



## **Excessive daytime sleepiness and the effects of work on the health of nursing workers**

Sonolência diurna excessiva e os efeitos do trabalho na saúde de trabalhadores de enfermagem

Somnolencia diurna excesiva y los efectos del trabajo en la salud de trabajadores de enfermería

Kellen da Silva <sup>1</sup>

Ariane Naidon Cattani <sup>2</sup>

Maiara Carmosina Hirt <sup>3</sup>

Anahlú Peserico <sup>4</sup>

Rosângela Marion da Silva <sup>5</sup>

Carmem Lúcia Colomé Beck <sup>6</sup>

<sup>1</sup> Nurse graduated from the Federal University of Santa Maria, Brazil. [kellendasilva25@gmail.com](mailto:kellendasilva25@gmail.com)

<sup>2</sup> Nurse Mental Health Specialist. Master's student, Postgraduate Program in Nursing, Federal University of Santa María (PPGENf / UFSM). Brazil.

<sup>3</sup> Nurse Master's student, Postgraduate Program in Nursing, Federal University of Santa María (PPGENf / UFSM). Brazil.

<sup>4</sup> Nurse Master in Nursing. PhD student of the Graduate Program in Nursing of the Federal University of Santa María (PPGENf / UFSM). Brazil.

<sup>5</sup> Nurse. Doctorate in Sciences. Professor of Undergraduate and Postgraduate Nursing at the Federal University of Santa María (PPGENf / UFSM). Brazil.

<sup>6</sup> Nurse. Doctorate in Nursing. Professor of Undergraduate and Postgraduate Nursing at the Federal University of Santa María (PPGENf / UFSM). Brazil.

<http://dx.doi.org/10.6018/eglobal.19.1.377381>

Received: 14/05/2019

Accepted: 9/08/2019

### **ABSTRACT**

**Objective:** To analyze excessive daytime sleepiness and the effects of work on the health of nursing workers working in the Post-Anesthetic Recovery Unit.

**Method:** A cross-sectional study carried out with 39 nursing workers from a Post-Anesthetic Recovery Unit of a University Hospital. Data collection instruments were the socio-labor characterization questionnaire, the Epworth Sleepiness Scale and the Work-Related Damage Assessment Scale. The data were analyzed with the aid of Predictive Analytics Software, SPSS (Statistical Package for the Social Sciences), through statistical tests.

**Results:** Indicate that physical damage presented a higher mean ( $2.33 \pm 1.15$ ), and pain in the body, back and legs predominated, a severe classification, which potentiates suffering at work. As to the presence of excessive daytime sleepiness, 41% of the workers presented. No significant association was identified between excessive daytime sleepiness and the effects of work on the health of nursing workers.

**Conclusion:** This study may help in the planning of actions with the intention of minimizing the damages related to work and promoting the health of the worker.

**Keywords:** Worker's health; Nursing; Sleep; Recovery Room.

## RESUMO

**Objetivo:** Analisar a sonolência diurna excessiva e os efeitos do trabalho na saúde de trabalhadores de enfermagem atuantes na Unidade de Recuperação Pós-Anestésica.

**Método:** Estudo transversal, realizado com 39 trabalhadores de enfermagem de uma Unidade de Recuperação Pós-Anestésica de um Hospital Universitário. Os instrumentos de coleta de dados foram o questionário de caracterização sociolaboral, a Escala de Sonolência de Epworth e a Escala de Avaliação dos Danos Relacionados ao Trabalho. Os dados foram analisados com auxílio do *Predictive Analytics Software*, da SPSS (*Statistical Package for the Social Sciences*), por meio de testes estatísticos.

**Resultados:** Indicam que os danos físicos apresentaram maior média ( $2,33 \pm 1,15$ ), sendo que dores no corpo, costas e pernas predominaram, dito uma classificação grave, o qual potencializa o sofrimento no trabalho. Quanto à presença de sonolência diurna excessiva, 41% dos trabalhadores apresentaram. Não foi identificada associação significativa entre a sonolência diurna excessiva e os efeitos do trabalho na saúde de trabalhadores de enfermagem.

**Conclusão:** Este estudo poderá auxiliar no planejamento de ações com o intuito de minimizar os danos relacionados ao trabalho e promover a saúde do trabalhador.

**Palavras chave:** Saúde do trabalhador; Enfermagem; Sono; Sala de Recuperação.

## RESUMEN

**Objetivo:** Analizar la somnolencia diurna excesiva y los efectos del trabajo en la salud de trabajadores de enfermería actuantes en la Unidad de Recuperación Post-Anestésica.

