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HUMAN ENGINEERING AND ITS ROLE IN REDUCING JOB STRESS FOR EMPLOYEES OF YOUTH AND SPORTS FORUMS IN SALADIN GOVERNORATE

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Abstract:

The research aimed to Building a human engineering scale for employees of youth and sports forums in Salah al-Din Governorate. Building a measure of job stress for employees of youth and sports forums in Salah al-Din Governorate. Identify the statistical differences between human engineering and job stress for employees of youth and sports forums in Salah al-Din Governorate. The research community was represented by employees of youth and sports forums in Salah al-Din Governorate, who numbered (208) employees who were chosen intentionally, while the application sample amounted to (135) employees. In order to achieve the research objectives, two scales of human engineering and job stress were built by following the steps and procedures for constructing standards and processing data. By using the Statistical Package for Social Sciences (SPSS).

The researcher reached a set of conclusions, including the human engineering scale that was built by researcher Saleh to measure the human engineering of employees of youth and sports forums in Salah al-Din Governorate. The job stress scale was built by researcher Saleh to measure the job stress for employees of youth and sports forums in Salah al-Din Governorate.

Keywords: Ergonomics, job stress, youth and sports forum.

The Introduction

Management is one of the important elements of the process of development and growth within the executive framework of the state because of its major role, as the work of institutions with different specializations is based on it, as members of one institution interact through it to achieve goals. There is no doubt that sports management is one of the important and difficult functions in any society. It aims to care for the most important segment in any country, namely the youth. Its importance and difficulty come from the fact that it is an organized process that includes planning, organizing, directing and controlling all aspects of work in sports institutions and organizations, as sports are not limited to the physical and skill aspects only, but rather it is an administrative system that requires multiple skills and sciences to achieve success. Objectives: Sports administration combines general administration and sports sciences to lead sports institutions and organizations towards success. It depends mainly on workers, including leaders, employees and supervisors, in all its fields. Therefore, sports institutions and organizations seek to create an appropriate and good work environment to influence the behavior of employees positively in order to increase Their productivity in a way that meets its ambitions and goals in winning over young people in the first place, and through this it can achieve success and prosperity. Human engineering is a scientific methodology that

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contributes to achieving this, as it is a relatively modern science that studies and evaluates the work environment and makes work comfortable and safe.

Research problem:

Job stress is one of the problems facing the employees of youth and sports forums in Salah al-Din Governorate. Job stress is one of the issues that have accompanied humans since their existence, and any work done by humans is a source of great concern in terms of social and economic challenges, which are considered among the important topics of interest to researchers. Of various types, in order to identify the factors and indicators that led to their occurrence, determine their results, how to deal with them, and limit their repercussions. Through field visits conducted by the researcher and his meetings with many employees of the Youth and Sports Forums in Salah al-Din Governorate, as employees of one of the institutions that are exposed to pressure, he noticed that most of the employees They are exposed to many job pressures during work, which may greatly affect the roles they undertake in their field of work and jobs. Some of them may even become frustrated, which prompted the researcher to try to address these job pressures and find out the reasons that led to this and how to deal with them and find The appropriate solutions are through the following question:

- Does human engineering have a relationship with job stress among employees of youth and sports forums in Salah al-Din Governorate?

Research aims:

- 1. Building a human engineering scale for employees of youth and sports forums in Salah al-Din Governorate.
- 2. Building a measure of job stress for employees of youth and sports forums in Salah al-Din Governorate.
- 3. Identify the statistical differences between human engineering and job stress for employees of youth and sports forums in Salah al-Din Governorate.

Research hypotheses:

- 1. Availability of the dimensions of the human engineering scale for employees of youth and sports forums in Salah al-Din Governorate.
- 2. Availability of the dimensions of the job stress scale for employees of youth and sports forums in Salah al-Din Governorate.
- 3. There are statistically significant differences between human engineering and job stress for employees of youth and sports forums in Salah al-Din Governorate.

