



NURSES' HEALTH AND SAFETY: ERGONOMIC RISKS IN CRITICAL HOSPITAL UNITS

SAÚDE E SEGURANÇA DO ENFERMEIRO: RISCOS ERGONÔMICOS NOS SETORES CRÍTICOS DO AMBIENTE HOSPITALAR

SALUD Y SEGURIDAD DEL ENFERMERO: RIESGOS ERGONÓMICOS EN UNIDADES HOSPITALARIAS CRÍTICAS

Layze Braz de Oliveira¹, Alvaro Francisco Lopes de Sousa², Wilderlane da Cruz Silva³, Gilcelia Braga Silva⁴, Maria do Socorro Oliveira Guimaraes⁵, Maria Eliete Batista Moura⁶

ABSTRACT

Objective: to identify ergonomic risks to which nurses working in critical hospital units are exposed and possible risk factors associated with them. **Method:** this is a qualitative, exploratory-descriptive study. The study sample constituted of 27 nurses who worked in critical units of a public university hospital. After the data were obtained, they were analyzed and structured according to semantic similarities. The study project was approved by the Research Ethics Committee, Protocol 5532/12. **Results:** three categories emerged in the development of this research: Ergonomic risks to which critical unit nurses are exposed; Work environment and development of ergonomic risk factors; Nurse's exposure time to ergonomic risk factors. **Conclusion:** we found the presence of ergonomic risks in these units. Several factors predispose to these risks, including physical exertion, inadequate posture, manual lifting and transport of weight, long working hours and repeatability. **Descriptors:** Occupational Risks; Risks; Occupational Health

RESUMO

Objetivo: analisar os riscos ergonômicos a que os enfermeiros de áreas críticas do ambiente hospitalar estão expostos e os possíveis fatores de riscos a eles associados. **Método:** estudo exploratório-descritivo de abordagem qualitativa. Os participantes foram 27 enfermeiros lotados em setores críticos de um hospital público de ensino. Após a produção dos dados, os mesmos foram analisados e estruturados por similaridades semânticas. O estudo teve o projeto de pesquisa aprovado pelo Comitê de Ética em Pesquisa, protocolo 5532/12. **Resultados:** no desenvolvimento da pesquisa emergiram três categorias: Riscos ergonômicos a que os enfermeiros de setores críticos estão expostos; Ambiente de trabalho e desenvolvimento do risco ergonômico; e Tempo de exposição do enfermeiro aos riscos ergonômicos. **Conclusão:** verificou-se a presença de risco ergonômico. Vários são os fatores que predispõem a esse risco, como: esforço físico, postura inadequada, levantamento e transporte manual de peso, trabalho diurno e repetitividade. **Descritores:** Riscos Ocupacionais; Riscos; Saúde do Trabalhador.

RESUMEN

Objetivo: analizar los riesgos ergonómicos a los cuales se exponen los enfermeros que trabajan en unidades hospitalarias críticas y los posibles factores de riesgo asociados a ellos. **Método:** se trata de un estudio cualitativo, exploratorio-descriptivo. Los participantes fueron 27 enfermeras que trabajaban en unidades críticas de un hospital público de enseñanza. Después de recolectados, los datos fueron analizados y estructurados de acuerdo con similitudes semánticas. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación, protocolo 5532/12. **Resultados:** en el desarrollo de la investigación se revelaron tres categorías: riesgos ergonómicos a los cuales se exponen enfermeros de unidades críticas; Entorno laboral y desarrollo del riesgo ergonómico; y Tiempo de exposición del enfermero a los riesgos ergonómicos. **Conclusión:** se verificó la presencia de riesgo ergonómico. Varios factores predisponen a este riesgo, tales como: el esfuerzo físico, las posturas inadecuadas, el levantamiento y transporte manual de peso, jornadas de trabajo de larga duración y la repetibilidad. **Descriptores:** Riesgos laborales; Riesgos; Salud Laboral.