**Método:** Estudio transversal, realizado con 39 trabajadores de enfermería de una Unidad de Recuperación Post-Anestésica de un Hospital Universitario. Los instrumentos de recolección de datos fueron el cuestionario de caracterización sociolaboral, la Escala de Somnolencia de Epworth y la Escala de Evaluación de los Daños Relacionados al Trabajo. Los datos fueron analizados con ayuda de Predictive Analytics Software, de la SPSS (*Statistical Package for the Social Sciences*), a través de pruebas estadísticas.

**Resultados:** Indican que los daños físicos presentaron mayor promedio ( $2,33 \pm 1,15$ ), predominando dolores en el cuerpo, espalda y piernas, dicho una clasificación grave, lo cual potencia el sufrimiento en el trabajo. En cuanto a la presencia de somnolencia diurna excesiva, el 41% de los trabajadores la presentaron. No se identificó asociación significativa entre la somnolencia diurna excesiva y los efectos del trabajo en la salud de trabajadores de enfermería.

**Conclusión:** Este estudio podrá auxiliar en la planificación de acciones con el objetivo de minimizar los daños relacionados al trabajo y promover la salud del trabajador.

**Palabras clave:** Salud del trabajador; Enfermería; Sueño; Sala de Recuperación.

## INTRODUCTION

Nursing practice in high complexity sectors requires a greater effort of the worker, both physical and psychological, due to the demand of care for patients who need constant attention. In the hospital environment, workers are exposed to situations that may affect their health and safety, contributing to illness, such as exposure to bodily fluids, use of obsolete and inappropriate equipment and technologies, unhealthy and hazardous work processes and inadequate working environments.

In Post-Anesthetic Recovery (PAR), a hospital unit characterized as a sector that aims to contribute to the recovery of patients in the immediate postoperative period, nursing needs to observe and perform constant care, until the patients regain consciousness and stabilize vital signs, preventing intercurrents in the post-anesthetic period. To offer safe and humanized assistance, it is necessary technical-scientific knowledge, agility in care, concentration and ethics<sup>(1)</sup>.

Among the factors that have an impact on workers' health, sleep is crucial, since it has restorative, energy conservation, protection functions, assists the immune system and plays a fundamental role in human life. During sleep, the frequency of electrical activity in the cerebral cortex varies according to its different stages, and also vary physiological elements and muscle relaxation of the body. However, sleep deprivation has been increasingly recurrent and this can interfere with the physical and mental wellbeing of people, leading to functional damage<sup>(2)</sup>.

Sleep-related alterations include poor quality of sleep, insomnia, difficulty sleeping and/or waking up at the desired time, abnormal movements/behaviors, as well as Excessive Daytime Sleepiness (EDS) <sup>(3)</sup>. EDS is a chronic symptom of sleep and is characterized by the inability to stay awake and/or alert during the day, and may occur due to deprivation or poor quality of sleep, clinical or psychiatric comorbidity and the use of medications<sup>(2)</sup>, influenced by work environment.

In the literature there are studies on EDS in nursing professionals working in Intensive Care Units (ICU)<sup>(4,5)</sup> and in several sectors of a single hospital institution<sup>(6)</sup>. However, we did not identify studies on the EDS in Post-Anesthetic Recovery, a fact that reinforces the importance of research development in the perspective of identifying determinant factors for work effects on workers' health.

In this perspective, this article has as a research question: Is there a relationship between excessive daytime sleepiness and the effects of work on the health of nursing staff working in the Post-Anesthetic Recovery unit? The objective was to analyze excessive daytime sleepiness and the effects of work on the health of nursing staff working in the Post-Anesthetic Recovery unit.

## METHOD

This is a cross-sectional study carried out in the Post-Anesthetic Recovery unit of a public and teaching hospital of a municipality in Rio Grande do Sul. The unit has 20 beds for patients who are in the immediate postoperative period and a population of 54 nursing workers.

The inclusion criteria were: to act in patient direct care and to having worked for at least six months in the Post-Anesthetic Recovery unit. Exclusion criteria were: being on vacation or on leave of any nature during the data collection period.

Data collection occurred from September to October 2017; all professionals were invited to participate and had four days to give the questionnaires back. For data collection instruments we used a questionnaire on socio-occupational data, including questions such as age, sex, having children, marital status, professional category, work shift, having another job, working time in the unit, training to act in the sector, use of medication, involvement with work accident, working hours option, satisfaction with salary, health treatment, absenteeism and physical activity practice.

A validated version in Brazilian Portuguese (ESS-BR) of the Epworth Sleepiness Scale aims to quantify the propensity to nap in eight daily situations. They are: sitting and reading; watching TV; sitting, still, in a public place; traveling by car for 1 hour without stopping, as a passenger; lying down in the afternoon to rest, when possible; sit talking to someone; sitting still after lunch without alcohol drink; in a car stopped in the traffic

for a few minutes. It consists of a scale from 0 to 3, where 0 corresponds to none and 3 a high probability of napping. They reach maximum values of 24 points and minimum of 0, with sleepiness classified as normal excessive sleepiness, limit excessive sleepiness, light excessive sleepiness, moderate excessive sleepiness and severe excessive sleepiness. As values > 11 express EDS<sup>(7)</sup>, for this study we chose to classify the workers with EDS and without EDS.

