mechanical hazards. Physical hazards are among the most common hazards in the garment industry. (Blash,2017) also confirmed that permanent and temporary injuries and disabilities as a result of work accidents ranging severity from minor cuts, fractures and burns to the loss of an organ or part of it. Since human health and safety are among the basics of the normal life of the individual and society, industrial facilities must create a safe working environment for workers, free from occupational injuries and diseases.

Occupational safety and health can be defined as the science that is concerned with maintaining the safety and health of the workers, by providing safe work environments free from the causes of accidents or Occupational injuries or diseases, and it is concerned with protecting workers from injuries resulting from work-related accidents.

(Madi and Al-Khatib - 2010) refers that The concept of occupational safety and health came to take care of the worker within his work environment, as it is intended to provide a safe and healthy work environment, to preserve three of the basic components of production

Elements: human, machine and material within the creation of an atmosphere of

safety and tranquility, to protect the human element from any occupational damage.

(Said, 2015) Indicates that occupational safety and health is a basic and important requirement for every industrial facility and includes two concepts, the concept of safety and the concept of health. The concept of safety means the safety of the individual from accidents and his avoidance of injury, while the concept of health means that the individual is free from physical and psychological diseases.

(Madi and Al-Khatib, 2010) explained that occupational safety and health aims to protect the elements of production, the most important of which is the human element, from injuries caused by the risks of the work Environment, and reduce the cost of productivity while increasing production, which contributes to the development of the national economy.

Occupational safety and health also aims to reduce work expenses, provide a healthy work environment and reduce risks, as well as perpetuate the human relationship between management and workers. (Salem , 2009).

There are international standards for occupational safety and health. The ISO 45001,

Occupational health and safety Management System (OH&S (which is a set of internationally agreed standards and controls to maintain occupational safety and health at work... ISO 45001 Occupational Safety and Health Management System is defined as a set of specifications and standards developed by the international ISO organization, so that institutions and companies in all their legal forms can protect their employees from work injuries and risks, in order to improve the performance of the company, employees and workers as well.

ISO 45001:2018 is applicable to any organization regardless of its size, type and activities.

It is applicable to the OH&S risks under the organization's control, taking into account factors such as the context in which the organization operates and the needs and expectations of its workers and other interested parties. (International Organization for Standardization, 2022)

(Kim&Others,2016) and (Alli,2008) concluded the importance of occupational safety and health in providing a healthy and safe work environment free from any obstacles that may cause diseases as a result of doing business on equipment and machinery in order to preserve the human element. Studies on occupational safety and health , and (Lukic & Others,2010) recommended the need to diversify the approaches to occupational health and security education within work sites, by analysing accidents and knowing their causes and ways to prevent them.

(Dunlap , 2009) recommended the necessity for workers in the industrial sector to be familiar with the culture of industrial security within the workplace through a variety of activities.

Benefits of implementing occupational safety and health standards

- Reducing work injuries and occupational diseases for workers .
- Rare accidents and disasters resulting from work in the industrial facility .
- Preserving skilled manpower, which leads to an increase Productivity and thus we get a profitable economy
- When comparing the amount spent on implementing occupational safety and health systems in the Industrial establishments with the amount that can be disbursed in the event of injuries, we find that the rate savings are high.
- By reducing accidents, we will preserve industrial facilities and reduce costs.

Providing a safe and hazard-free work environment in the industrial facility and raising the level of efficiency and means of prevention will undoubtedly lead to a reduction in injuries, occupational diseases and protection of workers from accidents, and thus reduce the number of work hours lost as a result of absence due to illness or injury. As well as reducing the costs of treatment, rehabilitation and compensation for diseases and injuries, which will be reflected in the improvement and increase in the level of work and the push of strength to the country's economy.

The National Program for Occupational Safety and Health, which is one of the programs of the Ministry of Human Resources and Social Development in the National Transformation 2020, contributes to achieving one of the strategic goals entrusted to the Ministry and seeks to provide a safe and healthy work environment. From this standpoint, the Ministry of Human Resources and Social Development seeks to promote the concept of an attractive work environment in several aspects, including occupational safety and health. Although there are organizational and oversight efforts, the effort must be doubled to contribute effectively to improving the work environment and reducing injuries. (Human Resources and Social Development,2018)

In the light with the vision of the Kingdom 2030 in the direction of the industry and its development and try to finding solutions to industrial problems From the foregoing, the researcher saw the need to identify the reality of the application of occupational safety and health requirements within the ready-made garment factories in the Makkah region in an attempt to reach proposed standards to protect workers from occupational risks.

Questions

1- To what extent do garment factories apply occupational safety and health systems?

2- What is the possibility of suggesting standards for work protection from occupational diseases?

