

Work-related health damage of nurses in a university hospital

Danos à saúde relacionados ao trabalho de enfermeiros em um hospital universitário

Daños a la salud relacionados con el trabajo de enfermeros en un hospital universitario

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Abstract

Objective: To analyze the work-related health damage of nurses in a university hospital.

Methods: Cross-sectional, quantitative study conducted with 135 nurses from a university hospital located in the southeast region of Brazil between December 2018 and February 2019 with the application of questionnaires for personal and occupational characterization and the Work-Related Damage Assessment Scale. Descriptive and inferential statistics were used for data analysis.

Results: Physical illness prevailed among nurses. Psychological and social damage were evaluated as bearable. The items “digestive disorders” (2.35 ± 1.18), “bad mood” (2.41 ± 1.12), “headache” (2.58 ± 1.11), “body pain” (2.81 ± 1.15), “back pain” (2.90 ± 1.29), “sleep disorders” (2.96 ± 1.28) and “leg pain” (3.00 ± 1.25) had a critical evaluation by nurses, which represents a risk for illness. No significant associations between the studied variables and illness were identified.

Conclusion: Nurses are subject to risks for illness related to work in the university hospital under study that trigger physical illness. Social support is a likely explanation for not getting psychologically and socially ill.

Resumo

Objetivo: Analisar os danos à saúde relacionados ao trabalho de enfermeiros em um hospital universitário.

Métodos: Estudo transversal, quantitativo realizado com 135 enfermeiros de um hospital universitário localizado na região Sudeste do Brasil, entre os meses de dezembro de 2018 e fevereiro de 2019, com aplicação de questionários para caracterização pessoal e laboral e a Escala de Avaliação de Danos Relacionados ao Trabalho. Utilizou-se estatística descritiva e inferencial para a análise dos dados.

Resultados: Prevaleceu entre os enfermeiros o adoecimento físico. A avaliação para os danos psicológicos e sociais foi suportável. Os itens “distúrbios digestivos” ($2,35 \pm 1,18$), “mau-humor” ($2,41 \pm 1,12$), “dor de cabeça” ($2,58 \pm 1,11$), “dores no corpo” ($2,81 \pm 1,15$), “dores nas costas” ($2,90 \pm 1,29$), “alterações no sono” ($2,96 \pm 1,28$) e “dores nas pernas” ($3,00 \pm 1,25$) tiveram avaliação crítica pelos enfermeiros, o que representa risco para adoecimento. Não se identificaram associações significativas entre as variáveis pesquisadas e o adoecimento.

Conclusão: Os enfermeiros estão sujeitos a riscos de adoecimento relacionado ao trabalho no hospital universitário em estudo que deflagram adoecimento físico; sendo o suporte social uma provável explicação para o não adoecimento psicológico e social.

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Conflicts of interest: none to declare.

Resumen

Objetivo: Analizar los daños a la salud relacionados con el trabajo de enfermeros en un hospital universitario.

Métodos: Estudio transversal, cuantitativo realizado con 135 enfermeros de un hospital universitario ubicado en la región Sureste de Brasil, entre los meses de diciembre de 2018 y febrero de 2019, con la utilización de cuestionarios para caracterización personal y laboral y la Escala de Evaluación de Daños Relacionados con el Trabajo. Se utilizó una estadística descriptiva e inferencial para el análisis de los datos.

Resultados: Prevalció entre los enfermeros la dolencia física. La evaluación para los daños psicológicos y sociales fue soportable. Los ítems “disturbios digestivos” ($2,35 \pm 1,18$), “malhumor” ($2,41 \pm 1,12$), “dolor de cabeza” ($2,58 \pm 1,11$), “dolores por el cuerpo” ($2,81 \pm 1,15$), “dolores en la espalda” ($2,90 \pm 1,29$), “alteraciones del sueño” ($2,96 \pm 1,28$) y “dolores en las piernas” ($3,00 \pm 1,25$) tuvieron una evaluación crítica de los enfermeros, lo que representa riesgo para la dolencia. No se identificaron asociaciones significativas entre las variables investigadas y la dolencia.

