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The quality of sleep of nursing professionals and the Covid-19 pandemic

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ABSTRACT

Objective: to compare the quality of sleep of nursing professionals who worked in an adult intensive care unit with nursing professionals who worked in inpatient units during the Covid-19 pandemic. Method: This is a cross-sectional study. The selection of participants occurred intentionally using the snow ball methodology. The study included 27 participants, nurses and nursing technicians who worked in adult intensive care or adult hospitalization units caring for patients affected by Covid-19 and excluded professionals who regularly use sleep-inducing medications prior to the Covid-19 pandemic. Covid-19; or Individuals with sleep apnea. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (IQSP) instrument. The independent variables were classified as sociodemographic, work situations, lifestyle habits, nutritional status and presence of comorbidities. The analysis was carried out using descriptive and inferential statistics using SPSS v25.0 software. Data normality was tested using the Shapiro-Wilk test. Results: The sample of the present study was composed of men (22.4%) and women (77.8%) with an average age of 34.2 (±6.2) years. No significant correlations were found between the Sleep Quality Index and the analyzed variables. However, when analyzing whether there was any correlation between the questionnaire score and some continuous variables, such as the participants' weight, a moderate correlation was observed between the questionnaire score and the participants' weight r =0.469 p = 0.025. Conclusion: Despite not demonstrating statistical significance for the variables studied, the study considers the relationship between sleep quality and obesity, demonstrating statistical significance and corroborating the scientific literature.

Keywords: Nursing, Sleep-Wake Disorder, Stress, Coronavirus.

1 INTRODUCTION

The year 2020 was marked by the pandemic caused by the new coronavirus, COVID-19, a

respiratory disease that had its first appearance in China and quickly spread to all continents. Considered a pandemic due to its high contagion at the beginning of 2020 according to the World Health Organization (WHO), it caused more than 4,602,882 million deaths worldwide. Brazil is one of the countries hardest hit by COVID-19, reaching the mark of 610,000 deaths in November 2021 and which only showed a significant decrease in the mortality rate after vaccination coverage with the various vaccines that were developed, in addition to protective measures such as the use of masks, social distancing and hand hygiene with alcohol gel. (WHO, 2021; PAHO 2021).

The high rate of contamination generated an overload on health systems worldwide, since no country was prepared to accommodate a large number of patients with severe acute respiratory syndrome, causing overcrowding in hospitals and causing the need to expand beds in intensive care units (ICU), an appropriate place for severe cases. However, in a short time, in some regions where the contagion rate presented a very high curve, there was no longer any physical structure, supplies and equipment such as mechanical ventilators for all patients, making the possibility of treatment and survival for those patients who were able to access institutions minimally prepared to offer care (MARMELSTEIN; MOROZOWSKI, 2020).

On the front line in the fight against the COVID-19 pandemic, health professionals around the world have faced and still face a battle, carrying out their care activities with long working hours, high workloads generating overload that leads to fatigue, difficulty in dealing with the increase in cases, and stress-causing concerns. (HORTA, et al. 2021). Nursing makes up the largest number of the workforce in the health area and represents 59% of the professionals within care, which also generates the largest number of professionals affected by the pandemic. A study of nursing professionals in the city of Wuhan, China, found that they presented signs and symptoms of stress, depression, anxiety, and insomnia, in addition to the fear of contracting the virus, getting sick, or contaminating their family members (SOUZA; MARCHIORI; DIAZ, 2020; HORTA et al. 2021).

The impact caused by the pandemic reflects not only on professional performance, but also on their daily lives, sleep quality has been extremely impaired and mental health is intrinsically related. Sleep deficiency affects both physical and mental health, which in the long term can cause irreversible damage such as: mood and emotional changes, cardiovascular, metabolic and immune functions (WU; WEI, 2020).

Nursing professionals work daily with long working hours, often in more than one shift, followed by exhausting activities that generate emotional exhaustion. The night period, especially, is the one that most affects sleep quality, as it requires an adaptation to the period that would be ideal for effective sleep (SILVA et al. 2019).

In a study conducted by Simões and Bianchi (2016) with 47 nursing technicians, it was found that 70.2% had symptoms of anxiety, stress, panic and difficulty concentrating and that among these

professionals, 74.5% manifested poor sleep quality due to the conditions and influence of nursing work. In a study conducted in Wuhan with frontline workers, many professionals reported difficulty in both initiating and maintaining sleep, triggering nightmares sometimes related to anxiety and depression caused by the coronavirus (TU et al., 2020).

Given the context presented, the following question arises: Did nursing professionals who worked in adult intensive care units compared to nursing professionals in inpatient units have changes in sleep quality during the Covid-19 pandemic?

2 OBJECTIVE

To compare the sleep quality of nursing professionals working in adult intensive care units with nursing professionals working in inpatient units during the Covid-19 pandemic and correlate sociodemographic data, work situations, lifestyle habits, nutritional status, and comorbidities with sleep quality.