Objectives

This research aims to understand how to make an occupational safety and health systems in the garment factories.

The objectives of this study are to

- Measuring the extent of the application of occupational safety and health systems to be followed within the ready-made garment factories in the Makkah region.

- Develop proposed standards for the protection of workers in ready-made garment factories from occupational diseases.

Importance

- In response to the National Strategic Program "for Occupational Safety and Health" as one of the initiatives of the Ministry of Labor and Social Development of the National Transformation Plan 2020 (within the Kingdom's Vision 2030), in promoting the awareness of workers and employers about occupational safety and health regulations and requirements

- Linking the scientific research with the society requirements.

- Contribute to maintaining the health and safety of the human element, which is the building block of any society.

Methodology

The research used descriptive approach and is used to describe and analyze the reality of occupational safety and health within the ready-made garment factories in Makkah Al-Mukarramah region, in an attempt to develop proposed standards to preserve the health and safety of the worker.

Research tools

- The questionnaire to garment factories

Applied study

Questionnaire

The researcher prepared a questionnaire consisting of four main axes, which are the axes that affect the worker's performance and may be an influential factor in his injury to occupational diseases, whether in the short or long term, and may also be the cause of some work accidents, and the axes were as follows:

-The physical conditions of the work environment

-Workplace design

-Equipment and machines

-Occupational safety and health procedure

Field Trip

6 factories for ready-made garments were visited in Makkah Al-Mukarramah and Taif, and an interview was conducted with experts, which exceeded 7 years of work in the same factory, with the aim of determining the factors affecting the worker inside the ready-made garment factories, measuring the extent of application of occupational safety and health systems and trying Reaching to proposed standards to

protect workers from occupational hazards.

It was taken into account that determining the factories that the activity should be unified, as the production was based on (the abaya - the uniform) and the number of workers falls within the average range, so that the number of workers ranges between (50:60) workers.

The questionnaire was answered by the head of the department, worker supervisors, quality controllers and safety officials inside the factories. This was done in light of the nature of each factory, the number of the sample was 48 workers

Result

1. Through the application of the questionnaire within a group of ready-made garment factories in Makkah Al-Mukarramah, a set of results was reached regarding the factors affecting the worker inside the factory

Table No. (1) Shows the physical factors that affect the worker within the work environment, namely (lighting - noise - ventilation - temperature).

"Table 1: "physical factors of the work environment

items		AGREE		MAY BE		DISAGREE		TOTAL
		Frequency	Ratio	Frequency	Ratio	Frequency	Ratio	
Lighting								
1	natural lighting is enough					6	100%	6
2	artificial lighting is suitable			4	66.67%	2	33.33%	6
3	illumination is sufficient for the space	4	66.67%	2	33.33%			6
4	The distribution of lighting within the place is appropriate	2	33.33%	4	66.67%			6

5	illumination is constant throughout the day	6	100%					6
Noise								
6	Noise level is high	2	33.33%	2	33.33%	2	33.33%	6
7	noise reduces the worker's ability to focus	4	66.67%	1	16.67%	1	16.67%	6
8	noise affects the audito-ry ability of the worker	3	50%			3	50%	6
Ventilation								
9	There are adequate ventilation facilities for the nature of the work	1	16.67%	1	16.67%	4	66.67%	6
10	The ventilation holes are well distributed			2	33.33%	4	66.67%	6
11	Ventilation means suf-ficient number for the area of the cutting hall			2	33.33%	4	66.67%	6
12	Workers suffer from suffocation as a result of the surrounding conditions	5	83,33%	1	16.67%			6
Temperature								
13	suitable temperature			4	66.67%	2	33.33%	6
14	Adequate humidity			4	66.67%	2	33.33%	6
15	High temperature af-fects working perfor-mance			6	100%			6

In table 1 the importance of environmental conditions can be seen. Experts agreed that the first factor that deals with lighting, natural lighting is not sufficient by 100%, and 66.67% agreed on the sufficiency of artificial lighting alone, and 66.67% agreed that the degree of illumination is sufficient As for the work area, the same percentage agreed that the distribution of lighting within the place is appropriate to some extent, and the

item that the degree of illumination is constant throughout the day got 100%.

The second factor deals with noise, so the ratios are equal about the high percentage of noise, While 66.67% agreed that noise decreases the worker's ability to focus, and the ratios are equal Between those who see that noise affects the Hearing ability and those who see it do not affect it.The third factor, which includes the ventilation of the workplace, 66.67% of the experts agreed that The means of ventilation need to be redistributed and increased air outlets to match the area of the

Work environment, while 83, 33% Confirmed that they do not get to the stage of suffocation During work performance.As for the fourth factor, which includes workplace temperature, the experts emphasized that The temperature and humidity are appropriate to some extent in the workplace, and this came By 66.67%, and 100% agreed that the increase in temperature affects to some extent the Work performance.