Conclusión: Los enfermeros están sujetos a riesgos de dolencia relacionados con el trabajo en el hospital universitario en un estudio que ocasionan dolencia física; el soporte social es una probable explicación para la no dolencia psicológica y social.

Introduction

Work is an important determinant of the health-disease process. However, changes in the work process in health and nursing in recent years, which result of work relationships and pressure for quality and productivity, have generated negative impacts on the health of workers in health institutions in general.^(1,2)

Nursing work in the hospital environment is painful, dangerous, and unhealthy. Professionals are constantly exposed to situations of risk of illness related to inadequate conditions, lack of autonomy and control over work, dysfunctional management models, devaluation and lack of professional recognition, work overload and multiple tasks.^(1,3)

These conditions constitute barriers to the execution of the prescribed nursing work, i.e., describable according to norms and procedures.⁽⁴⁾ In patient care, nurses use different strategies and mechanisms for the adjustment and restructuring of work processes. As a result of this process, there is a higher risk of illness due to high work demands that can damage the health of these workers and the development of their work.⁽²⁾

In this context, studies^(5,6) have identified a significant number of sick leave episodes among nursing workers in university hospitals (UH). Another frequent situation in hospital settings in the context of precarious work is the number of professionals who remain active, although affected by health problems, which implies damage to the care provided and to their health.⁽⁷⁾

Damage is understood as any loss or injury resulting from demands and experiences at work,

and classified as physical, psychological, and social. Physical damage encompasses the manifestations of pain and biological disorders related to inappropriate activities, manipulations, or body postures for performing the work. Psychological damages concern feelings of malaise and negative feelings towards oneself and life; and social damage involves difficulties in relationships and adjustment to family and social life.⁽⁸⁾

The negative impacts on workers' health and wellbeing resulting from psychosocial conditions are influenced by individual characteristics and depend on intrinsic and extrinsic factors to work institutions.^(1,5) Among them, are the management and care models of UHs. Most federal UHs in Brazil are administered by the Brazilian Hospital Services Company (Portuguese acronym: EBSEH) linked to the Ministry of Education, and care is based on the norms and guidelines of the Ministry of Health. Workers are hired through civil service entrance examinations and are subject to the Consolidation of Labor Laws (Portuguese acronym: CLT) regime.

Thus, UHs differ from other general hospitals, particularly in terms of their teaching and research activity that requires the work of specialized, constantly updated professionals to meet the demand of both users and students. When observing the role of nurses in the work context of UHs, we perceive that issues on damage to these workers' health need to be explored.⁽⁹⁾

In a non-systematic search in the literature, we identified that research^(1,5,10) on this theme followed without distinction of professional category, which justifies this study, since nurses were

considered in isolation. It is relevant from the perspective of knowledge production, as it brings possibilities of adjustments to the specific characteristics of the position/role within the work context.

In this sense, the objective was to analyze the work-related damage to the health of nurses in a university hospital.

Methods

This is a cross-sectional, quantitative study developed between December 2018 and February 2019 in a high-complexity federal UH located in the southeast of Brazil.

The study population consisted of 213 nurses. The inclusion criterion was being a nurse at the studied institution, without considering the minimum working time in the hospital. The exclusion criterion was being on vacation or leave for any reason during the data collection period.

A census of nurses working in different care sectors and different working hours was performed. They were characterized as professionals on duty, who worked 12 or 24 hours a day, with rest breaks; and as professionals who worked six hours on daytime weekdays (morning or afternoon shifts). Fourteen nurses were on vacation and nine were on leave during the data collection period, thus, 190 professionals were eligible. The study included 135 nurses (71%); losses corresponded to 28 nurses who were not found, 15 refusals, nine instruments were not returned and three were filled out incompletely.

Initially, the heads of sectors were contacted to obtain consent to access the environments under their management. Then, nurses were approached individually in the work setting for guidance on the objectives, materials and techniques and agreement to participate in the study. In this step, two nursing professionals from the institution participated, a nurse and a nursing technician who were trained to attract participants. After acceptance to participate in the study, an envelope numbered according to the order of insertion containing the Informed Consent Form (IC) and data collection instruments was given

to participants. After clarifications, the date for collection of the answered instruments was scheduled.