The Work-Related Damage Assessment Scale (WREAS) seeks to provide diagnostic information on the health of the investigated individuals. It is a 7-point Likert-type scale, with 29 questions distributed in the physical, psychological and social damage factors. Physical damage is defined as body aches and biological disturbances, psychological damage as negative feelings towards oneself and life in general and social damage is defined as isolation and difficulty in family and social relationships. Calculating the average of the factors we have the following classification: value below 1.9 indicates satisfactory level, feeling of pleasure at work; between 2.0 and 3.0 indicates critical level, reporting suffering at work; between 3.1 and 4.0 is a serious level, suffering and a great risk of illness; and values above 4.1 represents the presence of occupational diseases<sup>(8)</sup>.

The collected data were typed in the Excel for Windows/7 program (Microsoft Office 2007). Subsequently, they were analyzed with the help of Predictive Analytics Software, from SPSSINC., Chicago – USA, version 15.0 for Windows. To verify the association between the socio-occupational variables, EDS and WRDAS, we used chi-square test, at a significance level of 5%. In the cases of finding global association, we calculated the adjusted residues, which verifies the existence of a significant local association between the categories.

The Research Ethics Committee under the opinion N ° 2,237,779, process CAAE 71819717.9.0000.5346 approved the study. All participants signed the Informed Consent Form (ICF) and the ethical precepts of resolution 466/12 of the National Health Council<sup>(9)</sup> were respected.

## RESULTS

Based on the inclusion and exclusion criteria of the study, the eligible population was 49 workers. Among these, five did not accept to participate and five questionnaires were not handed back in the established period. Thus, the sample consisted of 39 workers, ten nurses (25.64%), 25 nursing technicians (64.1%) and four nursing assistants (10.26%). The participants had an average age of 42 years (SD=8,893) and the average working time in the unit was 6.11 years (SD=5.13). Females predominated (82%, n=32), workers who had children (77%, n=30), married or with partners (77%, n=30), who practiced physical activity (53.8%, n=21) and who had free time one or more times a week (89.7%, n=35). Workers in health care were (43.59%, n=17) and who were using medication (46.2%, n=18). Most of them had postgraduate studies (61.5%, n=24).

In relation to the working variables, most of the staff worked during the night shift (48.7%, n=19), followed by the afternoon shift (28.20%, n=11) and the morning shift (23.07%, n=9), and the majority had the opportunity to choose their work shift (79.5% , n=31). A percentage of 23.07% (n=9) received training to work in the unit, 25.6% (n=10) had another job, 36% (n=14) already had a work accident and 18% (n=7) were

off work due to disease. As regards professional satisfaction, 87.2% (n=34) was satisfied.

It was identified that 41% (n=16) of the staff had excessive daytime sleepiness, and 35.9% (n=14) of them had light excessive sleepiness, while 5.1% (n=2) had moderate excessive sleepiness. This classification does not delimit the period of the day when the professional feels sleepier.

When associating socio-occupational data and the items of the Epworth Sleepiness Scale, we identified an association between the item probability of napping sitting and reading, and the variable sex ( $p=0.008$ ) and being sit, still, in a public place and the variable Post-Graduation ( $p=0,033$ ). The variable work accident was associated with the probability of nap sitting, still, in public places ( $p=0,017$ ) and lie down in the afternoon to rest ( $p=0,038$ ). And the variable Professional category was associated with the items probability of napping when lying down in the afternoon to rest ( $p=0,031$ ) and in a car stopped in the traffic for a few minutes ( $p=0,027$ ).

Table 1 shows the general mean of the physical, psychological and social damage factors. The classifications of these items indicate the presence of suffering or pleasure at work.

**Table 1: Mean, standard deviation and Cronbach's alpha coefficient value of the WRDAS scale factors. Santa Maria, RS. (n=39)**

<b>FACTORS</b>	<b>AVERAGE AND SD</b>	<b><math>\alpha</math> of Cronbach</b>
<b>Physical damage</b>	<b>2.33±1.15</b>	0.82
<b>Psychological damage</b>	1.61±1.18	0.90
<b>Social damage</b>	1.33±1.22	0.83

Source: Research Data

Table 1 shows that physical damage had an average of (2.33±1.15), which indicates a critical classification, suggesting suffering at work. Psychological and social damage obtained averages below 1.9 and classified as satisfactory, which indicates positive result and produce pleasure at work.