Table No. (2) Shows the factors related to the design of the workplace, whether it is standing work or sitting work, According to the principles of ergonomics.

Table 2: "Workplace Design "

items		AGREE		MAY BE		DISAGREE		TOTAL
		Frequency	Ratio	Frequency	Ratio	Frequency	Ratio	
1	The height of the workplace is appro-priate in relation to the height of the worker	4	66.67%	2	33.33%			6
2	Workplace space suitable for work performance	3	50%	2	33.33%	1	16.67%	6
3	Work table height can be adjusted			1	16.67%	5	83,33%	6

4	There is a footrest installed on the table in the case of sitting work	1	16.67%	1	16.67%	4	66.67%	6
5	There is a chair to sit on during rest periods in the case of standing work	6	100%					6
6	The floor of the work-place is made of flexible material in the case of standing work			3	50%	3	50%	6
7	The workbench is stacked with used and unused equipment and tools			2	33.33%	4	66.67%	6
8	There is a suitable space for the movement of the worker while working	4	66.67%	2	33.33%			6

In table 2 the design of the workplace can be viewed, which shows the difference of opinions between the appropriateness of the workplace in terms of standing and seated work according to ergonomics, so 66.67% agreed that the height of the workplace is appropriate in relation to the length of the worker, and that there is an appropriate space for the worker during movement. While 50% agreed that the workplace space is suitable for performing work, 83.33% confirmed that the work table cannot be modified to suit the movement of the worker's hand, and the percentage of answers about the existence of a flexible floor and a footrest ranged between suitable and appropriate to some extent, and the opinions were 100% agreed on the presence of a chair to sit on for rest periods in the case of work Standing.

Table No. (3) Shows the factors related to equipment and machines inside ready-made garment factories that affect the worker's safety within the work environment.

Table 3:"Equipment and Machines"

items		AGREE		MAY BE		DISAGREE		TOTAL
		Frequency	Ratio	Frequency	Ratio	Frequency	Ratio	
1	Machines are regularly maintained	6	100%					
2	Machine failures are frequent			3	50%	3	50%	6
3	The machines used have safety elements	2	33.33%	2	33.33%	2	33.33%	6
4	There are safety instructions on the machine	4	66.67%	2	33.33%			6
5	Training in the use of new machines	5	83,33%	1	16.67%			6
6	New workers are instructed to work on machines that match their physical abilities	2	33.33%	4	66.67%			6
7	The worker is forced to work overtime					6	100%	6
8	The worker is exposed to frequent injuries while working			1	16.67%	5	83,33%	6

In table 3 the equipment and machines inside the workplace is seen, where the opinions were unanimous by 100% on the existence of periodic maintenance of machines, while opinions were divided in terms of the frequency of machine failures between agreeing and agreeing to some extent, and the ratios were equal between Agree, Agree to some extent, and disagree about the availability of safety elements in equipment and machines, and 83.33% agreed that workers should be trained to use the new machines, and 66.67% agreed that to some extent new workers are directed to work on machines commensurate with their physical abilities. While 100% agreed that no workers were forced to work for additional periods, and 83,33% were unanimously agreed that the worker was exposed to repeated injuries.

Table No. (4) Shows the Factors which related to occupational safety and health procedures inside the factory that affect the health and safety of the worker and protect him from diseases and injuries resulting from work performance.

Table 4: "occupational safety and health procedures inside the factory"

items		AGREE		MAY BE		DISAGREE		TO-TAL
		Frequency	Ratio	Frequen-cy	Ratio	Frequency	Ratio	
1	Within the factory, there are bodies competent to monitor the work of industrial safety and occupational health	1	16.67%	2	33.33%	3	50%	6
2	The authorities con-cerned with industrial safety and occupational health are trained and qualified in this field	1	16.67%	2	33.33%	3	50%	6

3	There are procedures and means adopted by the factory to reduce work accidents	4	66.67%	2	33.33%			6
4	In the workplace, there are advertisements and posters for industrial safety and occupational health	2	33.33%	4	66.67%			6
5	The Department of Industrial Safety and Occupational Health encourages workers to participate in decisions that affect their safety	3	50%	3	50%			6
6	Workers have full knowledge and sufficient knowledge of industrial safety and occupational health instructions and procedures	5	83,33%	1	16.67%			6
7	Workers always abide by the instructions issued by the work supervisors			3	50%	3	50%	6
8	Workers always use the means of protection and personal protection while working	2	33.33%	3	50%	1	16.67%	6
9	Organizing workshops and training courses on a regular basis	4	66.67%	2	33.33%			6
10	Developing systems and laws related to industrial safety and occupational health, leading to a reduction in work accidents	6	100%					6

In table 4 occupational safety and health procedures inside the factory is viewed, 66.67% unanimously agreed that there is a set of procedures and means adopted by the factory to reduce work accidents, and the same percentage agreed on the existence of workshops and training courses on a regular basis, and the whole 83.33% that workers are aware of and know the principles of safety and industrial security, 100% agreed that the continuous development of industrial safety and occupational health systems and laws reduces work accidents, while it is clear from the table that workers need more commitment to the supervisor's instructions and the need to wear protective clothing and personal protection tools, and 50% believe that the competent authorities in safety Industrial and occupational health need more training.