Data collection instruments were: a questionnaire for personal and work characterization (age, sex, marital status, working hours and shifts, type and number of work engagements, if the participant thought about changing profession and length of experience in the institution) and Work-Related Damage Assessment Scale (Portuguese acronym: EADRT), extracted from the Psychosocial Risk Assessment Protocol at Work (Portuguese acronym: PROART).⁽⁸⁾

The data collection instruments were submitted to a pilot test with ten nurses – postgraduate (specialization) students from a public university – to evaluate and improve the instrument. Adjustments were made to the format of questions to better understand the respondents.

The EADRT is a self-applicable five-point Likert scale that assesses work-related damage from the worker's perspective. It consists of 23 items divided into three factors: physical damage (9 items), psychological damage (7 items) and social damage (7 items). This scale was developed in Brazil and presented good psychometric evidence. The classification of risks of illness followed the authors' guidelines, according to which mean values between 1.00 and 2.30 indicate low risk; between 2.31 and 3.70 – medium risk; and between 3.71 and 5.00 – high risk, and the consequent presence of occupational diseases.⁽⁸⁾

Data were processed using the Statistical Package for the Social Sciences software by means of frequency distribution and measures of position and variability, respectively, mean, and standard deviation. To maximize the differences between groups, the choice was to regroup the assessment of items in illness (high/medium risk) and absence of illness (low risk). Note that this stratification has already been adopted in other studies with nursing professionals.^(9,10) The estimated odds ratio (OR) and its respective 95% confidence intervals (CI) were evaluated and considered significant when the CIs did not have the value 1.0.

The study met the ethical precepts of research involving human beings and was approved by the

Research Ethics Committee of the proposing institution (Opinion number 2.916.938 and CAAE 98395018.0.0000.5238) and of the co-participating institution (Opinion number 2.990.067 and CAAE 98395018.0.3001.5258).

Results

Among participants, most were female (n = 117, 86.7%), mean age of 39.3 (±10.2) years old, living with a partner (n = 85, 64, 4%), on duty workers (n = 79, 58.5%) and with one work engagement (n = 90, 67.2%). As for the employment regime, most were public servants (n = 80, 59.3%) – employee subject to their own statute, with guaranteed job stability – followed by professionals with indefinite time employment contracts (n = 48, 35.6%) and temporary professionals with a fixed-term employment contract (n = 6, 5.2%), with working hours of up to 30 hours (n = 67, 50.4%) or more than 30 hours per week (n = 66, 49.6%) and an average time of 6.1 years of work in the institution. Furthermore, 79 (60.8%) nurses had already thought about leaving the profession. As seen in table 1, in the analysis of work-related health damage, the item “bad mood” of the psychological damage factor and the items “body pain”, “headache”, “digestive disorders”, “back pain”, “sleep disorders” and “leg pain” of the physical damage factor were critically evaluated, representing a medium risk for illness. However, all items of the social damage factor obtained a satisfactory evaluation, not characterizing illness among the nurses surveyed. Only the physical damage factor represented an illness condition, with the lowest mean value for the social damage factor.

Physical illness was more frequent among nurses, followed by psychological illness and social illness, as shown in table 2.

Table 3 shows that, although no significant association was found, greater chances of physical and psychological illness were found among women who did not live with a partner. Psychological and social illness was higher among workers with

Table 1. Evaluation of health-related damage of nurses in a university hospital (n = 135)

