



THE IMPORTANCE OF PSYCHOSOCIAL ASPECTS AND THE URGENT IMPLEMENTATION OF COGNITIVE ERGONOMICS IN THE PREVENTION OF OCCUPATIONAL ILLNESSES

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Abstract: The topic of cognitive ergonomics is motivated by the negligence of organizations in relation to the mental health of employees in work environments. While physical health is prioritized, mental health is often undervalued, even though it is equally crucial to work efficiency. The lack of recognition of cognitive ergonomics can be attributed to the prevalence of physical ergonomics and the absence of mental health policies in companies. Competition and the search for profit often supersede concern for the well-being of workers.

Cognitive ergonomics, which focuses on mental processes, is essential to providing comfortable and safe working conditions. However, its importance is still underestimated. Academic studies on the topic are scarce, highlighting the need for more research and preventive actions. The introduction of cognitive ergonomics in workplaces can be done through the inclusion of professionals specialized in organizational psychology in occupational health and safety teams.

Although there is little literature on the subject, it is crucial to recognize and value cognitive ergonomics to promote workers' mental health. Its implementation can bring significant improvements to work environments, contributing to the prevention of occupational diseases and ensuring the well-being of employees.

Keywords: psychosocial aspects; cognitive ergonomics; mental health; prevention; occupational diseases.

Introduction

The motivation for choosing the topic of cognitive ergonomics is based on the lack of attention given by organizations to the care and preservation of the mental health of their employees in the workplace. Human health is a factor of extreme priority, whether physical

or mental. The degree of concern must be analyzed in the same proportion, as both are necessary to carry out any type of activity. If there is any imbalance, the individual will not be able to fully and efficiently carry out their tasks and, consequently, deliver favorable results for the company.

It is clear that there is a lack of knowledge or devaluation of cognitive ergonomics by Brazilian organizations, in addition to the lack of an OSH (Occupational Health and Safety) policy focusing on the mental health of workers in corporate management or operational areas (factory floor). One of the hypotheses for this is that when ergonomic risks are presented, most of the time, physical ergonomics is the most “prestigious” because it has greater status and relevance for companies, because many professionals and managers just think that this is related to activities that demand greater physical and postural efforts.

Another issue may also be that companies are not required to present projects or plans to promote mental health and QWL (Quality of Life at Work) as organizational guidelines/norms to be complied with. The culture of prevention in the country is little discussed and implemented in organizations. What we see is an OSH policy structure and organizational guidelines that are based on ensuring health and safety for employees solely for the purpose of complying with legal requirements which are mandatorily established by supervisory bodies. As a result, competitiveness and profitability are elements that continue to prevail and stand out as a priority in various Brazilian economic activities.

Therefore, how can cognitive ergonomics be introduced into work spaces and how can it significantly contribute to the prevention of occupational diseases in the context of mental aspects? Therefore, the general objective is to identify, through academic publications, the number of studies carried out with the theme: cognitive ergonomics, psychosocial aspects and mental health/work safety/occupational disease with proposals or solutions for improvements, aiming at health promotion and disease prevention. As a methodology, a systematic literature review adapted based on articles and periodicals from academic journals located in the Google Scholar database was used in this work.

Development

Ergonomics is a very old science and studied in different areas of knowledge such as Medicine, Engineering, Psychology, Industrial Design, among others. In the field of study of Occupational Health and Safety, it is not as recognized as it should be due to the main

importance it is directly linked to the prevention of diseases and accidents whose predominant risks are physical, chemical, biological and accidents.

The fact is that importance and concern must be observed in the same proportion. With the advancement of technology and work management models, there is an exponential trend in cases of occupational illnesses related to the work environment that focuses on the precepts of cognitive ergonomics and, consequently, gradually affects the mental health of workers.

Ergonomics aims to adapt work to man and his psychophysiological characteristics and, in this sense, seeks to constantly provide comfortable, safe and productive conditions for workers in work spaces. Working conditions, according to NR 17, include “aspects related to the lifting, transport and unloading of materials, the furnishing of workstations, work with machines, equipment and manual tools, comfortable conditions in the work environment and the organization of work itself” (BRASIL, 2021).