Research areas:

- 1. Human field: Employees of youth and sports forums in Saladin Governorate for the year 2023-2024.
- 2. Time frame: from 9/13/2023 until 3/25/2024
- 3. Spatial domain: Youth and sports forums in Salah al-Din Governorate.

The first topic **Human** engineering

Human engineering concept:

Ergonomics is one of the modern sciences that is concerned with the human element and the comfort of workers at work. This term has been associated with many fields and various specializations, and researchers have only rarely touched on it in the mathematical aspect.

Human engineering means the science of work, and it is derived from two Greek words, the first of which is (ergon), meaning work, and (nomos), the natural laws. There are many definitions for this term, as (Adams, 2018) defined human engineering as human factors and the engineering of these factors represented by tools that are comfortable, easy to use, and well placed. Good use of electronic devices and others. () Jalal

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Muhammad Al Nuaimi defined it as the curriculum that is concerned with studying the relationship between the individual and his work environment for the purpose of arriving at ways and methods by which the individual can perform work with high efficiency and reduce the cases of fatigue and stress to which the individual is exposed during his work by finding... The means that lead to this reduction.() It was defined by (Jomaa, et al., 2019) "It is an entry point to designing work materially and morally in accordance with the workers and their abilities and physical, mental, and cognitive characteristics to achieve the functional and emotional well-being of the workers."() As seen by (Abbas, and Shiaa, 2019).) The science of human engineering is based on evaluating and designing machines, equipment, tasks, procedures and processes to comply with the needs, characteristics and specifications of workers.()

(Dima Mithqal, 2019) defines human engineering as the science that focuses on the interaction between human resources and their physical characteristics and the work environment and the procedures, rules, processes, tools and environmental factors it contains, with the aim of creating integration and harmonization between them to create a safe and healthy work environment free of damage, injuries and accidents. Contributing to achieving the organization's goals and enhancing its competitive capabilities.

(Thatcher, Waterson, Todd & Moray, 2018) defined ergonomics as how to make the place designated for work safe, comfortable, and productive by creating behavioral change in individuals and making them adhere to the rules and principles related to occupational health and safety in performing tasks. ()

(Mahmoud, 2013) defined human engineering as a science that is concerned with human needs, characteristics, and the human characteristics that must be known in order to prepare engineering design, which is concerned with designing tools, machines, and tasks to suit the human element. Through previous studies, the researcher sees that ergonomics is the precise scientific thinking and planning in an organization, which makes the work environment safe, comfortable, and free of harm and negative outcomes, which contributes significantly to achieving the goals of organizations and enhances competitiveness through behavioral change among individuals, which makes them adhere to the rules and principles that Health and safety relate to the performance of work tasks.

The importance of ergonomics:

Human engineering is of great importance in sustainability issues, as it addresses and maintains these issues through the awareness of the creative individual, whereby we reach the design and operation of systems and processes in an effective and sound manner. It also increases the flexibility of the organization so that this organization has the ability to face all the challenges and changes that may occur during work. It works to prevent all work accidents through study and analysis of the causes of previous injuries. It also helps in arriving at new methods and methods such as training programs and the design of modern and advanced technology (1). It leads to raising production efficiency, lowering the cost of training, reducing stress, and improving performance. Feeling safe for individuals working in the organization and ensuring health and safety for them, as well as reducing wasted time, absences and vacations, and preserving the amount of human energy consumption. (2)

Ergonomics objectives:

It aims to maintain and improve health and safety, as well as achieve effectiveness in the design of machines, equipment and tools in a way that ensures improved performance for the individual through an increase in performance speed, accuracy, security and safety, reduces human energy consumption, also reduces training costs, human stress and work accidents, improves comfort indicators and increases satisfaction. Among individuals working to perform their work in institutions. (3)

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(Abdel Baqi, Omar, 2019) stated that the main goal of human engineering is to improve health, provide safety, and ensure the effectiveness of the design of equipment and tools. (4)

