



Work-Related Stress in Three Groups with Specific Homogeneous Tasks

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ABSTRACT

In relation to the medico-social and medico-legal aspects of stress we have studied the effects of stress on different working populations.

Background: Stress is the second most common work-related health problem, affecting about 22% of workers in the EU. The European Agency for Safety and Health at Work (2000) defines work-related stress as a condition that "occurs when the demands of the work environment exceed the ability of workers to cope with it".

In the evaluation of this work-related stress it is of fundamental importance to identify the factors capable of generating and increasing it in order to identify categories of subjects particularly at risk and plan interventions for the prevention, elimination or reduction of risk.

The aim of the research is to identify critical issues in the comparison, to specific homogeneous tasks.

Material and methods:

Tasks analysed:

- Administrative (n.519)
- Drivers/porters/doormen/workers (n.103)
- Social workers/educators/teachers (n. 31)

Subjective: Stress was first assessed in the three groups, and then stratification by sex was carried out, assessing stress in the male-female subgroups.

Results: The new and original results allow the correction of situations defined as critical, through original and new, preventive, never applied, protocols, which are at the forefront of the preventive technological procedures already known.

Conclusions: Our research showed that for most of the tasks analysed, in the various and specific tasks in comparison with each other, never studied before and compared with each other, the level of stress for some areas was found in comparison to be much higher in some tasks.

Keywords: Stress; Medico-legal consequences; Anxiety; Psychological distress

INTRODUCTION

Given the medical-social importance of stress and medico-legal consequences, we have studied perceived stress in different working populations.

The study aims to acquire new knowledge, with prospective purposes in order to study work-related stress and prepare the related prevention with technology transfer, the improvement of services and application models, with a necessary and contextual consideration of the regulatory aspects on stress.

The world of work is subject to continuous changes due to the need to adapt to constantly changing market policies.

To keep up with the demands of the world of work it is necessary, if not fundamental, the company reorganization that involves a considerable commitment of all the figures involved. Workers too are required, reorganization changes in working hours, and great flexibility. All this affects the workers who are subjected to psychic risks that very different from the traditional chemical, biological and physical risks. Even the new workers contacts require great flexibility and can lead to situations of anxiety linked to new employment relationships.

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It is also important to underline that the relationships between colleagues and managers, but also between the workers themselves, can give rise to situations of psychological distress that should not be underestimated also it is useful to study the regulatory and legal aspects related to stress.

The two main factors that cause a state of suffering or severe psychic distress are an acute traumatic event and chronic stress: the acute traumatic event occurs only once and in a limited period of time; chronic stress occurs over a longer period of time. Trauma can be defined as a sudden and unpredictable event that the subject experiences as destabilizing and devastating and can be both physical and psychological.

The abilities to respond to life events are overwhelmed by the traumatic event so that the subject finds himself in a situation of helplessness in the face of a situation that appears uncontrollable. Thus begins a flow of feelings and emotions uncontrollable so that the subject no longer knows how to react and feels defenceless.

An event becomes stressful and traumatic when it combines with subject is:

1. Ability to manage emotions
2. Personal and evolutionary history
3. The presence or absence of a concomitant psychiatric disorder, etc. [1-7].

Stress, burnout and mobbing represent situations that can generate a state of malaise in workers and can negatively interfere with their work, relational and personal skills.

In the workplace, psychic trauma is not associated with a physical trauma but with a condition of lack of well-being due to countless environmental and subjective factors.

Psychic trauma creates discomfort when the subject's ability to understand what is happening and to implement cognitive or behavioural adaptation strategies, fails to be adequate, which is why different subjects exposed to the same traumatic circumstance may or may not develop the disorder.

Any event in the life of a person that induces intense emotional participation is such to exceed the person's ability to process the event, itself is considered traumatic.