Table 2 shows the descriptive statistics of physical damage items related to work.

**Table 2: Descriptive statistics and description of physical damage factors related to work. Santa Maria, RS. (n=39)**

<b>ITEMS – PHYSICAL DAMAGE</b>	<b>AVERAGE AND SD</b>	<b>CLASSIFICATION</b>
Body pain	<b>3.9±1.93</b>	<b>Severe</b>
Arm pain	<b>2.64±2.18</b>	<b>Critical</b>
Head pain	<b>2.46±2.07</b>	<b>Critical</b>
Respiratory disorder	1.05±1.57	Bearable
Digestive disorder	1.77±1.82	Bearable
Back ache	<b>3.82±2.01</b>	<b>Grave</b>
Hearing disorders	0.62±1.26	Bearable
Appetite changes	1.77±2.13	Bearable
Distúrbios na visão	1.59±1.90	Bearable
Sleep alteration	<b>3.03±2.33</b>	<b>Critical</b>
Leg pain	<b>3.95±1.99</b>	<b>Severe</b>
Circulatory disorders	1.49±2.05	Bearable

Source: Research Data

In table 2 it is possible to see that the items body pain (3.9±1.93), back pain (3.82±2.01) and leg pain (3.95±1.99) showed greater severity. These items alone represent a negative result, producing suffering, which enhances workers' illness. A significant association was identified between physical damage and the variable having children ( $p=0.013$ ).

Table 3 shows the descriptive statistics of psychological damage items related to work.

**Table 3: Descriptive statistics and description of psychological damage factors related to work. Santa Maria, RS. (n=39)**

<b>ITEMS – PSYCHOLOGICAL DAMAGE</b>	<b>AVERAGE AND SD</b>	<b>CLASSIFICATION</b>
Bitterness	0.79±1.218	Bearable
Doubt about the ability to do the tasks	1.08±1.768	Bearable
Feeling of abandonment	1.23±1.769	Bearable
Loneliness	0.97±1.530	Bearable
Willingness to give up	1.28±1.919	Bearable
Feeling empty	1.41±1.568	Bearable
Feeling of helplessness	1.13±1.576	Bearable
Irritation with everything	1.77±1.799	Bearable
Sadness	1.54±1.745	Bearable
Bad humor	<b>2.13±1.657</b>	<b>Critical</b>

Source: Research Data

According to Table 3, the item bad humor (2.13±1,657) had a critical classification, which means an average result that suggests suffering at work. A significant association was identified between psychological damage and post-graduation variable ( $p=0,046$ ).

Table 4 shows the descriptive statistics of social damage items related to work.

**Table 4: Descriptive statistics and description of social damage factors related to work. Santa Maria, RS. (n=39)**

ITEMS – SOCIAL DAMAGE	AVERAGE AND SD	CLASSIFICATION
Insensitivity towards colleagues	1.46±1.636	Bearable
Difficulty in relationships outside work	1.44±1.744	Bearable
Willingness to be alone	<b>2.44±2.023</b>	<b>Critical</b>
Conflict in family relations	1.95±1.820	Bearable
Aggressiveness with others	136±1.460	Bearable
Difficulty with friends	0.72±0.972	Bearable
Impatience with people in general	1.92±1.797	Bearable

Source: Research Data

Table 4 shows that only one item has not been classified as bearable. This item represents how much the research participant felt the desire to be alone (2.44±2,023) in the last six months, classified as critical and indicating negative potential and suffering at work.

No association was identified between Work-related Damage Assessment Scale and Excessive Daytime Sleepiness ( $p>0.05$ ), nor the variables age, working time and EDS and WRDAS scale ( $p>0.05$ ).

## DISCUSSION

The study counted with 75% of the professionals who attended the inclusion criteria with an average of 42 years old and an average working time of 6.11 years, 48.7% of this working night shift. The predominance of females data corroborates with a national study<sup>(10)</sup>.

Regarding EDS, we identified a predominance of light excessive somnolence in 35.9% of the participants. When classified with the presence or not of the EDS, 41% (n=16) presented the EDS disorder. A study conducted in a pediatric and neonatal ICU of five school hospitals in a metropolitan area with 168 nursing professionals pointed out that regardless the work shift, the workers presented poor quality of sleep. This is due to the stress faced in the labor environment, intensified with care to critically ill patients. Sleepiness negatively influences the health of the professional and the work process, because it can cause fatigue, difficulty in concentration and bad mood, potentiating accidents at work, psychic illness and harming patient care<sup>(4)</sup>.

Caffeine consumption is one of the factors that can be harmful to the health of nursing professionals, which they usually use due to sleepiness. An Australian study found that high levels of caffeine consumption are associated with sleep disorders, as well as psychological distress, abdominal pain and weight gain in nursing staff<sup>(11)</sup>.