¹Student, Nursing Undergraduate Course, Federal University of Piauí/UFPI. Teresina (PI), Brazil. E-mail: layzebraz@hotmail.com; ²Student, Nursing Undergraduate Course, Federal University of Piauí/UFPI. Teresina (PI), Brazil. E-mail: sousa.alvaro@gmail.com; ³Student, Nursing Undergraduate Course, DeVry Integral Differential College. Teresina (PI), Brazil. E-mail: wilderlanesilva@hotmail.com; ⁴Student, Nursing Undergraduate Course, DeVry Integral Differential College. Teresina (PI). E-mail: gilcelia_the91@hotmail.com; ⁵Nurse, Professor, Nursing Undergraduate Course, DeVry Integral Differential College. Teresina(PI), Brazil. E-mail: socorrooliveiragui@hotmail.com; ⁶Nurse, Postdoctor Professor, Undergraduate/Postgraduate Program in Nursing, Federal University of Piauí/PPGENF/UFPI. Teresina(PI), Brazil. E-mail: mestradosaudedafamilia@uninovafapi.com.br

INTRODUCTION

Nurses are exposed to several risks in the exercise of their profession, including ergonomic risks. Nursing, in particular, presents several risk factors for occupational accidents. Thus, it is necessary to emphasize the importance of recognizing the impact of these risks on professional practice, especially because the growing economic and technological development has been resulting in increasingly inadequate working conditions and income levels.^{1,2}

In Brazil, ergonomics is regulated by the Regulatory Standard NR 17. It offers parameters for fitting the work environment to the psychophysiological characteristics of workers, in order to offer maximum comfort and safety to workers and allow them to perform their jobs effectively. The lack of adaptation of work to man results in chronic physical overload, affecting the physical or mental integrity of workers and causing discomfort or illness.^{1,3}

In 2011, among those workers registered at social security, 711,164 occupational accidents and 15,083 work-related illnesses were recorded, and these figures do not include self-employed workers. This shows that there is a high incidence of factors that may trigger health risks at the workplace.⁴ We also call the attention to underreporting, which is known to be still very high, given the fact that the official statistical data do not represent the real factors and reasons for becoming ill at the workplace.⁵

In Brazil, work-related diseases have a significant social and economic impact. Registers show that 611,576 workers were put on temporary disability, 14,811 on permanent disability and 2,884 citizens died. In addition, occupational accidents and diseases is estimated to cost Social Security 10.7 billion reais in financial benefits in the form of sickness allowance, accident allowance and pensions.

This study is justified by the paucity and inconsistency of information about the real health situation of workers, which makes it harder to fix priorities for planning health interventions that minimize occupational accidents and diseases. Moreover, withholding important information from society hinders the achievement of improvements in working conditions. We also consider this study to be relevant to healthcare professionals, since it may substantiate future studies, through which the nursing staff may seek to apply important measures for health promotion and prevention of risks at their workplace.

Given the above, we asked the following guiding question: <<To which ergonomic risks are nurses working in critical hospital units exposed? >> To address this question, the following goal was established:

- To identify ergonomic risks to which nurses working in critical hospital units are exposed and possible risk factors associated with them.

METHODS

This qualitative, exploratory-descriptive study was conducted at a big, public, general university hospital, which is reference in Piauí/PI and other States of the North and Northeast regions of Brazil.

The hospital mentioned was intentionally selected because it is a high complexity university hospital, with critical units and high-complexity activities. A non-probabilistic convenience sample was used to select 27 nurses of both sexes, who worked in critical units of the hospital, such as Surgical Center, Intensive Care Unit and Hemodialysis room, in day and night shifts, and who agreed to participate in the study. We excluded from the sample those nurses who were on vacation or leave.

Data collection was conducted at the hospital in the period from February to May 2013 through interviews and with the aid of an MP4 device for recording the statements. We used a semi-structured form, which included the characterization of participants with open questions. Questions were related to the risks to which nurses are exposed, the length of work in these units and the physical workspace quality.

After the data were obtained, they were analyzed and structured according to semantic similarities. Based on this and on the statements of the participants, three categories emerged: Ergonomic risks to which critical unit nurses are exposed; Work environment and development of ergonomic risk factors; Nurse's exposure time to ergonomic risk factors.

All ethical aspects were followed, in obedience to the precepts of Resolution No. 466/12 of the National Committee for Ethics in Research with humans. The project was submitted to the Research Ethics Committee of the Getúlio Vargas Hospital (CAEE No. 5532). All participating subjects signed a consent form and their anonymities were maintained by replacing their names with names of mythological gods.

