EVALUATION AND CHARACTERIZATION OF SLEEPINESS IN MEDICAL RESIDENTS

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ABSTRACT

The purpose of the present study is to evaluate and characterize sleepiness in medical residents and its relationship with sleep deprivation and clinical decision-making, in addition to comparing the prevalence and effect of sleepiness among residents of different specialties. Three validated instruments were used: the Epworth Sleepiness Scale (ESS) to assess daytime sleepiness, the Pittsburgh Sleep Quality Index (PSQI) to measure sleep quality, and the Melbourne Decision-Making Questionnaire (MDMQ) to identify decision-making profiles. The questionnaires were applied before and after hospital shifts, allowing the analysis of variation in sleepiness throughout the day. The results showed a high prevalence of excessive sleepiness among residents, especially in specialties with night shifts. Sleep deprivation was associated with poorer sleep quality and reduced decision-making capacity. Despite sleepiness, residents maintained a vigilant decision-making pattern, possibly as a compensatory mechanism. It is concluded that excessive sleepiness negatively affects residents, especially those with more night shifts, and may compromise clinical decision-making. This suggests the need for measures to monitor and reduce risk factors, improve mental health and quality of life of professionals, and reassess workload.

Keywords: Residency; Medicine; Sleep deprivation; Decision-making.

INTRODUCTION

Sleep, although a subject of interest for a long time, has only received greater medical contributions in recent decades (NOLLET et al., 2020). The evolution of the sleep stages, REM and NREM, has shed light on the processes involved. REM sleep, characterized by high cholinergic activity and low aminergic activity, is primarily responsible for memory consolidation (NOLLET et al., 2020). NREM sleep, on the other hand, comprises four stages and is fundamental for physical and metabolic restoration during rest (NOLLET et al., 2020). Recent studies have shown that even when a person sits idle, brain activity remains intensely high, regulating vital systems and detoxifying novel proteins. Sleep deprivation, on the other hand, leads to cognitive deficits and mood fluctuations (TAI et al., 2023).

During residency, medical programs present serious problems in this regard due to shifts lasting up to 30 hours. On average, residents sleep 6.13 hours per night, which

is less than normal, and their sleep quality is worse than that of students (CHOSEN-HILLEL et al., 2020). Given the scarcity of studies on this subject in Brazil, this contribution aims to investigate sleepiness in medical residents, the quantitative impact of lack of rest, and possible solutions to adjust schedules in order to provide better patient care, with improved physiological and psychological conditions for residents.

METHODOLOGY

This is a cross-sectional and associative study, conducted with 52 medical residents from the *Hospital Evangélico de Goiás* and residents recruited digitally. The G*Power software (version 3.1.9.7) was used to calculate sample size, with $\alpha = 0.05$, power of 80%, and effect size of 0.5. The research was divided into two stages: in-person at the *Hospital Evangélico de Goiás* and virtual via Google Forms. After obtaining informed consent (ICF), residents participated according to their availability.

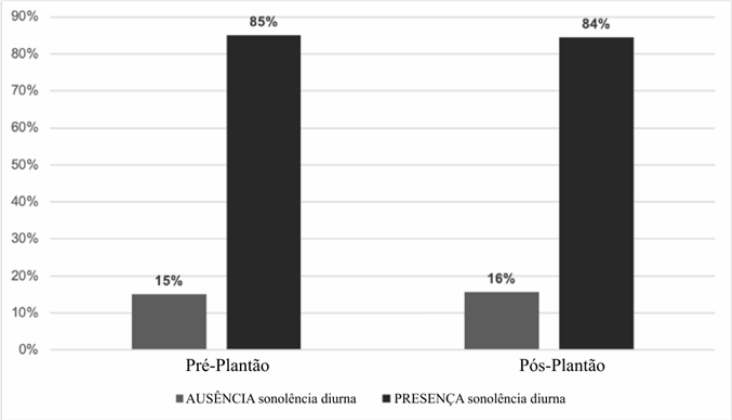
Data were collected through three questionnaires: Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS-BR), and Melbourne Decision-Making Questionnaire (MDMQ). Collection included responses during shifts and via virtual link, ensuring voluntary participation without external influence. The data were sent by e-mail for analysis and archiving. The study was approved by the Research Ethics Committee of the *Universidade Evangélica de Goiás*, in accordance with Resolution 466/2012 of the *Conselho Nacional de Saúde*, under registration number 6.245.749.

RESULTS

Fifty-two residents participated in the study, with 61.5% female and an average age of 28 years. Forty-eight percent were in R1, and 61.5% completed the questionnaires before their shifts.

The level of sleepiness, measured by the Epworth questionnaire, showed that 85% of residents presented significant sleepiness before the shift and 84% after. These results indicate a similar pattern of rest quality in both pre- and post-shift periods.

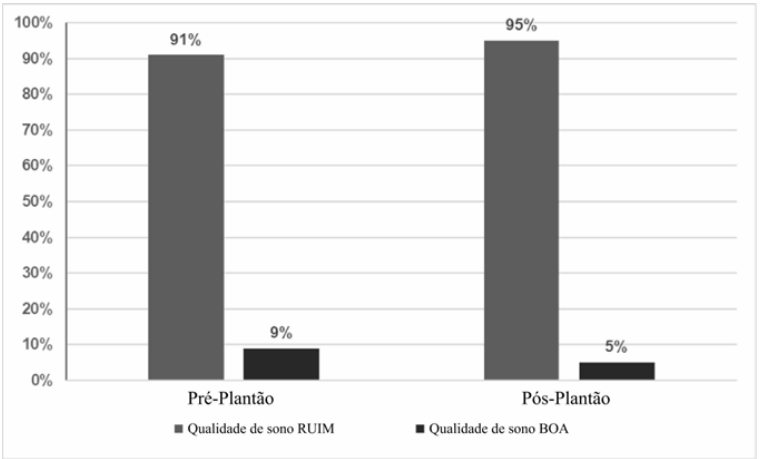
Figure 1. (a) Incidence of daytime sleepiness in respective hospital shifts (according to Epworth).
Source: Prepared by the author (2024).



Fonte: Elaborado pelo autor (2024).

The analysis of the Pittsburgh Sleep Quality Index (PSQI) revealed that 92% of residents had poor sleep quality, with 91% presenting this condition before the shift and 95% after. This reflects a link between sleep deprivation and increased daytime sleepiness.

Figure 1. (b) Incidence of sleep quality in respective hospital shifts (according to PSQI).
Source: Prepared by the author (2024).



Fonte: Elaborado pelo autor (2024).

The analysis of the Melbourne Decision-Making Questionnaire (MDMQ) did not find significant associations between sleep quality and decision-making profiles, with $p > 0.05$.

CONCLUSION

Sleep quality remained poor, with a significant percentage of residents reporting persistent sleepiness, highlighting the urgent need for solutions. Only 8% of the total residents had good sleep quality, and this number did not increase substantially after the shift. In fact, excessive daytime sleepiness was particularly severe in clinical and surgical specialties. It is therefore crucial to reassess residents' working hours and schedules in order to reduce the adverse impact on their health and professional lives.

Furthermore, this investigation also explored the interaction between sleep quality and residents' decision-making profiles, although poor sleep quality may negatively affect the predominant decision-making style. Given the limitations, such as low adherence and the cross-sectional nature of the study, further research with more rigorous methodologies and larger samples is necessary to validate and expand these findings. Nevertheless, this study suggests the urgent need to promote sleep quality among residents as a way to ensure patient safety.

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