3 METHOD

This is a cross-sectional study. Quantitative research starts from the definition of the problem and the selection of concepts that will be focused on to arrive at the solution. It gathers empirical data that have their roots in objective reality and that are grouped through the senses rather than personal beliefs or hunches. (POLIT; BECK, 2011).

The selection of participants occurred intentionally with the *snow ball* methodology, where the initial participants indicate new participants, who in turn indicate other new participants, and so on until the expected number of participants is reached. The "snowball" technique is a form of non-probabilistic sampling used in social research, in which the initial participants of a study indicate new participants who, in turn, indicate other participants, and so on, until the proposed goal, i.e., the saturation point, is reached. (APPOLINÁRIO, 2012).

A total of 27 participants were included in the study according to the inclusion criteria: a) nurses and nursing technicians who worked in adult intensive care or adult hospitalization units in the care of patients affected by Covid-19 and the following exclusion criteria were: a) professionals who regularly used sleep-inducing medications prior to the Covid-19 pandemic; b) Individuals with sleep apnea. These exclusion criteria were used because it was understood that these professionals already had disorders in the pre-pandemic period that could alter sleep quality.

Data collection was performed by sending the *access link* to the questionnaire. We opted for the use of an *online* questionnaire due to the restrictive effects due to the pandemic and the practicality of including participants in the *snow ball* method. The average response time to the questionnaire was

30 minutes, taking into account that the participants are health professionals who use digital media and are familiar with this technology.

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). The independent variables were classified as sociodemographic (age, sex, self-reported skin color), work situations (profession, sector, shift, number of employment contracts, total weekly workload, total monthly income), lifestyle habits (smoking, alcohol consumption, physical activity), nutritional status (body mass index) and presence of comorbidities. All information was collected through the participant's self-report.

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), validated in Brazil. This instrument consists of 19 self-reported items and five items directed to the room companion, arranged in seven domains: (1) subjective sleep quality; (2) sleep latency; (3) sleep duration; (4) habitual sleep efficiency; (5) sleep disturbances; (6) use of sleep medications; and (7) daytime sleep dysfunction. (BERTOLAZI, et al. 2011).

Each item of the PSQI was measured on a four-point *Likert* scale , whose levels range from zero (no difficulty) to three (severe difficulty). The overall score of the instrument is obtained from the sum of the scores of the seven domains and ranges from 0 (zero) to 20 points, so that higher total scores indicate poorer sleep quality. The result can be classified as: good sleep quality (from 0 to 5), poor quality (> 5). (BERTOLAZI, et al. 2011).

The analysis was performed using descriptive and inferential statistics using the SPSS v25.0 software. Data normality was tested using the *Shapiro-Wilk test*. Descriptive statistics were performed to present the sociodemographic characteristics of the participants and the percentiles of responses to each question of the questionnaire used. The inferential analysis consisted of Spearman's correlation test , seeking to correlate the Sleep Quality Index with sociodemographic questions of the participants. In addition, to compare the sleep quality of participants working in the Intensive Care Unit and participants working in the Hospital, an independent Studant's t-test was used . The level of significance was set at 0.05. The correlations, if identified, were classified as very low (between 0.0 and 0.1), low (between 0.1 and 0.3), moderate (between 0.3 and 0.5), high (between 0.5 and 0.7), very high (between 0.7 and 0.9) and practically perfect (between 0.9 and 1.0).

The research took place after the approval of the project by the Research Ethics Committee of the University of Vale do Rio dos Sinos and followed the norms and guidelines according to Resolution 466/2012 of the National Health Council, which encompasses research carried out with human beings, while respecting the complementary norms of CNS Resolution No. 510/2016. (BRAZIL, 2013; CNS, 2016).

4 RESULTS

The sample of the present study was composed of men (22.4%) and women (77.8%), with a mean age of 34.2 (±6.2) years. Of these, 61.1% declared themselves white, 16.7% declared themselves black, and 22.2% declared themselves brown. It is also observed that 61.1% of the study sample was composed of nursing technicians and 38.9% of nurses. According to the survey, the average weekly hours worked by the participants is 45.6 (±17.9) hours and 55.6% of the participants, in addition to having more than one employment relationship, while only 44.4% work in only one location.

When comparing the Sleep Quality Index of the professionals who worked in the Intensive Care Unit with the professionals who worked in the Inpatient sector, no significant difference was identified (T= -0.047, p= 0.963).

Table 1 shows the results regarding the correlations between the sleep quality index and the other questions in this questionnaire. No significant correlations were found between the Sleep Quality Index and the variables analyzed. However, when we analyzed whether there was any correlation between the questionnaire score and some continuous variables, such as the weight of the participants, we observed a moderate correlation between the score on the questionnaire and the weight of the participants r = 0.469 p = 0.025.

Table 1. Correlation between the sleep quality index and the questions addressed in the questionnaire.