RESULTS AND DISCUSSION

Ergonomic risks may affect the physical or mental integrity of workers, causing them discomfort or illness. This often occurs when the work environment is not suitable for the tasks performed there.⁶

Data analysis showed a predominance of females 25 (96, 59%) compared to males 2 (7.41%); with the following age distribution: 16 between 37 and 47 years, 7 between 48 and 58 years, and 4 between 26 and 36 years. With regard to marital status, 13 (48.14%) were married, 12 (44.44%) were single and 02 (07.41%) were separated. Regarding the length of work in these units, 13 (48.14%) had been working in these units for about 20 years, 11 (40.74%) for 10 years and 2 (7.41%) for 30 years.

♦ Ergonomic risks to which critical unit nurses are exposed

When asked what were the ergonomic risks to which they are exposed, nurses reported the following:

[...] Excessive pace of work [...] (Ares)

[...] Day and night shift work [...] (Hesperides)

It is noteworthy that nursing professionals as a whole adopt an excessive pace of work. This fact probably arises as a result of salary dissatisfaction, the need to contribute to family income or even of being the sole provider for the family. Another fact that leads them to perform long working hours is the lack of human resources in institutions.

The nursing staff is overloaded because there is an insufficient number of employees and a growing number of patients in institutions. The authors also state that low wages in this working category contribute to the accumulation of functions in more than one job.⁷

Another research participant reported the following ergonomic risks for this working category:

[...] Inadequate posture, repetitive actions, manual lifting tasks, physical and mental stress (Éter)

Nursing actions are complex and require accountability in their implementation. However, in order for the nursing professional to perform them with quality and safety, physical and emotional balance is necessary.

Nursing tasks involve peculiarities, multiple degrees of complexity and accountability, according to the activity performed. In addition, there is the burden of dealing daily with death, pain and human suffering. This requires a continuous process of adaptation

between work and worker, in order for nurses to provide patients with quality care and to be able to perform their tasks without prejudice to their physical and mental health.⁸

Inappropriate work environment, high physical exertion, long working hours, the use of poorly maintained machines and equipment, as well as the low level of worker satisfaction are factors that may also aggravate the risk of accidents.⁹

♦ Work environment and development of ergonomic risk:

Environmental risks are considered to be agents capable of causing damage to the health or physical and mental integrity of workers. The statements below show some environmental risks present in the everyday work environment of the nurses interviewed:⁴

[...] Inadequate posture while performing some procedures due to the fact that the furniture is in need of maintenance, etc [...] (Artemis).

[...] Patients' chairs are too low for my height, which requires a stooped posture during the performance of punctures of arteriovenous fistulas - AVF [...] (Ether).

[...] Inadequate lighting, unhealthy environment, with noise pollution [...] (Ares)

In order to adapt the working conditions to the psychophysiological characteristics of workers, it is essential that the employer conduct an ergonomic analysis of the workplace. The workplace is the place where nurses and patients interact directly and indirectly. For this interaction to be safe and compatible with the care provided, it is of paramount importance that the components of the working unit are in accordance with the process of work performed.¹⁰

In a work environment where raw materials, methods and organization of work are not in agreement with the necessary standards, work becomes exhausting, methodical, tiring, which contributes to the emergence of occupational risks.

♦ Nurse's exposure time to ergonomic risk factors

When asked about the length of work in critical units, professionals reported the following:

[...] 20 years of training, about nine years in hemodialysis [...] (Limos)

[...] Since July 1999 [...] (Ether)

[...] 11 years in the Intensive Care Unit [...] (Artemis)

[...] 20 years [...] (Bellona)

[...] 22 years [...] (Minerva)

We observed that all the interviewed nurses had been performing their tasks in the same unit for a long time. This is probably because these are very specialized units, which does not allow a large staff turnover, or because these nurses share a personal affinity for the tasks performed. Regardless of the reason, the fact is that these professionals end up exposing themselves to the ergonomic risks that exist in these sectors for several years, when the latter are not fixed.

The nursing staff is the one who remains in direct contact with the patient and subject itself to a longer time of exposure to the causative agent of ergonomic risk. This leads us to conclude that the exposure time is not a conditioning, but rather a determining factor for the appearance of occupational diseases.

