







EXCESSIVE DAYTIME SLEEPINESS AND HEALTH DAMAGE IN NURSING CLINIC SURGICAL WORKERS

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ABSTRACT

Objectives: to evaluate excessive daytime sleepiness and to analyze the association between sleepiness and physical, social and psychological damages in nursing clinic surgical workers.

Method: a cross-sectional study carried out with nursing workers from a surgical clinic unit of a teaching hospital in the South of Brazil. The data collection was carried out in 2016, it was used self-administered tools on socio-labor characterization, the Work-Related Damage Scale and the Epworth Sleepiness Scale, with descriptive and bivariate analysis, with a significance level of 5%.

Results: 41 workers participated in the study; workers with excessive daytime sleepiness (9 workers) and severe sleepiness (three workers) were identified. The majority presented physical illness and there was an association between social ($p<0.001$) and psychological ($p=0.001$) damages in drowsy workers.

Conclusion: workers with excessive daytime sleepiness were identified and it was evidenced an association between lack of sleep and impairment of the worker's health in a psychosocial context.

DESCRIPTORS: Nursing. Sleep. Shift work schedule. Occupational health. Nursing service, hospital.

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SONOLÊNCIA DIURNA EXCESSIVA E OS DANOS À SAÚDE EM TRABALHADORES DE ENFERMAGEM DE CLÍNICA CIRÚRGICA

RESUMO

Objetivos: avaliar a sonolência diurna excessiva e analisar a associação entre a sonolência e os danos físicos, sociais e psicológicos em trabalhadores de enfermagem de clínica cirúrgica.

Método: estudo transversal, realizado com trabalhadores de enfermagem atuantes em uma unidade de clínica cirúrgica de um hospital universitário do sul do Brasil. A coleta de dados ocorreu em 2016, utilizaram-se instrumentos autoaplicados sobre a caracterização sociolaboral, a Escala de Avaliação dos Danos Relacionados ao Trabalho e a Escala de Sonolência de Epworth, com análise descritiva e bivariada, com nível de significância de 5%.

Resultados: participaram do estudo 41 trabalhadores, sendo identificados trabalhadores com sonolência diurna excessiva (nove trabalhadores) e sonolência grave (três trabalhadores). A maioria apresentou adoecimento físico e houve associação entre danos sociais ($p < 0,001$) e psicológicos ($p = 0,001$) em trabalhadores com sonolência.

Conclusão: foram identificados trabalhadores com sonolência diurna excessiva e evidenciou-se associação entre deficiência de sono e comprometimento da saúde do trabalhador em âmbito psicossocial.

DESCRITORES: Enfermagem. Sono. Jornada de trabalho em turnos. Saúde do trabalhador. Serviço hospitalar de enfermagem.

SONOLENCIA DIURNA EXCESIVA Y LOS DAÑOS A LA SALUD EN TRABAJADORES DE ENFERMERÍA DE CLÍNICA QUIRÚRGICA

RESUMEN

Objetivos: evaluar la somnolencia diurna excesiva y analizar la asociación entre la somnolencia y los daños físicos, sociales y psicológicos en trabajadores de enfermería de clínica quirúrgica.

Método: estudio transversal, realizado con trabajadores de enfermería actuantes en una unidad de clínica quirúrgica de un hospital universitario del sur de Brasil. La recolección de datos ocurrió en 2016, se utilizaron instrumentos autoaplicados sobre la caracterización sociolaboral, la Escala de Evaluación de los Daños Relacionados al Trabajo y la Escala de Somnolencia de Epworth, con análisis descriptivo y bivariado, con un nivel de significancia del 5%.

Resultados: participaron del estudio 41 trabajadores, siendo identificados trabajadores con somnolencia diurna excesiva (nueve trabajadores) y somnolencia grave (três trabajadores). La mayoría presentó enfermedad física y hubo asociación entre daños sociales ($p < 0,001$) y psicológicos ($p = 0,001$) en trabajadores con somnolencia.

Conclusión: fueron identificados trabajadores con somnolencia diurna excesiva y se evidenció asociación entre deficiencia de sueño y compromiso de la salud del trabajador en el ámbito psicossocial.