(Akbarietall, 2021) added that it aims to improve and develop the elimination of tasks that cause work risks and the design of equipment in a way that makes work productivity better than before without increasing work time.(5)

(Mohamed Shehata Rabie, 2006) states that the general goals of human engineering can be summarized as follows: (6)

- Working to improve work methods, that is, changing them so that they are suitable for the worker by analyzing the work, eliminating unnecessary movements, and measuring the time each movement takes separately.
- Work on studying the appropriate physical conditions, including (noise, lighting, temperature and humidity) and the resulting accidents and fatigue.
- Detecting the body positions that the worker can take while working.
- Work on machines and tools and adapt them so that they can be used in a way that increases productivity without increasing fatigue.
- Work to arrange work tools, equipment, and materials so that the worker can find them quickly and easily when he needs them, without wasting time searching for them.

The second topic Theoretical framework of job stress

The concept of job stress:

Job stress is one of the important topics that is still the focus of attention for many researchers specializing in management and science in general. Therefore, the definition of job stress cannot be limited to one definition. Some researchers focused on the psychological aspects, others focused on the social and individual aspects, and others focused on the organizational aspects. Some point out that the concept of work stress refers to a set of situations or disturbances to which an individual is exposed in his field of work, which lead to physical or psychological changes as a result of the actual reactions to confront them. These situations may have a large degree of negative impact, leading to exhaustion, fatigue, and anxiety, thus generating some discomfort. And psychological pressure.(1)

Therefore, some have defined work or job stress as (part of the physical and psychological work environment, which is considered one of the sources that cause many accidents and various work diseases. Some of these diseases are physical and some are psychological, so that their effects are negatively reflected on individuals and organizations.)

He defined work or job stress as "a fragmentation of self that occurs in an individual, causing psychological imbalance such as tension or frustration, or physical imbalance such as rapid heartbeat or high blood pressure." (2)

It is also defined as "the activity, skill, or effort exerted by the employee, whether this effort is muscular or intellectual, in order to complete the job tasks assigned to him." (3)

The job stress that employees are exposed to is one of the main topics that researchers and thinkers in the field of work focus on, as it affects people's behaviors, attitudes, and performance at work. On the one hand, it may make them feel anxious and stressed, which is reflected in their physical and psychological state, and thus in the performance of their tasks, work, and relationships with others. Negatively, and on the other hand, it may be reflected positively, as it becomes an incentive and motivation for individuals to improve and develop their performance and provide their best at work, and this is what most organizations are looking for.⁽⁴⁾

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It is also known as "a group of interactions between an individual and an environment that causes an unpleasant emotional or emotional state such as tension and anxiety." (5)

Through the previous definitions, job stress can be defined as the physical or psychological effort that affects the behavior of individuals, and this effort came as a result of the increase in work requirements that exceed the ability and capabilities of individuals, whether physical, psychological, material, or social, which causes a failure to adapt to the work assigned to them and thus affects the work assigned to them. Their achievement and inclinations.

Theories explaining job stress:

1- Scientific Management Theory:

Scientific management theory appeared in light of the conditions that American organizations were experiencing at the time, which were characterized by growth in size and increased production with the emergence of the need to increase the efficiency of workers in order to achieve the maximum possible economic return for the owners of the organizations, and Taylor considers (1856-1917) Pioneer and founder of scientific management. Taylor was the starting point in organizing scientific management thought, and this is what the majority of scientific management writers agreed upon. The scientific management movement had an impact in directing attention to the importance of studying management scientifically while avoiding guesswork and trial and error. Taylor assumed that the productivity of workers could be increased through a scientific approach to management that aims to develop the ability of supervisors to direct and support workers while providing appropriate incentives to workers in order to encourage them to increase production. He also stressed the importance of the concept of division of labor and specialization, as increasing the efficiency of workers is achieved through division of the job. One division is divided into a group of departments, and the starting point in the management movement is that the work carried out by the employee or worker is subjected to a careful analysis of all its components, with studies being carried out on the component parts of these works. The appropriate individuals for the type of work were selected and then trained to obtain the fair amount of work. Work according to their belief, while developing incentive plans for wages in order to encourage individuals to reach objective standards of production. Taylor divided the work into administrative work and the other executive work, so that planning is within the jurisdiction of administrators while workers focus on implementation. This is for every manager, worker and official, and the basic principles of management can be summarized.