Sleep quality damage was identified in most of the nursing staff who worked in an ICU (88.24%, n=15), and the fatigue caused by the work shift interfered negatively in the activities performed, since sleep cannot be recovered the following day, affecting the performance of labor activities<sup>(5)</sup>.

In a research conducted with the nursing team at a clinic in Germany, there were correlations between sleep quality and overwork, pointing out that the lower quality of sleep was among professionals who were overworked and had uneven distribution of the workload<sup>(12)</sup>. Another study observed that nurses who perform a large number of tasks, in addition to the usual nursing responsibilities, had an accelerated increase in stress level, triggering depression<sup>(13)</sup>.

The item bad humor ( $2.13 \pm 1,657$ ) and the item willingness to be alone ( $2.44 \pm 2,023$ ) can indicate the professionals' suffering when they choose to rest and/or sleep in their leisure time, considering that 48.7% ( $n=19$ ) of the participants work night shift. The professionals who work in this shift can experience a feeling of social isolation, distancing from family life, insomnia, fractionated sleep, anxiety, bad mood, concentration difficulties, weight gain and gastrointestinal problems<sup>(14)</sup>. A study conducted in a private hospital in the interior of Bahia with 20 nursing professionals who worked night shift with fixed scale. It pointed out that 75% ( $n=15$ ) presented EDS, justified by the change in the normal circadian rhythm that suffers internal/physiological and external/environmental influence, 55% ( $n=11$ ) had daily fatigue, 35% ( $n=7$ ) showed anxiety and 45% of these professionals had a fractional sleep. This data set demonstrates losses in the quality of sleep and social damage, since workers give up their leisure time to sleep<sup>(6)</sup>.

Evidence of a study carried out at a health institution in Sweden indicated that the professionals considered the absence of prior notice regarding work shift changes, the greatest cause of fatigue, somnolence and social life influencing factor<sup>(15)</sup>. Although this study is still very recent to use it as a comparative, professional's shift change without prior notice happens mainly in cases of absenteeism, in which it is necessary to modify the schedule of a professional to supply the lack of another.

Regarding the effects of work, the study identified that physical damage had higher mean ( $2.33 \pm 1.15$ ), classified as critical, which indicates a median result, also said a limit situation, which can enhance suffering at work<sup>(8)</sup>. This result requires the adoption of strategies suffering at work onset, improve the quality of life, nursing care and reduce absenteeism due to health problems, since organization, work process and labor relations in the nursing context influence the health-disease relationship, causing the worker's physical and mental disease<sup>(10)</sup>.

The work carried out in the PAR unit comprises the evaluation and intervention against clinical and hemodynamic complications of the post-operative patient still on anesthetic effect. In addition, these professionals need to have agility in the presence of complications and interventions, helping to change the patient position, to walk around and changing the patient from the bed to the stretcher, for example. In some moments, they face overload associated with the work process in the unit with demand of medium to high complexity<sup>(16)</sup>. Such situations determine to consider critical the physical damage factor, since we identified, in this study, the prevalence of body, back and legs pain.

A study conducted with nurses from four surgical clinics of university hospitals in the state of Rio Grande do Sul identified similar results. Leg and arm pain were prevalent justified by the dynamic context of the professionals in patient and family care in the pre-and postoperative period<sup>(17)</sup>.

Another study conducted in a public hospital in Bahia, with 309 nursing professionals, pointed out that 66.4% of the complaints relate to symptoms of leg pain and 61.8% to back pain<sup>(18)</sup>. It corroborates findings of a study conducted in a hemodynamics service of an institution in the southern region of Brazil that indicated a severe assessment for leg and back pain<sup>(19)</sup>.

These results resemble the study conducted in ICUs of public and private hospitals in Turkey, which pointed to the prevalence of musculoskeletal pain symptoms in legs and back<sup>(20)</sup>. An Iranian study related back pain, especially lumbago, to the posture of nurses during work and increased physical load, for example, the transfer of patients from beds to stretchers and/or chairs, indicating the need to adopt adequate ergonomic interventions in the workplace in order to reduce the frequency and duration of exposure to inappropriate postures<sup>(21)</sup>. This exposure happens in the PAR unit, which indicates the importance of implementing appropriate conditions for the development of nurses' work, decreasing the risk of physical pain.

Work organization, understood as tasks, norms, controls and work rhythms has been considered, in some studies, as a possible triggering factor for workers' illness. A study with 58 nursing professionals working in an ICU at a university hospital used the Work Context Assessment Scale (WCAS), which indicated a higher average (3.27) for work organization, representing a moderate to critical score, which suggests that the occupational context in which the professional is inserted favors their illness<sup>(22)</sup>.