The sensory stimuli coming from the external environment, in this case the working environment, if present in a constant and/or pressing way, can significantly affect the Central Nervous System (CNS) and alter the connections with the neuroendocrine system, the immune system and other organs and systems, inducing clinical manifestations also of considerable importance.

The hippocampus, amygdala, thalamus and hypothalamus are the areas of the brain most affected by stressful phenomena and form a network of complex connections involved in the phenomena of adaptation.

In response to stressful stimuli, mechanisms are triggered that tend to maintain a state of psycho-physical balance through the activation of the hypothalamic-pituitary-adrenal axis and the production of adrenaline, nor-adrenaline, serotonin, dopamine and other neurotransmitters.

The combined action of specific areas of the CNS with the hormones produced is intended to maintain the homeostasis of the organism; the activation of the hypothalamic-pituitary-adrenal axis is essential for life, but persistent stimulation due to stressful stimuli can lead to a

sort of exhaustion with the appearance of psychic, psychosomatic and organic pathologies.

Stress is constantly present in everyday life, both in the family and at work and should not always be considered in a negative way since it is not a disease but a physiological response of adaptation of the individual to one or more stimuli [8-15]. In the 40s Selye defined stress as a "general syndrome of adaptation to the stresses/demands (stressors) of the environment", necessary for survival and life, also making an important distinction between distress (harmful) and eustress (positive).

On the one hand, stress represents a positive physiological reaction (Eustress) that helps the subject to face difficulties, but can take on negative characteristics (Distress) when it manifests itself in a recurrent way and in prolonged times with characteristics of excessive difficulty and severity.

Selye identified three stages of the "stressful process"

1. Alarm phase: The subject reports the excess of duties and mobilizes resources to fulfil them;

2. Stabilization phase: The subject stabilizes his condition and adapts to the new level of demands;

3. Exhaustion phase: The subject presents physical symptoms such as hypertension, tachycardia, increased sweating, gastro-intestinal disorders, reduced immune defences, anxiety, depression, irritability, dissatisfaction, distrust, etc.

The above symptoms have company-wide repercussions such as absenteeism, frequent staff turnover, disciplinary problems, behavioural problems, psychological harassment, reduced productivity, errors and injuries, increased compensation costs and medical expenses.

The individual is normally able to sustain a short-term exposure to tension, which can be considered positive, but has great difficulty sustaining prolonged exposure to intense pressure. In this case, in fact, he finds himself in a condition characterized by high levels of anxiety, often accompanied by a sense of inadequacy.

It should be emphasized that the stressful extent of an event and the consequent physical symptoms that affect the company level, are related to the individual's ability to cope with the stressful stimulus, these skills are identified with the term "coping strategies" that are typical of each individual. Coping is the set of cognitive and behavioural efforts that are put in place by the subject to control and cope with specific internal and/or external requests that exceed the person's resources.

The coping strategies implemented by the body are aimed at preserving the biological balance called homeostasis. Following chronic exposure to stressful events, the condition of homeostasis can be altered, permanently or transiently, through a dysregulation of the functional and biological systems of the brain and of the hypothalamic-pituitary-adrenal axis, which may be followed by alterations affecting different functions or systems such as the reproductive function, metabolism and the neuro-immune-endocrine system.

Work-related stress is the difficulty for workers to cope with the gap between the requests that are addressed to them in the workplace and the ability to fulfil these requests. This difficulty can occur in any work environment, regardless of size, sector of activity of the company, and type of employment relationship. Causes of high stress in the workplace can be identified in inactivity, passivity, the absence of a real commitment and incentive [16-18].

According to Cooper, the possible causes of work-related stress can be:

The relationship with colleagues, superiors and subordinates;

1. Work in general
2. Career problems and economic incentives
3. Problems of role and organizational structure
4. Home-work interface

Subjects who are unmotivated, discouraged, unable to adjust expectations at work with reality, who do not feel encouraged to carry out their work, isolated and who are not entrusted with tasks or, on the contrary, overloaded with work and overburdened with responsibilities, are more at risk of running into the phenomenon of work-related stress. To endure and overcome the various stressors it is necessary to implement appropriate techniques called coping strategies:

1. The use of correct breathing and concentration techniques
2. The activation of time management techniques in the company
3. The study of managerial organizational practices.