DESCRIPTORES: Enfermería. Sueño. Horario de trabajo por turnos. Salud laboral. Servicio de enfermería en hospital.

INTRODUCTION

The work activity carried out in the hospital environment exposes the workers, especially the nursing ones, to some health damage, which can be physical, psychological and social. In relation to physical damage, often the individual presents with pains in the body and biological disorders, in the psychological damage, there are negative feelings about oneself and life, and in social damages the individual may have difficulty in family and social relationships and perceive isolation.¹ These damages can be due to the process and organization of the work, inadequate postures for the transportation and accomplishment of procedures and difficulties in the interpersonal relationships, typical nursing activities.

In the hospital context, the nursing work organization takes place in shifts, which suggests repercussions on the worker's health.²⁻³ The night shift work causes sleep deprivation, which is one of the most common complaints reported by professionals working on call shifts.⁴

As a result, there may be possible repercussions on the care provided and to the worker's health, such as the possibility of interference in agility, quality of care and occurrence of work accidents, suggesting reflexes on patient safety and quality of care. Lack of sleep suggests physical or cognitive impairment of the work practice,⁵ implying alterations in memory, judgment capacity and performance of activities, associating with health problems such as obesity, diabetes *mellitus*, cardiovascular diseases, among other damages.⁶

Excessive daytime sleepiness (EDS) is characterized as a chronic sleep symptom, an inability to stay awake and/or alert during the daytime period,⁷ which can have repercussions on activities such as working, driving and socializing.⁸ Sleepiness, when related to the nurses' work, has been shown to impact on patient care and safety,⁸ being a condition in which there is a reduction of the work force and the quality of life, with repercussion for the life of the individual.⁹

There are investigations on sleepiness in Norwegian,¹⁰ Iranian¹¹ and Brazilian⁴ nursing workers. Despite this, to date, no studies have been identified to investigate the association between EDS and the health damages on nursing workers, which proves to be a subject that needs to be investigated.

Thus, it is questioned: is there an association between physical, social and psychological damages and sleepiness in nursing workers who work in surgical clinic? The objectives of this study are to evaluate EDS and to analyze the association between sleepiness and physical, social and psychological damages in nursing surgical clinic workers. The hypothesis is that there is an association between sleepiness and physical, social or psychological damages, which may compromise the health of the nursing worker.

METHOD

A cross-sectional study performed at a surgical clinic unit of a teaching hospital in the South Brazil.

The eligible population was 64 nursing workers (18 nurses, 37 nursing technicians and nine nursing assistants). It was used as inclusion criterion to act in direct care provision to patients, and exclusion: to be on leave any nature during the period of data collection.

The data collection occurred between July and September of 2016 and it was performed by three research assistants, undergraduate nursing students. Of these, two were scholarship holders of scientific initiation, trained and certified in face-to-face encounters for data collection. The workers were invited in person and at the workplace to participate in the study, being informed and clarified about the research objectives and the willingness of participation. The consent to participation was expressed through the signing of the Free and Informed Consent Term, one copy staying with the researcher and the other with the participant.

Subsequently, the research instrument was handed, which was composed of a characterization questionnaire in relation to health, work and life habits, the *Work-Related Damage Assessment Scale* (EADRT – *Escala de Avaliação dos Danos Relacionados ao Trabalho*, in Portuguese language) and the Epworth Sleepiness Scale, all self-administered, being agreed a period of six days for delivery. There were three refusals, 14 losses (incomplete filling of the instrument of data collection or the non-delivery during the proposed period) and six workers did not attend because they did not meet the eligibility criteria.

The characterization questionnaire was developed for this study by the authors themselves. The closed questions investigated: professional category, sex, work shift, working time option, children, companion, health treatment, absence from work due to illness, satisfaction with pay and salary, training to work in the sector, work accidents, physical activity, free time with family and friends.