Another study conducted in a hospital in the north of Minas Gerais, with 103 nursing professionals, show that work dynamics/organization considered by the participants as a stressful factor in the workplace, being a factor of illness<sup>(23)</sup>. Physical damage hampers both the health of the worker and the organization of the health service, which may have repercussions on absenteeism due to the absence of health reasons, causing a deficit of professionals and, consequently, work overload and decrease of productivity and quality of the service provided.

A study conducted in a university hospital in the city of Goiânia, through the analysis of 602 nursing workers' dossiers, pointed out that the greatest reasons for work leave were diseases of the musculoskeletal system and connective tissue, which appear in 310 sick leave attestations (19.70%). In addition, the predominance of medical sick leave attestations among women (92.9%) was evidenced, justified by women's role in domestic activities, work and society<sup>(24)</sup>.

Women are often affected by occupational pathologies because they assume responsibilities such as housework, childcare and, sometimes, other job to maintain family income. In this study we observed that 77% (n=30) of the professionals surveyed have children and 25.6% (n=10) have another job, factors that may contribute to work overload. In relation to occupational accidents, 36% (n=18) of the workers already had and 18% (n=7) have already been off work due to diseases. These values deserve attention in order to prevent accidents increasing, through studies and interventions.

It is worth noting that in relation to physical damage, we identified a bearable evaluation in professionals with children and a critical evaluation for those who do not have children (p=0.013), a result that suggests that the presence of children is a protective factor to illness. Also, this study pointed out that 77% (n=30) is married or have a partner, which may be a positive point in relation to the risk of illness, since a

study with Korean nurses pointed out that the variable single marital status was strongly correlated with symptoms of depression. It concluded that services that offer emotional and mental health support could be beneficial for single nurses, compensating for support they may not receive at home<sup>(25)</sup>.

The professionals considered psychological and social damages bearable. However, they evaluated as critical the items bad humor and the willingness to be alone. This can be favored by the environment and pace of work, the involvement of the professional in daily activities, leisure and routines of domestic care, which can be characterized as stress generators and influence work execution. In the psychological damage factor, the classification as severe is associated with the item do not have post-graduation ( $p=0,046$ ), that is, those who do not have post-graduation can have greater risk of illness.

A study conducted in a hemodialysis service in southern Brazil, with 51 nursing workers, pointed out that all items related to psychological and social damage had a evaluation. However, the worst evaluation with borderline values for classification as bearable were the items "sadness" and "bad humor" in psychological damage and "willingness to be alone" and "impatience with people in general" in social damage<sup>(19)</sup>. This result is similar to the findings of this study, where these items were not suffering-generating factors, but they can become, if measures to avoid health problems in workers are not adopted.

A study aimed at evaluating the level of occupational stress among nursing professionals, carried out in three units of a university hospital in Rio de Janeiro with the participation of 85 professionals, identified that 68.5% of the participants reported exposure to stress-generating factors in the workplace environment. Moreover, 56.5% ( $n=48$ ) already presented some level of stress<sup>(26)</sup>. It is noteworthy that the PAR unit can cause mental distress because it is a closed unit, and as demonstrated by a study conducted in Jordan, nursing professionals working in these units present high levels of stress<sup>(13)</sup>.

Finally, we observed that although the sample evidenced a bearable assessment for psychological and social damages, some items were considered serious or critical, in isolation. Physical damage had a critical evaluation. This suggests the need to carry out planning actions aimed at promoting and preventing workers' health. These data are important for nurse references and managers, since they provide theoretical support for planning strategies aimed at workers' health in their work context.

## CONCLUSION

The research showed that despite the bearable classification of psychological and social damage the PAR unit professionals, the physical damage showed the highest average, which enhances suffering at work. This show the need of adopting medium and long-term measures and strategies to avoid complications and the workers' illness. The workers' most reported symptoms were body, back and legs pain, which can be justified by the nursing professional's work context itself in the hospital environment.

This study did not show predominance of EDS among professionals, although the results are important for the expansion of new research on the subject. When relating

EDS and the effects of work on the health of nursing staff, we did not find any statistically significant difference.

As limitations, the present study is restricted to the findings of a cross-sectional study, which does not allow establishing relationship of cause and effect (bias of reverse causality). However, the results may contribute to the construction of knowledge about the health of nursing staff in the hospital setting, especially about excessive daytime sleepiness and the physical, psychological and social damage related to work. It is also noteworthy that studies of this nature contribute with the theoretical support, which can assist in planning actions in order to minimize the damage related to work and promote the workers' health.