According to the International Ergonomics Association (IEA), “ergonomics is the scientific discipline that deals with understanding the interactions between humans and other elements of a system” (IEA, 2020). From this point of view, it can also be understood as a science of work that guides systems and in parallel all aspects related to human activity, promoting a holistic approach to work (FERREIRA & MACHADO, 2020).

Ergonomics has three main types: physical, cognitive and organizational. The best known and most talked about is physical ergonomics. Its definition is almost always understood as one that studies and focuses on aspects of the worker's posture and movement. Physical ergonomics is related to the physical aspects of the worker. Anthropometry, biomechanics and physiology are studies that guide the adaptation of tools, machines and scopes to the individual's anatomical characteristics (IEA,2020).

Cognitive ergonomics is directly linked to the individual's mental processes. In this case, elements such as mental workload, attention, concentration and decision making must not only be recognized in the corporate management of a company but also be remembered and observed in operational areas (LIMA et al., 2015). The activities can even be considered distinct, while one focuses on intellectual aspects, the other is more aimed at manual functions. However, both do not prevent possible symptoms linked to mental health from being triggered. Therefore, according to Santos et al. (2019), “it is not enough to worry only about the physical aspects of Ergonomics, but also about the mental and social aspects associated

with it” (p.44).

Organizational ergonomics is focused on the relationship with socio-technical systems, involving processes, flows, operating policies, work projects and also the organization of work (ROCHA, 2017).

Ergonomics is considered the basis of studies for other different areas such as Sociology of Work, Clinical Activity, Ergology and Psychodynamics of work. Articulated together, these studies are richly developed based on demands that present misalignment between workers, work environment, activities and tasks (PAULA & PAULA, 2021). The work clinic has a broad view of work situations, within the prescribed and actual parameters. This way, it is possible to investigate what plagues and what makes workers sick in the workplace.

According to Santos and Melo (2019), workplace gymnastics programs have physiological, social and, mainly, psychological benefits. The latter contribute to improving the ability to concentrate at work, reinforce self-esteem and encourage changes in routine. By providing relaxation and harmonization with the body and mind, it is possible to notice, in a short time, a reduction in fatigue, stress levels and a boost in motivation and willingness to work.

As a strategy for preventing occupational mental illnesses, Zimmermann & Berni (2020) highlight that positive psychology can contribute to the prevention of suffering and illness, as it helps workers to “develop their strengths, in order to achieve a positive state of mental health based on positive emotions” (p. 190). This science highlights the psychological forces and positive emotions that over time help the individual in their relationships with co-workers and managers, strengthening their qualities and improving their weaknesses, in order to promote favorable conditions of health and well-being. and job satisfaction.

The methodology used in this article consists of a systematic review of literature adapted based on articles and periodicals from academic journals located in the Google Scholar database. Data collection was generated from publications carried out between 2019 and 2021. This research method aims to connect information from several studies on a topic, in order to summarize and simplify the scope of the subject in one certain period.

To identify the articles with the intention of composing this work, a search was carried out with three descriptors related to occupational health and safety, resulting in a total of 625 studies, as shown in table 1. To aid the search in an advanced way and assertive, the keywords

“Psychosocial Aspects” and “NR17”; as well as, “Mental Health”, “Occupational Safety” and “Occupational Disease” were combined using the Boolean operator AND.

Next, inclusion/exclusion criteria were established, with the aim of making the research more refined. These choices were: the chosen descriptors could be found in the title, abstract, keywords of the work or in the body of the work; all publications should be in Portuguese; the publications should have been published in National Electronic Magazines or Congress Annals; Only scientific articles were considered (the flow of submissions is generally greater), theses, dissertations, monographs, dossiers, essays were not included in the research. Therefore, as shown in table 2, from the refinement, the research selection resulted in 30 academic studies.

Table 1 - Search for publications by keywords

| Keywords | 2019 | 2020 | 2021 | Total |
|--|------------|------------|------------|------------|
| Cognitive ergonomics (no work) | 147 | 176 | 135 | 458 |
| Psychosocial Aspects AND NR17 (at work) | 6 | 14 | 12 | 32 |
| Mental health AND Occupational Safety AND occupational disease | 47 | 45 | 43 | 135 |
| Total | 200 | 235 | 190 | 625 |

Source: Prepared by the authors themselves.