- Dividing the work and determining it quantitatively / that is, distributing the work among the number of workers to achieve the highest level of simplification of work and effectiveness in performance.
- The selection of workers shall be consistent with the requirements and requirements of the work he performs.
- The daily financial reward for the worker as a material incentive for the workers to achieve their compliance with the performance order.
- Training workers to perform their work according to what is required by work analysis plans and direct monitoring of workers and how they perform work by supervisors and work managers.

It is clear from the above that Frederick Taylor's attempts to achieve the creation of material and organizational conditions that would increase the worker's efficiency by paying attention to work in terms of achievement, implementation and continuous monitoring, but the theory paid its attention to the nature of the organizational structure and reliance on other aspects such as moral incentives, and these principles What it came up with is not suitable for every time and place due to renewed changes and transformations. Taylor's theory is a purely economic theory, as man is merely an economic machine that seeks to regulate economic returns.

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2- Human Relations Theory:

This theory focused on humans directly. The pioneer of this theory was Elton Mayo and his colleagues, who saw that human problems had become a broad field of study and an opportunity for progress. Elton Mayo is considered the spiritual father of this theory, and it was later known as human relations and organizational behavior. He was keen to increase Productivity. This theory assumed that man is a social creature who seeks to establish relationships with others, and that the best social human trait is cooperation. Accordingly, it was reflected in how human behavior is interpreted, predicted, and controlled in the theory of human relations. The Hawthorne experiments began to focus on studying the effect of physical working conditions, rest periods, and the effect of changing the level of wages on increasing production, as they are major determinants of organizational behavior. The results indicated that workers' production did not change with changes in these factors, but rather the results were relatively stable with little change. Despite the change in temperature as well as in the level of wages, these results prompted the researchers to find an explanation for them, so they went to the workers themselves and conducted interviews, adopting the method of observation and direct observation of the collective behavior of the workers in their positions without the presence of supervisors, relying on the workers' self-monitoring. One of the most important conclusions is that the physical ability of the worker is not considered the main determinant of his production, but rather there are determinants represented in the management of the group to which the worker belongs, his morale and social background, and that administrative leadership has a major role in influencing groups and the behavior of their members collectively and individually. Informal organizations are also considered a means of organizing. It helps in achieving management goals because it is considered a means of participation, and it also has an important impact on the behavior of workers and thus on the level of production. Workers face management policies as groups, that is, there are social pressures on the individual that come from the standards that govern the group. Therefore, work pressures can have positive and negative effects, so the organization must exploit them to its advantage in order to foster creativity, develop the capacity of human resources, and maintain these pressures at acceptable levels to avoid negative effects that may affect the organization. Addressing work stress begins with management's awareness of the requirements of employees as human beings who have their own needs that they work to meet from the organization in which they work.

The third topic The applied aspect of the study

Application sample:

The researcher selected the application sample (135) employees working in youth and sports forums in Salah al-Din Governorate for the year (2023-2024), with a percentage of (64.90%) of the total research community, where the application sample was distributed to (16) forums out of a total of (17) forums, and the table (3) shows this. The exploratory sample was (35) employees, representing (16.82%) of the research community. (38) employees, constituting (18.26%) of the total research community, were excluded due to the inability to reach them, and some were unable to enter the form. Electronic data due to their lack of knowledge in using the Internet and do not have sufficient experience in using modern technology to access the electronic form. In addition, the sample percentage is sufficient for the study.