## REFERENCES

1. Carvalho R, Bianchi, ERF. Enfermagem em centro cirúrgico e recuperação. 2. ed. São Paulo: Manole, 2016.
2. Neves GSML, Macêdo PJOM, Gomes MM. Transtornos do sono: atualização (1/2). RevBrasNeurol [Internet]. 2017 [cited 2018 Jul 12]; 53(3):19-30. Available from: <http://docs.bvsalud.org/biblioref/2017/12/876873/rbn-533-3-transtornos-do-sono-1-2.pdf>
3. Macêdo PJOM, Neves GSML, Poyares DLR, Gomes MM. Insomnia current diagnosis: an appraisal. RevBrasNeurol [Internet]. 2015 [cited 2018 Jan 8]; 51(3):62-8. Available from: <http://files.bvs.br/upload/S/0101-8469/2015/v51n3/a5129.pdf>
4. Guerra PC, Oliveira NF, Terreri MTRA, Len CA. Sleep, quality of life and mood of nursing professionals of pediatric intensive care units. RevEscEnferm USP [Internet]. 2016 [cited 2018 Ago 22]; 50(2):279-285. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0080-62342016000200279](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342016000200279)
5. Santos TCMM, Faria AL, Feitosa MS, Coimbra GT, Ferreira LC, Martino, MMF. Quality and sleep disturbances of the nursing staff of a therapy unit. Rev enfermUFPE on line [Internet]. 2014 [cited 2018 Fev 2]; 8(5):1110-1116. Available from: <https://periodicos.ufpe.br/revistas/revistaenfermagem/article/view/9788/9940>
6. Pinheiro LMG, Souza NC, Oliveira PG. Qualidade do sono dos profissionais de enfermagem que atuam em hospital privado no período noturno. C&D-Revista Eletrônica da Fainor [Internet]. 2015 [cited 2018 Jul 11]; 8(2):194-205. Available from: <http://srv02.fainor.com.br/revista237/index.php/memorias/article/view/413>
7. Bertolazi AN, Fagundes SC, Hoff LS, Pedro VD, Barreto SSM, Johns MW. Validação da escala de sonolência de Epworth em português para uso no Brasil. J BrasPneumol [Internet]. 2009 [cited 2018 Jan 9]; 35(9):877-883. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1806-37132009000900009&lng=en&nrm=iso&tlng=pt](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1806-37132009000900009&lng=en&nrm=iso&tlng=pt)
8. Mendes AM, Ferreira MC. Inventário sobre o trabalho e riscos de adoecimento – ITRA: Instrumento auxiliar de diagnóstico de indicadores críticos no trabalho. In: MENDES, A. (Org.). Psicodinâmica do trabalho: Teoria, Método e Pesquisas, São Paulo, p. 111-126, 2007.
9. Conselho Nacional de Saúde (Brasil). Resolução nº 466, de 12 de dezembro de 2012. Visa assegurar os direitos e deveres que dizem respeito aos participantes da pesquisa, à comunidade científica e ao Estado. Ministério da Saúde [Internet]. 2012 [cited 2018 Mar 25]. Available from: [http://bvsmis.saude.gov.br/bvs/saudelegis/cns/2013/res0466\\_12\\_12\\_2012.html](http://bvsmis.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html)