The motivation of employees, their interest in the work they do and the goals they must achieve are an important element that allows preventing the onset of stress. So, workplaces motivation is a fundamental practice that companies should plan and implement.

However, there are a number of variables to consider when assessing work-related stress:

1. Family and subjective predisposition to certain pathologies and individual resistance to stress
2. Biological variables (age, sex)
3. Social context
4. Important traumas such as bereavements, illness, separations.

Work is therefore a concomitant risk factor; in practice, it is not only the tension that derives from work, but the sum of work stress with the stress that each individual exerts and manifests at work.

The assessment of work-related stress must take into account all possible variables, both personal and work.

The European Agency for Safety and Health at Work evaluated the issue of stress in the workplace coming to describe variables that can increase its frequency:

1. The use of new forms of employment contracts (precarious contracts) and uncertainty and job insecurity (labour shortages);
2. Increasingly older workforce (not very flexible and not adaptable to changes) due to lack of adequate turnover;
3. High workloads, resulting in pressure on workers by management;
4. High emotional tension, due to violence and harassment at work;
5. Interference and imbalance between work and private life.

In recent decades, profound changes have radically changed the organizational and productive structure of the world of work.

In parallel with these changes, psychosocial risk factors, which are those aspects of the content and context of work that cause stress, have become increasingly important in the workplace.

Currently, stress is defined as a non-pathological response of adaptation of the organism against external stimuli of different nature.

Although stress represents a physiological process of adaptation to environmental stresses, when these exceed the subject's ability to cope with them, it manifests what is called discomfort. In fact, there is also the opposite condition characterized by the presence of eustress when the subject experiences an effective adaptation to external stimuli.

The European Agency for Safety and Health at Work defines work-related stress as a condition that "occurs when workplace needs exceed the workers' ability to cope with them".

In assessing this work-related stress, it is essential to identify the factors that generate and increase it, in order to identify the categories of subjects at risk and plan prevention, elimination or risk reduction interventions.

The need to assess the risk of work-related stress derives from the fact that it can lead to the onset, in the long term, of pathogenic consequences that can affect not only the health of workers, but also the satisfaction of users, the performance and efficiency of the company.

The analysis of bibliographic data has shown that for the assessment of work-related stress we can use: physiological and biological methods (catecholamines, cortisol, heart rate, and blood pressure), epidemiological methods (assessment of sick leave), objective and subjective assessments of stress.

The subjective assessment of stress is carried out through the use of questionnaires, which try to detect potential sources of stress, identify risk factors, assess the organization of work, and identify protective factors or factors that can reduce the degree of stress we used. The HSE (Health and Safety Executive) questionnaire was used, which allows us to investigate the subjective causes of stress in a simple and quick way, even on large and different working populations [19-22].

We observed the idea, which can generate new knowledge, that some work tasks, have specific negative performances, never compared before, aware that the results could not confirm the hypothesis, with the possibility of new and original applications never studied and applied before.

MATERIAL AND METHODS

The research was using "indicator-questionnaire tool" developed by the HSE (Health and Safety Executive) with the stress classification as indicated in table 1 in order to assess work-related stress [23-26]. This questionnaire assesses the subjective components of stress, it is an easy-to-administer tool with guarantee of anonymity, usable in all companies with more than 10 workers, compatible with the indications for the evaluation of work-related stress contained in the regulation 18/11/2010 by the Ministry of Labor and Social Policies (referred to in Legislative Decree 81/2008 and subsequent amendments), as it provides results related to groups of workers and not only to individual workers [27,28].