Administrative procedures:

The researcher obtained an assignment facilitation letter from the College of Physical Education and Sports Sciences at Tikrit University, addressed to the Salah al-Din Youth and Sports Directorate, for the purpose of providing the researcher with the final numbers of youth and sports employees and forums in the governorate

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for the year (2023-2024), as shown in Appendix (1-A). And (1-B) the number of forums was obtained as (17) forums, and the number of employees of youth and sports forums in Salah al-Din Governorate was (208) employees.

Data collection methods

In order to achieve the objectives of the current research, I relied on the following tools in the process of collecting data and information:

The research relied on the contributions of a group of foreign and Arab literature, books, periodicals, theses, university dissertations, research and scientific studies related to the subject, as well as using the services of the World Wide Information Network (the Internet).

3-5 Field research procedures: To prepare the field aspect of the research, we relied on a questionnaire form. In covering the field aspect of the study, the researcher relied on the questionnaire as a tool for collecting data and information, in order to reach the research objectives, as the researcher built a scale (human engineering) and built a scale (Job stress) The initial model was presented to a number of experts to learn about their observations and make the necessary modifications to it. The statements for each variable were formulated in a way that gives the possibility of answering them by the members of the sample studied. The researcher adopted a five-point Likert scale to measure the answers of the sample members, and it includes a form The questionnaire has several dimensions.

3-5-1 Ergonomic scale:

Due to the lack of a tool to measure human engineering for employees of youth and sports forums in Salah al-Din Governorate, the researcher will build a human engineering scale, as (Muhammad Khair al-Din) (quoted) indicates that the process of building the scale goes through several stages, which are: Allen about (

That covers his phrases. -Planning the scale by specifying the dimensions

- -Formulate statements for each dimension.
- -Applying the statements to a representative sample of the research community.
- Conduct an analysis of the scale statements.
- Determine the goal of the scale by filling the deficit to measure the phenomenon, as well as diagnosis, evaluation, and testing hypotheses, as follows.

Testing research hypotheses:

Testing the first hypothesis, which states: (Availability of dimensions of the human engineering scale for employees of youth and sports forums in Salah al-Din Governorate).

By presenting, analyzing and discussing the results of the dimensions of the human engineering variable with its dimensions (physical, work location, mental abilities, organizational, information) in tables (19-23) by taking the arithmetic mean, the standard deviation, the degree of agreement, and the relative importance of the expressions for each dimension of the variable, it becomes clear that there are dimensions The ergonomics scale for employees of youth and sports forums in Saladin Governorate, which leads to accepting the hypothesis of the first study, which states (availability of the dimensions of the ergonomics scale for employees of youth and sports forums in Saladin Governorate).

Testing the second hypothesis, which states: (Availability of the dimensions of the job stress scale for employees of youth and sports forums in Salah al-Din Governorate).

By presenting, analyzing and discussing the results of the dimensions of the job stress variable with its dimensions (role ambiguity, role burden, role conflict, nature of work) in tables (24-27) by taking the arithmetic mean, the standard deviation, the degree of agreement, and the relative importance of the expressions for each dimension of the variable, it becomes clear that there are dimensions The job stress scale

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for employees of youth and sports forums in Salah al-Din Governorate, which leads to accepting the main study hypothesis, which states (the availability of the dimensions of the job stress scale for employees of youth and sports forums in Salah al-Din Governorate).

Testing the third hypothesis, which states: (There are statistically significant differences between human engineering and job stress for employees of youth and sports forums in Salah al-Din Governorate).

For the purpose of testing the third hypothesis, the study used one way ANOVA using the SPSS program to clarify the significance of the differences for the study population in the direction of ergonomics and job stress, as shown in Table (1):

Table (1) Results of the analysis of variance test for the study population, ergonomics orientation and job stress

011000						
			Degrees of			
		Sum of squares	freedom	Mean squares	F	Sig.
Human engineering	Between groups	50.292	78	.645	12.660	.000
	Within groups	2.852	56	.051		
	the total	53.144	134			
Job stress	Between groups	28.914	78	.371	5.621	.000
	Within groups	3.693	56	.066		
	the total	32.607	134			

