

The Importance of Ergonomics in Nurses' Clinical Practice

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Abstract

Ergonomics is the scientific discipline that studies the interaction between the human being and his work environment, and it aims at the elimination of the aggressive factors that may affect the health of workers. Due to the characteristics of the work they perform, nurses are particularly exposed to the development of spinal injuries. Therefore, it is urgent to identify the main ergonomic problems during the nursing clinical practice. This article results from a reflection on scientific evidence regarding this field, namely the identification of activities that may cause injury to the musculoskeletal system when performed by nurses without concern for ergonomic principles. It intends to emphasize the relationship between ergonomics and quality of life at work, as well as highlight the possible solutions to prevent the ergonomic risks in health services.

Keywords: *Ergonomics; Low Back Pain; Life Quality; Occupational Health*

Introduction

In the last decades there have been constant demographic and cultural changes in society that have led to an evolution of healthcare services. It is crucial not only to understand the need for adapting the context of clinical practice to these changes as well as to develop them, in order to provide better quality healthcare to patients and families.

It is understood that, in current health contexts, nurses, particularly those working in hospital settings, are the professionals who maintain the most continuous and close contact with the patient, which is why they are more vulnerable to the issues that may affect their own health and well-being [1,2]. The growing complexity and demand of provided care exposes nurses to occupational risks caused by biological, chemical, physical, mechanical, psychosocial and ergonomic factors. This predisposes them to occupational diseases and injuries resulting from accidents in the workplace, making it essential to identify the risks present there, as well as the complications resulting from these factors and their prevention [3].

The pathologies of the musculoskeletal system represent a serious public health problem, and bio-mechanical factors such as physical effort, shock, inadequate postures, situations of physical and psychological stress, workload, among others, are responsible for the occurrence of this type of injuries [3,4]. Due to the characteristics of the interventions they do, it is then understood that nurses are often exposed to ergonomic risk factors that may compromise their health.

Considering that the adoption of ergonomic measures can lead to an improvement in quality and productivity at work [5] reducing by about 80% the incidence of low back pain, it seems important to develop knowledge in this area.

The following article focuses the analysis and reflection of scientific evidence about Ergonomics, based on an in-depth discursive formulation regarding the ergonomic risks to which nurses are exposed in their work contexts. Our aim is to answer the investigation question: "What are the Ergonomics risks that can affect to the quality of nurses' professional practice?"

Methodology

The research was carried out in databases, it was done using EBSCO Host Web, since it integrates several scientific packages that allow access to a large number of journals and articles. In order to perform the search, we selected the databases CINAHL Plus, MEDLINE, Cochrane Central Register of Controlled Trials, Database of Abstracts of Reviews of Effects, Cochrane Database of Systematic Reviews, Health Technology Assessments, Cochrane Methodology Register and Academic Search Complete.

The research was restricted only to full text articles and the keywords used were: ergonomic, nursing and low back pain. It was decided to extend the research to works published in the scope of the subject under study, as well as master and PhD theses. Thus, we obtained a set of documents, in English, Portuguese and Brazilian Portuguese, which serve to support all the analysis and reflection that follows.

Results and Discussion

Hospitals, in regards to the technological, scientific and organizational evolution that they have undergone, place Ergonomics in a wide range of opportunities for intervention in order to contribute to their development and sustainability, particularly regarding to: the design/design of workplaces; the hierarchical, temporal and relational organization of work; the selection and deployment of equipment and the training of health professionals [6]. From the point of view of the contributions and scientific and social relevance of Ergonomics, Wilson (2013) praises the improvement of working conditions and the design of technical devices adapted to the characteristics of the individual as significant contributions to improving the quality of work.

The importance of investments in Hospital Ergonomics is since this context, when compared to others, presents a considerable set of opportunities and challenges, as a result of the complexity and demands of the environment itself. It is therefore essential to make a holistic intervention, not only on work contexts, aiming to adapt the working environment to the anthropometric characteristics of professionals [6], particularly nurses, by minimizing the ergonomic risks associated with incorrect postures or the inappropriate use of technical devices [5].