Factor/Item	Mean	SD	Classification
Psychological damage	1.94	0.25	Absence of illness
Bad mood	2.41	1.12	Medium risk
Sadness	2.22	1.06	Low risk
Bitterness	1.84	0.98	Low risk
Feeling of emptiness	1.87	0.99	Low risk
Willingness to give up everything	1.87	1.09	Low risk
Loss of self-confidence	1.81	0.93	Low risk
Loneliness	1.81	1.04	Low risk
Social damage	1.97	0.25	Absence of illness
Impatience with people in general	2.29	0.95	Low risk
Willingness to be alone	2.27	1.15	Low risk
Conflicts in family relationships	2.00	0.98	Low risk
Difficulties in relationships outside of work	1.88	0.94	Low risk
Insensitivity towards colleagues	1.82	0.94	Low risk
Aggressiveness towards others	1.76	0.94	Low risk
Difficulty with friends	1.62	0.86	Low risk
Physical damage	2.57	0.35	Illness
Leg pain	3.00	1.25	Medium risk
Sleep disorders	2.96	1.29	Medium risk
Back pain	2.90	1.29	Medium risk
Body pain	2.81	1.15	Medium risk
Headache	2.58	1.06	Medium risk
Digestive disorders	2.35	1.18	Medium risk
Changes in appetite	2.27	1.31	Low risk
Arm pain	2.18	1.18	Low risk
Circulatory disorders	2.14	1.27	Low risk

SD – Standard deviation

Table 2. Distribution of nurses by illness condition according to factors of the Work-Related Damage Assessment Scale (n = 135)

Work-related health damage	Absence of illness n(%)	Illness n(%)	Total n(%)
Social damage	102(75.6)	33(24.4)	135(100)
Psychological damage	95(70.4)	40(29.6)	135(100)
Physical damage	47(34.8)	88(65.2)	135(100)

an indefinite time employment contract and working more than 30 hours a week. On the other hand, nurses with two or more employment engagements had greater chances of becoming physically and socially ill, and on duty workers had a greater chance of social illness. Workers who intended to abandon the profession had a higher risk for illness in all factors.

Discussion

In this study, two-thirds of the damage events had a satisfactory evaluation, which is a similar result

Table 3. Association between illness and personal and work characteristics for the health damage of nurses in a university hospital (n = 135)

Variable	n	Psychological n(%)	Illness				
			OR(95%CI)	Social n(%)	OR(95%CI)	Physical n(%)	OR(95%CI)
Sex							
Female	117	34(87.2)	1	27(84.4)	1	76(87.4)	1
Male	18	5(12.8)	0.92(0.30-2.80)	5(15.6)	1.26(0.41-3.87)	11(12.6)	0.82(0.29-2.29)
Lives with a partner*							
Yes	85	24(63.2)	1	20(64.5)	1	55 (64.0)	1
No	47	14(36.8)	1.07(0.49-2.36)	11(35.5)	0.99(0.42-2.30)	31(36.0)	1.05(0.49-2.23)
Type of contract*							
Public server	80	24(61.5)	1	20(62.5)	1	51(58.6)	1
Indefinite time contract	48	15(38.5)	0.85(0.41-1.84)	12(37.5)	0.82(0.36-1.86)	36(41.4)	1.04(0.50-2.14)
Number of jobs*							
One job	90	27(69.2)	1	19(59.4)	1	54(62.1)	1
Two or more jobs	44	12(30.8)	0.86(0.38-1.92)	13(40.6)	1.54(0.67-3.51)	33(37.9)	1.94(0.87-4.34)
Work shift							
Daytime	56	18(46.2)	1	13(40.6)	1	37(42.5)	1
On duty	79	21(53.8)	0.74(0.35-1.58)	19(59.4)	1.02(0.45-2.29)	50(57.5)	0.84(0.41-1.73)
Working hours in institution*							
Up to 30 hours	67	21(53.8)	1	17(53.1)	1	42(48.3)	1
Over 30 horas	66	18(46.2)	0.84(0.38-1.70)	15(46.9)	0.84(0.38-1.88)	45(51.7)	1.22(0.59-2.52)
Thought about changing profession*							
Yes	79	26(70.3)	1	20(64.5)	1	53(63.1)	1
No	51	11(29.7)	0.55(0.24-1.24)	11(35.5)	0.79(0.34-1.84)	31(36.9)	0.73(0.35-1.52)