Table 2 - Selection of articles by keywords after refinement

| Keywords | 2019 | 2020 | 2021 | Total |
|--|-----------|-----------|----------|-----------|
| Cognitive ergonomics (no work) | 8 | 8 | 5 | 21 |
| Psychosocial Aspects AND NR17 (at work) | 2 | 1 | 1 | 4 |
| Mental health AND Occupational Safety AND occupational disease | - | 4 | 1 | 5 |
| Total | 10 | 13 | 7 | 30 |

Source: Prepared by the authors themselves.

Results and discussions

From the refinement of the data collected, a qualitative analysis of the academic articles was carried out. This analysis focused on observing the importance that researchers presented

in their studies regarding psychosocial aspects in parallel with occupational diseases from the point of view of mental health.

It can be observed that despite excessive changes in the context of modes of production and work management following an exponential trend, the topic “cognitive ergonomics” has not kept up with this pace. The search for studies linked to this topic between 2019 and 2021 resulted in a total of 458 studies, with the highest number in 2020 (with 176), the year the COVID-19 pandemic began. Many studies were carried out at that time, taking into account the concern with the emotional and psychological aspects that some workers felt with the disruption of the way of working. They began to carry out their activities in the Home Office modality and this sudden adaptation led them to present difficulties both in dealing with the 'new' and in dealing with the epidemiological issues that the country was experiencing.

Regarding the theme “psychosocial aspects”, the selection of refined articles presents a very low number of publications, signaling that it is necessary to encourage many researchers, mainly professionals in the area of Occupational Health and Safety, to develop studies enabling the prevention of occupational diseases for mental health. This will contribute to the recognition and appreciation of discussing issues involving cognitive ergonomics and alerting companies that it is necessary to carry out specific programs to meet the demands of workers affected and sickened by diseases that until then were considered 'invisible' by society.

The scientific articles were published in Brazilian electronic journals in different areas of concentration. As expected, the articles related to the descriptor “cognitive ergonomics” present an interdisciplinary relationship with the researchers’ courses or training. Ergonomics is not a science of a specific area, it relates to different areas of knowledge and is inserted in a multifaceted context.

In relation to the courses/areas of training of the researchers who authored the selected articles, for the 3 descriptors used in the search for scientific studies, it was noted that Nursing and Psychology appeared in all of them. This denotes that these two fields of knowledge are considered as the pillar for the understanding and emergence of factors that are intrinsically involved in illnesses (physical, mental or physical and mental) related to the social environment, but specifically, in the work environment, from of the conditions existing in these spaces.

Therefore, the concern for health, whether physical or mental, has always been and continues to be a major objective for these areas and its relevance continues to be essential to

discuss and promote preventive actions for comfort, well-being and quality of life. In fact, Costa e Silva, Santos & Carvalho (2020) emphasize that “professionals involved in the area of mental health, such as psychologists, realize that there is a need to improve work safety management” (p.2), or In other words, actions that deal with worker health cannot be limited or restricted.

One of the selected articles observed the association between work psychodynamics and ergonomics. The emphasis on this in the context of the dimension of the task is quite interesting, as the researchers are not from the field of Psychology, nor are they specialists in Health and Safety. Typically, the approach to areas that deal with workers' mental health are highlighted by Work Clinics, which require a very deep understanding of work and subjectivity.

Conclusions

Although there is little literature regarding cognitive ergonomics, it was possible to notice that, through the analysis of the articles, it was at least mentioned as a type of ergonomics and that its association is directly linked to mental processes. It cannot be denied that it is important to provide intense improvements if applied, discussed, planned and implemented with due care and purpose within each work reality.

Many actions still need to be taken for it to be recognized and valued. Including starting a new review of the NRs, as there is no significant mention in the legislation, more specifically in NR1 (GRO) and NR17 (Ergonomics), about the importance of cognitive ergonomics in the prevention of diseases regarding workers' mental health.

Cognitive ergonomics can be introduced into work spaces through the inclusion of professionals with training in Psychology and specialization in Work Psychology and/or Organizational Psychology in OSH management teams or as support in People Management.

They are well aware of the pathologies that affect individuals and can assist with demands, proposing interventions and QWL programs to restore workers to their work environments. This will help to better identify environmental risks that are classified within the field of ergonomic risks. Therefore, it will also help to recognize them if the company requests an Ergonomic Work Analysis (AET).

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