Because nurses are constantly being confronted with these issues in their professional practice, it is understood that they are a key target audience for the investment of ergonomic measures, as many possible injuries that result from clinical practice can be avoided. Injuries of the musculoskeletal system have been studied by several researchers, as they are one of the most important causes of morbidity and disability in adults [3,7]. Nurses as a group at risk of developing spinal pathologies, because they have the most direct contact with patients, finding that the Ergonomics as a fundamental strategy of prevention.

However, there is research that suggest that there are other aspects that do not involve direct contact with patients, namely intrinsic factors, which may also contribute to the development of these pathologies. For example, the relationship between gender and the prevalence of musculoskeletal complications (especially lumbar complications) is highlighted, concluding that female individuals report this symptom and/or pathology more frequently [8].

In this regard, given the analyzes scientific evidence, it can be stated that the musculoskeletal injuries of nurses may be related to the providing of direct care to the patient, the environment where they perform it and even the organization of work itself. The table 1 highlight the activities performed by nurses and related to direct contact with the patient that are considered to have a greater contribution in the appearance of musculoskeletal complication.

Nursing Activities	Reason
Excessive weight lifting	The lifting of loads with excessive weight, associated with a least adequate way to do it, is a factor that potentiates the development of spinal pathologies, and can occur, for example, in the following situations: positioning/transfer of patients and handling of heavy objects.
Repeatability of interventions	The performance of similar activities, with the application of repeated forces and the use of the same muscle groups and anatomical regions, namely the spine, are visible in the following interventions: positioning/transfer of patients and transport/handling of equipment and materials.
Upkeep of the same posture for a long period of time	The upkeep of a static, curved or standing posture, for a long period of time, can cause injuries in the joints, tendons and ligaments. Examples of these interventions are: the performance of hygiene care in bed, the wound treatment and also several other invasive techniques, such as insertion of bladder catheter or nasogastric tube and venous puncture.

Table 1: Nursing activities that favor the appearance of musculoskeletal pathologies.

Sources: Karahan and Bayraktar [9]; Wong, Teo and Kyaw [10].

Regarding the hospital setting, it is considered that, despite the vigorous physical and emotional burden experienced by the several professionals who exercise in this field, nurses are the professionals that have the highest prevalence of pathologies of the musculoskeletal system when compared to other health care professionals [9]. It is considered that injuries resulting from these pathologies have repercussions on the clinical practice of nurses, as they condition professional performance, and there may be deficits in care provision due to the impossibility of carrying out interventions that can increased strain on the spine [9].

Finally, regarding work organization, it is state that working in shifts is a harmful factor for the nurses' health and well being namely on self-care of sleep/rest. Since working in shifts is a reality that is unlikely to change, researchers suggest, from an ergonomic perspective, the importance of taking breaks during any shift, in order to restore the energy provided, emphasizing that the absence of it leads to a wear and tear that will have repercussions on the quality of care provided to patients [7].

Taking into consideration the Nursing discipline, the main responsibility of nurses is ensure that their intervention in attending to patients' health and condition, are not only linked to scientific and personal principals, social, political and structural integrity, but also sustained in the perception and sensitivity of the healthcare professional in dealing with human lives.

Conclusion

Ergonomics goal is the adaptation of the work environment to the worker, respecting the limits of human being's capacity, pointing out critical areas of inadequacy, evaluating patterns of behavior and of adequate and comfortable interaction; it is also concerned with the improvement and conservation of its health. It is understood that Ergonomics are currently applied where there is participation of the human being, with the purpose of guaranteeing the safety and health of the worker, as well as the improvement of what it produces.

There are several researches related to working conditions, stressing the importance of the adequacy of physical, cognitive and organizational conditions, in order to overcome difficulties at work, provide greater satisfaction to the worker and prevent, and/or protect, his/her health.

Ergonomics and Nursing in particular should have humanization as a convergence point: the problem of working conditions that health institutions currently try to optimized in order to allow nurses to better adapt to environments and activities. Therefore, appropriate conditions should be created so that fatigue, stress and pathologies resulting from the healthcare providing exercise are reduced, particularly musculoskeletal injuries.

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