Note: OR(95%CI) – odds ratio and 95% confidence interval
*Variable with data loss

to that found in other investigations.^(9,10) Hence the belief that coping strategies may be effective in mitigating the harmful effects of working conditions on the physical, psychological and social health of nurses. It is known that nurses in hospital units are exposed to inadequate working conditions that can trigger illnesses.⁽¹⁾

The condition of illness was greater for physical damage, in line with another study of nursing workers.⁽¹⁰⁾ The isolated evaluation of items in this factor reinforces the findings in the literature⁽⁶⁾ by indicating the most varied types of pain as the most frequent types of damage related to nursing work in UHs. In this study, we believed that physical damage would be less frequent compared to the others – a rejected hypothesis –, as nurses are possibly at lower risk of physical illness related to the administrative nature of their functions.⁽¹¹⁾

Thus, workloads are felt in different ways between groups of workers. Professionals who work in

the morning shift may feel greater burden related to the movement of patients due to the need for a bed bath; just as intensive care unit nurses may be more exposed to cognitive harm related to the need for continuous surveillance.

Physical damage can also be associated with inherent characteristics to nurses' work process that constitute ergonomic risks.⁽¹²⁾ Nursing work involves agility and dexterity, patient movement, intense work pace and repetitiveness of tasks that demand long periods standing up and large displacements, which can cause physical wear and tear.^(1,4,12)

Workers present pain in different parts of the body, and it is more common among those with a workload of more than 12 hours a day and/or who have two work engagements.⁽¹³⁾ According to a study, in nurses, the body sites affected by musculoskeletal symptoms⁽¹³⁾ are the neck and cervical region, lumbar region, hips and lower limbs, dorsal region, shoulders and wrists, hands and fingers.

Despite the predominance of psychological absence of illness among the sample in this study, which converges with other studies,^(9,10,14) mental disorders are currently known as one of the main causes of work absence.⁽¹⁵⁾ Among a sample of 3,978 British nurses, one third had symptoms of anxiety and depression, and about 50% had post-traumatic stress disorder.⁽¹⁶⁾ Furthermore, a study of 812 North American nurses identified that burnout can be a predictor for absence from work and poor performance of tasks.⁽¹⁷⁾

Regarding psychological damage, only the item “bad mood” received a critical evaluation, which represents an alert situation. Psychological risks, including exhaustion, violence and workload followed by environmental risks such as lighting, noise, temperature and ergonomic factors, are frequent in UHs.⁽¹⁸⁾ As psychological damages are insidious and sometimes seen as a “fallacy” of workers, they can be underdiagnosed or underestimated by managers and even employees,⁽¹⁰⁾ showing the need to improve the diagnostic mechanisms of work-related illnesses.

Note that psychological damage can evolve into mental disorders such as depression, anxiety, stress,⁽¹⁹⁾ and burnout⁽²⁰⁾, which impact on levels of psychological wellbeing and quality of life.^(19,20)

These data may be related to the specifics of nurses’ work that involve constantly dealing with the pain, death and suffering of others, added to inadequate working conditions, long working hours and professional devaluation that can exert great impact on their health.⁽²¹⁾ Over time, the monotony of work, the high demands and pressure can trigger wear and tear on their health and on their coping mechanisms and lead to distancing from work and conflicts in relationships.⁽²²⁾

It is important to report women’s higher risk for both physical and psychological illness. A study identified that women who were mothers and dissatisfied with the support received were seven times more likely to be affected by symptoms of work-related mental disorders.⁽²³⁾ The social construction of women’s role as caregivers implies in the extension of the workday to house-

hold chores, increasing work stressors and the strain on their health.

The “social damage” factor had a bearable evaluation and was the only one that did not obtain a negative evaluation in all items, similar to other studies with nursing workers.^(9,10,14) Hence the conclusion that nurses have dealt more satisfactorily with social issues occurring at work, being a protective factor against illness.

Data from this study are corroborated in the literature, as it was identified that when social damage evaluations were more positive, there was less physical and psychological damage.⁽¹⁴⁾ Thus, the connections established between nurses and patients, family members, co-workers, other nurses and students can enhance wellbeing at work and feelings of happiness,⁽²⁴⁾ balancing the weight of workloads.