The EADRT aims to assess the damage caused by work. It is a seven-point Likert scale where: 0=never 1=once, 2=twice, 3=three times, 4=four times, 5=five times, 6=six or more times. The 29 items of the scale are grouped into three factors: Physical damages (12 items), Psychological damages (ten items) and Social damages (seven items). This is one of the four scales that compose the Inventory on Work and Illness Risks (ITRA – *Inventário sobre o Trabalho e Riscos de Adoecimento*, in Portuguese language), an instrument that was created and validated in Brazil, self-administered, which evaluates some dimensions of the interrelationship between work and risk of illness. In this study, it was used the third version of the instrument, revalidated and published in public domain.¹

The Portuguese version of the Epworth Sleepiness Scale (ESS-BR) was used to evaluate EDS.¹² It is a self-administered questionnaire, composed of eight questions that present day-to-day sleepiness situations and it should be answered considering the chance of falling asleep.¹³ Scores vary between 0=no chances of falling asleep; 1=small change of falling asleep; 2=moderate change of falling asleep; and 3=high change of falling asleep.

The data were double-typed in a spreadsheet and submitted to independent validation. After the typing validation, statistical analysis was performed with the help of the Predictive Analytics Software, SPSS INC., Chicago - USA), version 15.0 for Windows.

The ESS-BR responses reach maximum values of 24 points and minimums of zero. Values lower than or equal to 10 are indicative of absence of sleepiness, between 11 and 15, of excessive daytime sleepiness and higher or equal to 16, of severe sleepiness. Considering that above 11 points it already indicates sleepiness, the data were grouped into sleepiness and absence of sleepiness. This decision was based on a recommendation from the literature.¹⁴

In the EADRT evaluation, the general averages of the factors and percentage of respondents were considered in the intervals of the means, and the results were classified as: bearable (bearable evaluation; score below 1.99), critical (moderate evaluation; score between 2.0 and 3.0), severe (moderate to frequent evaluation; score between 3.1 and 4.0) and presence of occupational diseases (severe evaluation; score over 4.1). The proposed items portray situations related to health and their appearance and repetition, at a moderate level, which already means illness.¹ From this consideration, the data were categorized into absence of illness (bearable classification) and illness (critical classification/severe/presence of diseases). This decision was made with the author of the instrument.

The qualitative variables were described by means of absolute and relative frequency and associated to the EADRT factors using chi-square and Fisher's exact tests. When the quantitative variables were analyzed, the Kolmogorov-Smirnov's test was performed to verify the adherence of the data to the regular distribution. The variables age and working time in the unit met the assumption of normality and were described by mean and standard deviation. A significance level of 5% ($p < 0.05$) was used in all tests.

RESULT

Forty-one workers participated in the study, of which 26.82% were nurses, 56.09% were nursing technicians and 17.07% were nursing assistants, with a predominance of females (82.9%) and work in the morning shift (29.3%), afternoon (31.7%) and night (39%). It was identified a percentage of 68.3% for those who had children and 61% for those who had a partner.

Regarding the involvement with occupational accidents, 43.9% answered affirmatively, 34.1% of the workers reported having some health treatment, and 34.1% reported being absent from work due to illness in the last six months. Regarding the practice of physical activity, 58.5% reported not performing any type of activity and 90.2% used their free time for leisure with family and friends one or more times a week.

A percentage of 95.1% chose to work in shifts, 90.2% had no other job, 95.1% were satisfied with the work, 87.8% were satisfied with the remuneration, and 63.4% received training to work in the sector. The mean age was 41.24 years old (± 10.5) and the mean time of service was 8.54 years (± 10.0).

Table 1 shows that most of the day and night shift nursing workers presented sleepiness.

Table 1 – Epworth Sleepiness Scale Score (ESS) by work shifts in nursing workers. Santa Maria, RS, Brazil, 2016. (n=41)

	Daytime		Nighttime	
	n	%	n	%
Absence of sleepiness	19	76	10	62.5
Excessive daytime sleepiness	5	20	4	25
Severe sleepiness	1	4	2	12.5

Table 2 identifies physical illness in day and night shift workers. No statistical association was identified between physical, social and psychological illness and work shift ($p > 0.05$).

Table 2 – Illness and absence of physical, social and psychological illness per work shift in nursing workers. Santa Maria, RS, Brazil, 2016. (n=41)*

Classification of the factor		Daytime		Nighttime	
		n	%	n	%
Physical damage	Absence of Illness	10	40	3	18.8
	Illness	15	60	13	81.3
Social damages	Absence of Illness	23	92	11	68.8
	Illness	2	8	5	31.3
Psychological damage	Absence of Illness	20	80	11	68.8
	Illness	5	20	5	31.3

*chi-square test

Table 3 shows a significant association between social ($p < 0.001$) and psychological ($p = 0.001$) damages in drowsy workers.