Each of the 35 questions in the questionnaire has a single answer, based on a 5-point Likert scale with 23 items measuring frequency (answers from 'never' to 'always') and 12 items measuring the degree of agreement (from "absolutely agree" to "fully disagree").

The HSE questionnaire was analysed with its specific software and we found the correlation between the average score of responses and colour was found (indicator for the need of corrective actions). For each studied dimension.

The results are based on the colour code, described in Table 1, the

red area (values below the 20th percentile) indicates a serious situation requiring immediate and corrective action; the yellow area (values below the mean value but above the 20th percentile) indicates a clear need for corrective action; the blue area (values above the mean value but below the 80th percentile) indicates a good performance, even if interventions are required; the green area (values above the 80th percentile) indicates a very good level of performance which results in the satisfaction of the Manager Standard, to be maintained over time.

The assignment of colour to the numerical score differs for each dimension, as shown in Table 1.

Table 1: Meaning of the colour code.

High level of performance; it is necessary to keep it		≥80
Good level of performance		≥50-80
Clear need for corrective action		≥20-50
Need for immediate corrective action		≤20

The use of additional statistical tests is not necessary, as the analysis of data based on HSE software, ensures that the changes of colours, in the dimension analysed, are not random.

All the subjects had consented to the processing of their personal data, declaring that they had become aware that the data themselves fell within the category of "sensitive data" and had consented that the data resulting from the protocol were processed anonymously and collectively, with scientific methods and purposes in accordance with the principles of the Helsinki Declaration.

Those who had not completed the questionnaire correctly were excluded from the initial population and we removed all questionnaires where gender, age and job did not appear.

The cases were matched by gender and age.

Tasks analysed

1. Administrative (n.519)
2. Drivers/doorman/porters/workers (n.103)
3. Social workers/educators/teachers (n. 31)

For administrative staff, an average age of 52.68 years was also calculated; min 26 years max 66 years, dev. Standard±8,51; n.women 361, n.men 158

For drivers/porters/doormen/workers, an average age of 54.94 years was also calculated; min 38 years max 66 years, dev. Standard±5.38; n.women 7, n.men 96

For social workers/educators/teachers: average age 50.19 years was also calculated; min 33 years max 61 years, dev. Standard ±7.85; n.women 30, n.men 1

Subjective stress was first assessed in the three groups, and then stratification by sex was carried out, assessing stress in the male-female subgroups (with the exception of the group of social workers/educators/teachers for which almost all workers are women).

RESULTS

Administrative

The group of administrative obtained an overall score between the 20th and 50th percentile (yellow area) some critical issues in questions

n. 6 and n.18 (in the red area). Particularly critical is also the area of relationships, falling into the red area, with a score below the 20th percentile. In this same context, the most critical issue was represented by question 21%44.3% of the y participants stated that they were subject sometimes, often or always to harassment during work.

The area of control obtained an overall score between the 50th and 80th percentile, falling into the blue area. The items in this area obtained satisfactory scores, with the exception of question n. 30, concerning time flexibility.

All other areas achieved overall scores >80th with management standards met.

The women subgroup in the overall scores for the different areas fully reflected the results obtained by the mixed group. With regard to the individual items, no. 22 was particularly critical, as well as no. 6 and no. 18 for the scope of the question.

The subgroup of men obtained an overall score in the context of the question between the 50th and 80th percentile (blue area), also in this case, items n.6 and n.18 were particularly critical.

The areas of control of, support from managers and the role also fell into the blue area. The last two areas scored >the 80th percentile in the mixed group and the women subgroup.

Su the last two described areas, items n.35 as regards support from superiors and n.17 for the role held at work obtained a score <20th percentile, falling into the red area.