Occupational risks arise due to the nature of work, the concentration, intensity and the exposure time to the agent.^{7,4} Added to this, there is the fact that many health professionals have more than one job due to the low wages, which do not allow them to achieve "a dignified living condition". Thus, there is an increase in working hours and, consequently, a higher exposure to risks inherent to these activities.²

The fact that these workers have been exposed for years to occupational risks, including ergonomic risks, makes evident the lack of public policies for workers' health and safety, and the lack of attention by managers and regulatory agencies. Otherwise nursing professionals would not so strongly affirm that quality of life and personal fulfillment are largely compromised.⁷

CONCLUSION

This study allowed us to identify the ergonomic risks to which nurses who work in critical units are exposed, the conditions of the work environment, as well as the duration of exposure to agents that cause occupational diseases.

Thus, we found that there are many ergonomic risks in these units, including physical exertion, inadequate posture, manual lifting and transport of weight, long working hours and repeatability. It also became evident that nurses are exposed to these risk factors for many years and no suitability measures are taken in order to provide them with good ergonomic conditions.

We hope that the data in this study will support other researches in this field and contribute to the development of researches with an ergonomic approach.

REFERENCES

1. Souza KGS, Silva RAR, Silva ITS, Bonfada D, Farias TRO, Silva FFA. Ergonomic risks and the work activity of nurses in a public hospital. J Nurs UFPE on line [Internet]. 2012 Jan [cited 2013 Dec 12];6(1):97-103. Available from: <http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/viewArticle/2075>
2. Mergulhão BRR, Araújo EC, Vasconcelos EMR, Bezerra SMMS. Risk factors of health the nurses workers related to the condition work and ergonomics. J Nurs UFPE on line [Internet]. 2010 Apr [cited 2013 Dec 18];4(2):577-86. Available from: <http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/769>
3. Ribeiro MS. Enfermagem e trabalho: Fundamentos para a atenção à saúde dos trabalhadores. 2th ed. São Paulo: Martinari; 2008.
4. Ministério da Saúde. Plano Nacional de Segurança e Saúde no Trabalho. Brasília: Ministério da Saúde; 2012.
5. Santos Júnior BJ, Silveira CLS, Araújo EC. Work conditions and ergonomic factors of health risks to the Nursing team of the mobile emergency care/SAMU in Recife City. J Nurs UFPE on line [Internet]. 2010 Jan [cited 2013 Dec 15];4(1):245-53. Available from: http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/746/pdf_317
6. Ministério do Trabalho e Emprego. Portaria SIT n.º 13, de 21 de junho de 2007. Brasília: Diário Oficial da União; 2007.
7. Silva CDL, Pinto WM. Riscos ocupacionais no ambiente hospitalar: fatores que favorecem a sua ocorrência na equipe de enfermagem. Saúde Coletiva em Debate [Internet]. 2012 Dec [cited 2013 Dec 17];2(1):62-9. Available from: <http://fis.edu.br/revistaenfermagem/artigos/vol02/artigo10.pdf>
8. Royas ADV, Marziale MHP. A situação de trabalho do pessoal de enfermagem no contexto de um hospital argentino: um estudo sob a ótica da ergonomia. Rev Latino-Am Enfermagem [Internet]. 2001 Jan [cited 2013 Dec 16];9(1):102-8. Available from: http://www.scielo.br/scielo.php?pid=S0104-11692001000100015&script=sci_arttext
9. Souza AP, Vianna HA, Minette LJ, Machado CC. Avaliação das condições de segurança no trabalho nos setores florestais de uma Instituição Federal de Ensino Superior. Rev Árvore [Internet]. 2010 Nov [cited 2013 Dec 12];34(6):[about 5 p.]. Available from:

http://www.scielo.br/scielo.php?pid=S0100-67622010000600020&script=sci_arttext

10. Ministério do Trabalho. Manual de Aplicação da Norma Regulamentadora N° 17. Brasília: MTE; 2002.101p. Available from: [http://portal.mte.gov.br/data/files/8A7C816A3DCAE32F013DCBE7B96C0858/pub_cne_manual_nr17%20\(atualizado_2013\).pdf](http://portal.mte.gov.br/data/files/8A7C816A3DCAE32F013DCBE7B96C0858/pub_cne_manual_nr17%20(atualizado_2013).pdf)>

Submission: 2014/01/10

Accepted: 2014/05/15

Publishing: 2014/08/01

Corresponding Address

Layze Braz de Oliveira
Universidade Federal do Piauí
Departamento de Enfermagem
Quadra 217, Casa-2, Dirceu II
CEP 64078-170 – Teresina (PI), Brazil