Table 3 – Association between illness/absence of physical, psychological and social illness and sleepiness/absence of sleepiness in nursing workers. Santa Maria, RS, Brazil, 2016. (n=41)

Factor		Sleepiness		Absence of sleepiness	
		n	%	n	%
Physical Damage	Absence of Illness	2	16.7	11	37.9
	Illness	10	83.3	18	62.1
Social Damages*	Absence of Illness	6	50	28	96.6
	Illness	6	50	1	3.4
Psychological Damages*	Absence of Illness	5	41.7	26	89.7
	Illness	7	58.3	3	10.3

*chi-square test

No significant associations ($p > 0.05$) were identified between the study characterization variables, physical, social and psychological illness and sleepiness.

DISCUSSION

Regarding the study limitations, these are related to reliance on self-reported data only, without objective evaluations. Another limitation of the study was not to investigate the characterization of the type of accident, whether with puncturing material or not, and the shift in which it occurred, which would allow more in-depth analyzes on the possible interference of sleepiness in this variable. It is also highlighted the small number of the sample, which reflects results peculiar to an institution.

The female predominance (82.9%) was identified in nursing surgical clinic workers, similar to a study performed with nursing workers from a neonatal intensive care unit.¹⁵ As for the average age, it was verified that they were young adults (average of 41 years old) who were in their full productive capacity, similar data to the research performed with nursing workers from hospital units of pediatric and neonatal intensive care in different shifts.⁴

A considerable percentage of participants were found to have experienced accidents (43.9%). A study identified that the accident with biological material in nursing workers provoked diverse feelings and reactions, such as insomnia, emotional unrest and problems in the family relationship. The same study identified that the heads of the service attributed as consequences related to the work accident, absenteeism, the need to reorganize the work to continue providing care to patients and financial losses to the institution.¹⁶

Regarding the practice of physical activity, the results of this study converge with a research carried out in an Intensive Care Unit, which found that 88.24% of the nursing workers did not practice periodic physical activity. The same research identified that the sleep of these workers has quality compromised due to fatigue caused by the work shift, which interferes negatively in all the performed activities.¹⁷

It was identified a predominance of workers with absence of sleepiness in the daytime (76%) and nighttime (62.5%) shifts. Nevertheless, the identification of workers with excessive daytime sleepiness (21.95%) and severe sleepiness (7.32%) is of concern. The author cites that a value of 11 or over in the total score of the sleepiness scale is considered as pathological sleepiness,¹⁴ that is, the impairment of sleep can have negative repercussions on the health of the worker.

Regarding work-related damages, physical illness was observed in daytime shift (60%) and nighttime shift (81.3%) workers. There was a significant association between sleepiness and psychological illness ($p = 0.001$) and social illness ($p < 0.001$). This data may indicate that the sleep

of nursing workers who participated in the research was unsatisfactory, which has repercussions on social illness, characterized by difficulties in family and social relations, and psychological problems such as negative feelings about oneself and life in general.

A study conducted with nurses working in a neonatal intensive care unit identified a significant difference between daytime and nighttime shifts and sleepiness, indicating that the nurses of the daytime shift slept less than six hours and presented high sleepiness scores at the beginning of the shift; in addition, 22% of them started their activities with a high level of sleepiness.¹⁵ Another study conducted with 315 nurses from teaching hospitals in Iran found that 83.2% of the participants had poor sleep and half had moderate and excessive sleepiness. According to the authors, these results may indicate that stress at work and sleepiness are among the factors that affect sleep quality in shift workers.¹¹

The workers, because they have irregular hours of sleep, are unable to recover for the next day, which compromises their performance at work.¹⁷ However, nurses' health-related behaviors may be influenced by the culture, structure and policies of the organization in which they are employed and by personal factors such as age, sex, marital status, emotional support, general physical health, health perception, perceived benefits or barriers to health, and a sense of confidence in the ability to make changes.⁶