Note that the items “willingness to be alone” and “impatience with people in general” – both from the “social damage” factor – presented an evaluation close to critical risk, which was also evidenced in other studies,^(10,14) although these were considered incapable of causing harm to workers until that moment. We believe these results can be influenced by the nature of nurses’ work that involves people management, permeated by conflicts and power relationships that can be considered unpleasant and generate feelings of indifference towards others. Thus, it is important to establish strategies that promote harmonious relationships.⁽²⁴⁾

As sleep problems were evaluated as a critical risk for nurses’ illness in this study, even though it is not possible to establish causal relationships due to the nature of the study, this is clearly a group of systemic and multiple stressors that may indicate depletion of the most varied types.

Physical and psychological demands can be related to sleeping difficulties and affect interpersonal relationships. Psychosocial stressors at work are also associated with a higher risk of absenteeism due to illness and poor sleep quality.^(10,25) Thus, the ability and motivation to work are compromised, thereby triggering a reduction in the quality of care provided.

It is evident that the multidimensional nature of the health-disease process is decisive for the analysis of workers' health. Nurses with more than one job and/or temporary work may experience fatigue and exhaustion that trigger difficulties in the balance of lifestyle, given the long working hours, precarious working conditions and restrictions of labor rights.⁽²⁶⁾

Additionally, the illness of nurses leads to a reflection on the presenteeism behavior of professionals, considering that some are ill and continue to work.⁽²⁷⁻²⁹⁾ This demonstrates that presenteeism negatively impacts the work capacity of workers and can aggravate the diseases affecting nurses.^(30,31) In addition, other team members start to be more demanded, causing overload and damages to the performance.⁽³²⁾

However, issues such as "employment insecurity resulting from fragile employment contracts, competitiveness and the growing incentive to productivity"⁽³³⁾ can awaken feelings of leaving work in professionals, including abandoning the profession, as evidenced in this study, since the chances of the three forms of illness evaluated were greater among nurses who had already thought about giving up the profession. This work context experienced by nurses has significantly contributed to the illness of workers and expands the reflection on the development of disease prevention strategies and health promotion at work.

The limitations of this study include the fact that it was conducted in only one research site, which made it impossible to analyze other forms of institutional management and work organizations; the exclusion of graduates, which may have underestimated the prevalence of nurses at that institution; the impossibility of establishing causal relationships given the nature of the study; and also the possibility of influence of mood and feelings resulting from events that occurred in days prior to data collection, considering that it is a questionnaire with subjective statements.

Despite the limitations, this study expands the discussions on work-related damage of nurses in a university hospital, encouraging reflection on the invisibility of the work performed by these pro-

professionals and its valuation in the work context. Furthermore, it can serve as a source of research for future studies aimed at investigating the working conditions and illness of nurses.

The findings mention the need to evaluate risk factors for physical illness that involve handling patients, repetitive tasks, need for displacement, adoption of inappropriate postures, among others that deserve to be investigated to propose strategies that mitigate the damage they cause. Furthermore, they reinforce the promotion of social support through mechanisms that promote harmonious dialogue and more participative management models. Finally, although data in this study only reveal the damage felt and reported by nurses, new studies seeking the relationships imbricated in the work context are important.

Conclusion

The results allow us to infer that the work of nurses in university hospitals can trigger physical damage to their health. We believe that social support may be a protective factor for the forms of psychological and social illness. The items "bad mood", "body pain", "headache", "digestive disorders", "back pain", "sleep disorders" and "leg pain" posed as critical risk for nurses' health. No item of the "social damage" factor had a negative evaluation. Although no statistically significant association was identified, there may be some relationship between the harm to nurses' health and the intention to abandon the profession.

Collaborations

Nascimento FPB, Tracera GMP, Santos KM, Sousa KHJF, Jesus SA, Tomaz APKA and Zeitoune RCG contributed to the study design, analysis and interpretation of data, article writing, relevant critical review of the intellectual content and approval of the final version to be published.

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