2. through the above, proposed standards can be developed to protect workers in ready-made garment factories from occupational diseases, as follows:

Through field visits to clothing factories, and through interviews with experts and specialists, a set of criteria was reached to ensure the safety of the worker from diseases resulting from the working conditions and environment (occupational diseases).

Standards related to the physical conditions of the work environment

• Taking into account that the workplace temperature does not exceed 29.4 degrees Celsius, and

The humidity does not exceed 30%

• Taking into account that the intensity of illumination ranges between 500 - 1000 lux at a height Of 2 meters from the work surface

• Taking into account the use of natural and artificial lighting together and the

distribution of Lighting so that it is homogeneous and directed to the work area

• Taking into account that noise exceeding 90 decibels should not be exposed for 8 hours continuously

• There should be adequate ventilation for the work space

• The use of natural ventilation in addition to cooling devices to reduce the heat generated

From operating equipment and machinery

Standards related to the design of the workplace

- To ensure the safety of the worker while performing standing work (cloth cutting stage - ironing stage)

• The distance between the feet should be 20:30 cm to achieve balance

• The height of the table should be 5 to 10 cm less than the worker's elbow

• Taking into account the availability of 10 m^3of movement space around the worker

• Using a footrest to switch feet and transfer body weight between the feet

• Having a chair to sit on intermittently during work

• The floor should be made of a flexible material

- To ensure the safety of the worker while performing the sitting work (sewing - packaging)

• Avoid sudden body movement

• Do exercises every 45 minutes for the neck and hands

• The rotation of the neck does not exceed an angle of 40 degrees to the right or left the forward and backward curvature of the neck is less than 30 degrees Work periods of no more than two continuous hours with 15 minutes of rest.

Standards related to equipment and machines

• To carry out periodic maintenance on equipment and machines so as not to cause dangers to the worker

• That the machine not be used after the end of its useful life

• That all safety instructions be written in dealing with the machine

• That the worker be trained on the machine used for a sufficient period

• To take into account the electricity connections so that they are far from the worker's movement area

• The worker is obligated to wear protective clothing (face shield - hand guard - head protection

Device for warehouse workers)

• The shearing and sewing worker must wear appropriate shoes with standing intervals

Standards related to occupational safety and health procedures inside the factory

• To carry out checks on workers periodically

• That a trained committee for occupational safety and health be formed within the garment factory

• To put indicative posters on evacuation methods and follow safety procedures

Training the worker on the use of protective and safety equipment and evacuation methods

• Continuously ensuring the safety of fire extinguishers and alarms

• There are strict procedures that obligate the worker to use protective equipment

• The presence of a medical room ready to receive any emergency case of an

injured worker

This is in accordance with the occupational safety and health management regulation issued by the Ministry of Human Resources and Social Development , which includes the occupational safety and health policy for medium-sized establishments employing fifty workers or more, which aims to raise awareness of the importance of occupational safety and health in enhancing the attractiveness of work, by spreading the culture of prevention and promoting the importance of Applying occupational safety and health systems, principles and practices, developing national legislation in the field of occupational safety and health, and motivating employers and workers to create an attractive, safe and healthy work environment. It also aims to strengthen the role of the Occupational Safety and Health Department in the workplace, and transfer successful practical experiences and practices in the field of occupational safety and health, in addition to benefiting from local and international expertise to raise the level of occupational safety and health standards. (Human Resources and Social Development,2018)

Conclusion

There are four standards that affect the safety of the workers and may cause them various occupational diseases as a result of non-compliance with their proper application, which are:

- The physical conditions of the work environment (lighting - noise - ventilation - temperature)
- Design of the workplace (in the case of standing work - in the case of sitting work)
- Equipment and machines (maintenance - training)

• Occupational safety and health procedures (occupational safety committee - use of protective equipment - training).

Recommendations

• Organizing the workplace in the ready-made garment factory halls according to ergonomic rules to avoid Occupational Diseases resulting from the disorganization of the workplace.

• Designing training programs for workers in the garment industry for training on safety principles

And occupational health.

• Developing security and safety systems in ready-made garment factories.

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