Research Questions	**Sleep quality index (n=13)**	
	Rho	p
Were you already on sleeping pills before the pandemic?	0,170	0,251
Have you been diagnosed with sleep apnea before the pandemic?	0,217	0,437
What is your gender?	-0,374	0,063
What color is your self-reported skin?	0,186	0,230
What is your profession?	0,345	0,080
Did you work more than one employment relationship during the pandemic?	0,339	0,085
Total number of hours worked per week (if there is more than one employment relationship, add the weekly workload)?	0,012	0,481
What is your unit of work?	0,498	0,059
What is your monthly income? (in reais)	0,386	0,057
How many minutes a week do you exercise?	-0,115	0,324
Are you a smoker?	-0,199	0,214
Do you think you consumed too much alcohol during the week?	-0,055	0,414
During the pandemic, did you start using sleeping pills?	0,017	0,473
Are you being treated for any chronic illnesses?	0,027	0,457

5 DISCUSSION

Sleep is an important moment in the daily cycle for all individuals, sleep is essential for numerous functions in the body, one of the main ones is the recovery of expenses suffered while awake. Sleep has several phases and for each of them an important attribution for maintaining homeostasis, memory, recovery of the body, strengthening the immune system and prevention of diseases. Sleeping

well and getting adequate sleep is essential for quality of life. (KRYGUER M., AVIDAN A., BERRY R., 2015).

Since how important and meaningful sleep is, an adult needs at least 7 to 9 hours of sleep a day, let it be good and constant sleep. Among the habits that help when sleeping we have: a suitable and conducive environment, staying relaxed before going to bed, avoiding heavy foods, maintaining a regular schedule, avoiding the use of substances that interfere with sleep, and once these habits are maintained, it is possible to maintain a good quality sleep. (KRYGUER M., AVIDAN A., BERRY R., 2015).

Poor sleep quality is highly related to overweight and anxiety, which becomes a trigger for binge eating. In the current study conducted with people with an average BMI of 33.71 kg/m², it was found that 96% had a moderate level of anxiety according to the STAI classification and 49.81% had poor sleep quality according to the PSQI index. (FUSCO et al*tag.*, 2020).

The pandemic has further accentuated vulnerable groups in mental health, reports from the population of the predominance of anguish, insomnia, anger, stress, fear, irritability and feeling of powerlessness have been recorded by several surveys, which are linked to several disorders that could not be treated due to isolation and social exclusion. The lack of government strategies and policies are pointed out as problematic, as well as the lack of mental health care (PAVANI et al., 2021).

Nursing professionals working in the pandemic are the vast majority of the health workforce, are responsible for most tasks and are directly in contact with patients with suspected Covid (SILVA et al., 2019).

The stress load manifested at the beginning of the pandemic was high due to factors that influenced both professional and social life, issues such as: professional qualification, weekly workload, severity of patients, diet and sleep were the most cited and are very significant for nurses. With irregular routines, lack of adequate nutrition and rest, the influence of insomnia can lead to problems in the workplace (SILVA, MINAYO, 2020).

Góes et al., (2020) highlight the main words listed by nursing professionals that refer to Covid-19: patients, fear, PPE, contaminate, team, care, difficult, exhausting, tense, stressful, and exhausting. These are feelings and perceptions that professionals consider most impactful in their daily experience with coronavirus.

Evidence associated with poor sleep quality by nursing professionals was highlighted in a survey conducted by Kantorski et al. (2022), with 8090 professionals, the main findings are related to workload, precarious conditions, use of psychotropic drugs, and sociodemographic issues.

In a study carried out with 18 nurses at the João Murilo de Oliveira Hospital in Vitória de Santo Antão - PE, 50% worked in the morning and 50% in the intermediate, it was identified that 50% reported good sleep quality, 33% had a disorder, and 17% had poor sleep quality. Regarding the use of

medications, 27.7% used some psychotropic drug, signs of anxiety (33.3%) and depression (27.7%) were found among professionals, which indicate an association between sleep quality and mood disorders (MARTINS et al., 2020).

The number of patients per nurse is proportionally related to the higher risk of failures and errors, the more patients, the greater the risk. Overload involves both physical and mental conditions and exerts an important factor in the performance of nurses, the main errors that occur in the routine are: medication errors, falls, invasive devices and skin integrity, failures not only harm patients as well as professionals, because when you are about to make mistakes it means that the worker's life is already being harmed, the impact will be on both sides, both for those who provide assistance and for those who are provided (SANTOS, et al., 2020).

6 CONCLUSION

Although it did not demonstrate statistical significance for the variables studied, the study contemplates the relationship between sleep quality and obesity, demonstrating statistical significance and corroborating the scientific literature.

The present study has as a limitation the participation of few health professionals, which prevents the generalization of the results. This can be justified by the choice of the data collection technique, which was via *an online* form, for safety reasons, since we were still under the distancing policy due to the pandemic. Therefore, it recommends other information collection techniques for further studies on this topic.

It is suggested that further studies may investigate the issue of sleep quality among health professionals related to obesity, as it directly affects the quality of life of health workers. And it is hoped that this study can raise the debate about the quality of sleep of health professionals, since it is fundamental for quality of life.

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