Source: Prepared by the researcher based on the outputs of the SPSS V program 27

The results of Table (28) reveal the presence of significant differences at the level of (0.01) according to the results of the calculated (F) values, which the program compares directly with the tabular (F) results, as shown in the significance field (Sig.) for each of the engineering Human and job pressures, and this means that these variables were different between the basic groups of the study sample within the youth and sports forums in Salah al-Din Governorate, as it appeared that the value of (F) reached (12.660, 5.621), respectively, and it is statistically significant at a significance level (0.01). Which leads to accepting the third hypothesis, which states (there are statistically significant differences between human engineering and job stress for employees of youth and sports forums in Salah al-Din Governorate).

Conclusions:

Through analysis and discussion of the research variables and hypotheses, I concluded the following from the research:

- 1. Security and safety factors are available for participants in the sporting events and activities held by the
- 2. Employees have the ability to think well when carrying out their tasks in the forum
- 3. Forum leaders rely on transparency and clarity in dealing with employees within the forum
- 4. Forum leaders rely on all electronic means to organize sports programs and activities
- 5. The work done by the employees in the forum exceeds their capacity and they need someone to help them
- 6. Employees are asked to carry out their tasks in the forum without providing financial and administrative capabilities
- 7. There are embarrassing situations in controlling employees' working hours at the forum

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- 8. Availability of the dimensions of the human engineering scale for employees of youth and sports forums in Salah al-Din Governorate
- 9. Availability of the dimensions of the job stress scale for employees of youth and sports forums in Salah al-Din Governorate
- 10. There are statistically significant differences between human engineering and job stress for employees of youth and sports forums in Salah al-Din Governorate
- 11. There is no significant effect of the dimensions of ergonomics on job stress for employees of youth and sports forums in Salah al-Din Governorate.
- 12. There is a significant effect of ergonomics on job stress for employees of youth and sports forums in Salah al-Din Governorate
- 13. The human engineering scale that was built by researcher Saleh for the human engineering scale for employees of youth and sports forums in Salah al-Din Governorate,
- 14. The job stress scale, which was built by researcher Saleh to measure the job stress for employees of youth and sports forums in Salah al-Din Governorate.

Recommendations

Based on a study of the role of human engineering in reducing job stress for heads of youth and sports forums in Saladin Governorate, the study recommends the following:

- 1. Benefiting from the ergonomics scale that was built by the researcher as an objective tool for researchers and the possibility of using it in their research and studies.
- 2. Benefiting from the job stress scale that was built by the researcher as an objective tool for researchers and the possibility of using it in their research and studies.
- 3. Training programs should be designed to enhance the mental and organizational capabilities of forum chairs, such as time management techniques and task organization, as well as strategies for dealing with pressure and conflict management.
- 4. Forum leaders should work to improve the work environment through ergonomics to reduce the negative effects of job stress, including improving lighting and ventilation, and reducing noise and factors causing excess heat.
- 5. Forum heads should organize events and workshops aimed at enhancing communication and social interaction between forum heads, which helps them exchange expertise and experiences and support each other.
- 6. Forum leaders should contribute to providing psychological support and counseling to employees, whether through individual counseling sessions or support groups, to help them deal with the psychological challenges and pressures resulting from work.
- 7. Effective performance management procedures must be developed that reflect the objectives of the forums and make it easier for forum chairs to achieve these objectives in a way that makes it easier for them to deal with role ambiguity and internal conflicts.
- 8. Forum leaders should work to achieve a healthy balance between work and personal life, such as providing programs to manage job stress and improve the quality of personal life.
- 9. Forum heads should monitor and evaluate the policies and procedures taken to relieve job pressures, and ensure the effectiveness of the measures taken and their continuous improvement based on feedback and suggestions.
- 10. Forum leaders should work to enhance the sustainability of the work environment and increase flexibility in dealing with changes and challenges, which helps reduce job stress in the long term.
- 11. Benefit from the standards of this thesis and apply them to other samples.

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