10. Guimarães ALO, Felli VEA. Notification of health problems among nursing workers in university hospitals. *RevBrasEnferm* [Internet]. 2016 [cited 2018 Ago 27]; 69(3):475-82. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0034-71672016000300507&lng=en&nrm=iso&tlng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672016000300507&lng=en&nrm=iso&tlng=en)
11. Centofanti S, Banks S, Colella A, Dingle C, Devine L, Galindo H, et al. Coping with shift work-related circadian disruption: A mixed-methods case study on napping and caffeine use in Australian nurses and midwives. *Chronobiology International* [Internet]. 2018 [cited 2019 Jan 22]; 35(6):853-864. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29764218>
12. Kunzweiler K, Voigt K, Kugler J, Hirsch K, Bergmann A, Riemenschneider H. Factors influencing sleep quality among nursing staff: Results of a cross sectional study. *Applied Nursing Research* [Internet]. 2016 [cited 2019 Jan 24]; 32:241–244. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27969035>
13. Hasan AA, Tumah H. The correlation between occupational stress, coping strategies, and the levels of psychological distress among nurses working in mental health hospital in Jordan. *Perspect Psychiatr Care* [Internet]. 2019 [cited 2019 May 22]; 55(2):153-160. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29781526>
14. Silveira M. As repercussões do trabalho noturno para os trabalhadores de enfermagem de unidades de cuidados intensivos. 2014. Santa Maria. Dissertação [Mestrado em Enfermagem] – Universidade de Santa Maria; 2014.
15. Åkerstedt T, Kecklund G. What work schedule characteristics constitute a problem to the individual? A representative study of Swedish shift workers. *Applied Ergonomics* [Internet]. 2017 [cited 2019 Fev 8]; 59:320-325. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/27890143>
16. Bonetti AEB, Girardello DTF, Coneglian ALA, Egevardt D, Batista J, Cruz EDA. Assistência da equipe de enfermagem ao paciente em sala de recuperação pós-anestésica. *RevEnferm UFSM* [Internet]. 2017 [cited 2018 Nov 22]; 7(2):193-205. Available from: <https://periodicos.ufsm.br/reufsm/article/view/26840/pdf>
17. Silva RM, Zeitoune RCG, Beck CLC, Martino MMF, Prestes FC. The effects of work on the health of nurses who work in clinical surgery departments at university hospitals. *Rev. Latino-Am. Enfermagem* [Internet]. 2016 [cited 2018 Nov 25]; 24:e2743. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0104-11692016000100370](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692016000100370)
18. Machado LSF, Rodrigues EP, Oliveira LMM, Laudano RCS, Nascimento Sobrinho CL. Agravos à saúde referidos pelos trabalhadores de enfermagem em um hospital público da Bahia. *RevBrasEnferm* [Internet]. 2014 [cited 2018 Set 15]; 67(5):684-69. Available from: <http://www.scielo.br/pdf/reben/v67n5/0034-7167-reben-67-05-0684.pdf>
19. Prestes FC, Beck CLC, Magnago TSBS, Silva RM, Coelho APF. Health problems among nursing workers in a haemodialysis service *Rev Gaúcha Enferm* [Internet]. 2016 [cited 2018 Nov 12]; 37(1):e50759. Available from: [http://www.scielo.br/pdf/rngen/v37n1/en\\_0102-6933-rngen-1983-144720160150759.pdf](http://www.scielo.br/pdf/rngen/v37n1/en_0102-6933-rngen-1983-144720160150759.pdf)
20. Sezgin D, Esin MN. Predisposing factors for musculoskeletal symptoms in intensive care unit nurses. *Int Nurs Rev* [Internet]. 2015 [cited 2018 Nov 9]; 62(1):92-101. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/25440528>
21. Nourollahi M, Afshari D, Dianat I. Awkward trunk postures and their relationship with low back pain in hospital nurses. *Work* [Internet]. 2018 [cited 2019 Apr 13]; 59(3):317-323. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29630574>
22. Silva MM, Medeiros SM, Cartaxo JAF. Influência do contexto de trabalho na saúde

- dos profissionais de enfermagem de uma unidade de terapia intensiva em um hospital universitário. *Enfermería Global* [Internet]. 2013 [cited 2018 Nov 11]; 32:198-210. Available from: [http://scielo.isciii.es/pdf/eg/v12n32/pt\\_administracion2.pdf](http://scielo.isciii.es/pdf/eg/v12n32/pt_administracion2.pdf)
23. Andrade DLB, Silva LA, Magalhães MB, Costa FM, Santos JAD, Carneiro JÁ. Trabalho noturno: repercussões na saúde do profissional de enfermagem. *J Health Sci Inst* [Internet]. 2015 [cited 2018 Dec 20]; 33(2):164-71. Available from: [https://www.unip.br/presencial/comunicacao/publicacoes/ics/edicoes/2015/02\\_abr-jun/v33\\_n2\\_2015\\_p164a171.pdf](https://www.unip.br/presencial/comunicacao/publicacoes/ics/edicoes/2015/02_abr-jun/v33_n2_2015_p164a171.pdf)
24. Marques DO, Pereira MS, Silva e Souza AC, Vila VSC, Almeida CCOF, Oliveira EC. Absenteeism – illness of the nursing staff of a university hospital. *RevBrasEnferm* [Internet]. 2015 [cited 2018 Nov 6]; 68(5):876-882. Available from: [http://www.scielo.br/scielo.php?pid=S0034-71672015000500876&script=sci\\_abstract](http://www.scielo.br/scielo.php?pid=S0034-71672015000500876&script=sci_abstract)
25. Yoon SL, Kim JH. Job-related stress, emotional labor, and depressive symptoms among Korean nurses. *J Nurs Scholarsh* [Internet]. 2013 [cited 2019 Jan 17]; 45(2):169–176. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/23470274>
26. Kestenberg CCF, Felipe ICV, Rossone FO, Delphim LM, Teotonio MC. The stress of nursing workers: study in different units of a university hospital. *Revenferm UERJ* [Internet]. 2015 [cited 2018 Sep 16]; 23(1):45-51. Available from: <https://www.e-publicacoes.uerj.br/index.php/enfermagemuerj/article/view/11487/18122>

ISSN 1695-6141

© [COPYRIGHT](#) Servicio de Publicaciones - Universidad de Murcia