With the objective of describing the acute and chronic effects of sleep depravity in the nursing team, the research has identified that little attention is paid to this subject. In this sense, the authors recommend the creation of a policy that promotes better quantity and quality of sleep for these professionals.⁶ Another result is from a research aimed at analyzing the wake-sleep cycle and the sleep quality of 60 nurses working in shifts, which showed poor sleep quality possibly due to lack of sports and shift work habits. The authors identified a statistical difference between periods of waking and falling asleep on weekdays and weekends, suggesting that these professionals did not have the necessary rest time during the week.¹⁸

Regarding sleepiness, a research carried out in a private institution identified that 75% of the nursing workers reported daytime sleepiness, 55% felt daily fatigue, 45% woke up at night and 50% did not practice physical activity.³ Another research, with the objective of evaluating the sleep pattern and performed with 92 nursing workers of different work shifts (fixed shifts - 33% of nighttime shift workers, 8% of the afternoon shift, 12% of the shift in the morning and the other varied shifts), identified that 57% slept at night, 39% had eight hours of sleep daily, 70% woke up during sleep and 54% reported having a good quality of sleep.¹⁹

Poor sleep quality is a relevant aspect that interferes with human health, which may be related to the architecture and physiology of sleep, which is an active, complex and necessary process for the establishment of the physical and cognitive health of man.²⁰ Thus, it is recommended that institutions plan preventive actions for the health problems of the worker, such as the fulfillment of the pre-established workload and the rest time of the professionals, with the purpose of contributing to the restoration of sleep, which may improve the quality of life of the professionals and ease the aggravations of sleep disorders.⁵

The rest time of nursing professionals is one of the aspects that can influence the safe actions according to the law project in process in the Federal Senate that deals with the rest conditions of nursing professionals during working hours.²¹ Another aspect that can influence patient safety is the double employment relationship, a situation that was identified in a minimal percentage in this study, a divergent result of research that identified that 59.7% (165) of the nursing workers had more than one work bond, a situation that could lead to overworking in these individuals,²² suggesting compromised patient safety.

Regarding this, it is mentioned investigation carried out in intensive care units, which concluded that the workload of nursing workers was related to an increased risk of hospitalized patients mortality, occurrence of non-injury incidents, and adverse events, which contributed to the increase in the number of hospitalization days of the patients studied.²³ This result suggests that work overload influences patient safety.

Educational actions on the importance of sleep and management of fatigue are one of the ways that can aid in behavioral changes, suggesting an impact on the quality and quantity of sleep among nurses. Although the environment leads to health promotion behaviors among nurses, changing conventional attitudes and practices is not always easy,⁶ which may contribute to promoting safe care. In addition, research is needed to sensitize nurses to the adverse effects of work on their personal health, especially related to the prioritization of sleep and the ability to improve their sleep hygiene.

Finally, the results of this study contribute to the construction of knowledge related to the health of nursing workers who work in shifts, suggesting alternatives that minimize the risks and damages related to work.

CONCLUSION

Workers with excessive daytime sleepiness and severe sleepiness were identified. In addition, most of the participants presented physical illness related to their work activity. Sleepiness was associated with social and psychological damages, which shows the existence of an association between sleep depravity and impairment of the worker's health in a psychosocial context.

The results of this study point to the need for its replication and expansion in other performance scenarios, in order to confront and advance in relation to the knowledge about the health and sickness of the nursing workers who work in the hospital environment. New evidence may subsidize measures for the health of these workers.

The Epworth Sleepiness Scale is an easy-to-use instrument and it can be used periodically to evaluate the sleepiness level of shift workers. Similarly, it is suggested that health evaluation and promotion measures are adopted and prioritized by institutions and by the nursing staff themselves. Such measures may favor both well-being and health at work and the quality of care provided.

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NOTES

CONTRIBUTION OF AUTHORITY

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Not applicable

ETHICS COMMITTEE IN RESEARCH

Approved by the Ethics Committee in Research with Human Beings of the *Universidade Federal de Santa Maria*, n 1.538.297 and Certificate of Presentation for Ethical Appreciation (CAAE): 55351616.0.0000.5346

CONFLICT OF INTEREST

No any conflict of interest

HISTORICAL

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