Drivers/Doormen/Porters/Workers

Su these tasks the mixed men/women of group had positive score for the size of demand, relationships, role and change (green area). The scope of support from managers fell into the blue area with critical issues in questions n.29 and n.35 (red area). The size of the control and support by colleagues scored between the 20th and 50th percentile, falling into the yellow area. In the evaluation of the answers to the individual questions, for the aforementioned areas, items no. 2, relating to the possibility of deciding when to take breaks from work and n.7, 24 and 31 concerning help and support from colleagues, obtained very negative scores.

The subgroup of women scored optimally in the areas of demand, control, peer and relationship support (green area), a score between the 50th and 80th percentile in the areas of role and manager and role support (blue area), and a score between the 20th and 50th percentile in the change dimension (yellow area). Items no. 1, 13, 17, 26, 28, 29, 33 were particularly critical.

The subgroup of men (which represents the majority) obtained overall scores and in single question comparable to those of the mixed group, with the exception of items no. 26 (area of change) which fell into the red area in the mixed group and yellow in the male group.

Social Workers/Educators/Teachers

This subgroup which was mainly composed of women was not divided between male and female.

Particularly critical were the areas of demand and relations for which all items obtained a score below 20th with the exception of n.9, 20 and 21 deserves mention because 87.1% of the workers interviewed by questionnaire stated that they were sometimes, often or always subject to bullying or harassment during work.

The area of the control obtained an overall score between the 50th

and 80th percentile (blue area) with very negative scores for items n.2 and n.30 concerning the possibility of taking breaks and managing working hours.

All other areas and related items fell into the green area, with the exception of questions n.35 (red area) and n.17 (blue area).

The above results are summarized in (Figure 1 and Table 2).

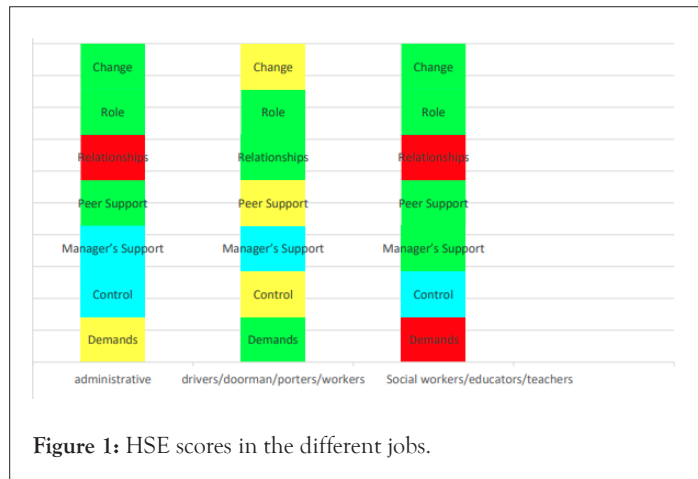


Figure 1: HSE scores in the different jobs.

Table 2: Scores obtained in the investigated dimensions by the studied population

	Administrative	Drivers/ Doorman/ Porters/Workers	Social Workers/ Educators/ Teachers
Demands	Yellow	Green	Red
Control	Blue	Yellow	Blue
Manager's Support	Blue	Blue	Blue
Peer Support	Green	Yellow	Green
Relationships	Red	Green	Red
Role	Green	Green	Green
Change	Green	Yellow	Green

DISCUSSION

Our research work findings that for most of the tasks analysed, in the various and specific tasks in comparison with each other, never studied before and compared with each other, the level of stress for some areas was found in comparison to be much higher in some tasks, and the new and original results allow the correction of situations defined as critical, with original and new preventive protocols, never applied, at the forefront of the preventive technological procedures already known and introduced in the sector.

CONCLUSION

The hypotheses formulated, aware that they could not confirm the hypothesis, and the achieved, will allow to significantly innovating the prevention in the workplace, the new knowledge will offer the possibility of developing new applications, and new operational protocols and the results can be reproduced.

The results were achieved in such a way that they can be verified and transferred to others or replicated by others; the research was planned

and budgeted and the conception, design and direction of research activities, the state of the art, the objective and contents and their interpretation were identified.

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