DIFFERENCES IN SLEEP QUALITY AMONG NURSING STUDENTS

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ABSTRACT
The sleep quality and academic performance of students are influenced by their activity patterns, which in turn affects their health status. Nevertheless, there is a scarcity of research specifically addressing sleep problems among nursing students. The objective of this study is to identify and analyse the features of nursing students that are associated with variations in their sleep quality. This study employs a correlational descriptive research design, utilising a quantitative technique. A total of 117 individuals were surveyed. The Mann-Whitney and Kruskal-Wallis tests were employed to assess variations in sleep quality according to the attributes of the participants. The findings indicated that a significant majority of participants, up to 87.2%, experienced substandard sleep quality. Based on the subjective evaluation of PSQI components, 50.4% of participants were classified as having good sleep quality. Additionally, 34.2% reported experiencing difficulty falling asleep more than three times a week within 30 minutes. The majority of participants (42.5%) reported a sleep duration of 6-7 hours. Furthermore, 4.3% of participants had taken sleeping pills in the past month. Furthermore, the results demonstrated a strong correlation between the ages of the respondents and their sleep quality (p=0.047). This study uncovers a worrisome pattern indicating that the sleep quality of nursing students is significantly subpar. Hence, it is imperative to employ both academic and non-academic strategies and advancements to enhance the quality of students' sleep.

Keywords: Nursing Students, PSQI, Sleep Quality

INTRODUCTION

Sleep Quality is a condition that describes the deep and invigorating sleep. Sleep quality encompasses both quantitative and qualitative aspects, generally assessed using four criteria: sleep latency or how often one wakes up during the night, the duration of wakefulness at night after falling asleep, the time it takes to initiate sleep, and sleep efficiency (National Sleep Foundation, 2020). Previous research on sleep quality, using the Pittsburgh Sleep Quality Index instrument, found that 61.9% of 7,626 students from six universities in the United States had poor sleep quality, 36% reported sleeping less than 7 hours, and 43% reported needing more than 30 minutes to fall asleep (Becker et al., 2018).

A study conducted by Blome et al., (2021) on 254 nursing students in the Midwest region of the United States reported poor sleep quality, excessive daytime sleepiness, and poor sleep hygiene. Furthermore, research by Silva et al., (2016) found that 31.6% of 403 nursing and health students in Portugal aged less than or equal to 20 years had poor sleep quality. In Indonesia, a study conducted on nursing students at Muhammadiyah University Purwokerto found that 55.6% of 90 respondents had poor sleep quality (Arifin & Wati, 2020). Moreover, a meta-analysis study during the Covid-19 pandemic reported that 27% of nursing students worldwide, including Indonesia, experienced sleep disturbances (Mulyadi et al., 2021).

In addition, changes in activity patterns in nursing students are one of the causes of irregular sleep patterns because students experience sleep deprivation during campus or clinical practice (Araújo et al., 2013). Reduced sleep duration in students leads to excessive daytime sleepiness, as well as late-night studying, prolonged extracurricular activities, academic stress, and psychological stress (Hartini et al., 2021; Naryati & Ramdhaniyah, 2021).

Sleep problems have been shown to have adverse effects on low academic performance, academic failure, learning disorders, memory function decline, attention span in daytime emotional and behavioral disturbances (Hershner & Chervin, 2014; Burns et al., 2016; Gallego-Gómez et al., 2021). Meanwhile, good sleep quality plays a role in improving mental health, enhancing academic achievement, improving memory function, and enhancing cognitive function in students (Short et al., 2019; Hysing et al., 2016; Leong et al., 2019).

Referring to this background, this research seeks to elucidate sleep quality and discern the disparities in responder characteristics pertaining to sleep quality among undergraduate nursing students.

METHOD

This research is a descriptive correlational study with a quantitative approach conducted in March 2023. The total sample size for this study is 117 students selected using proportional stratified random sampling technique, consisting of 13 males and 104 females, with an age range of 17 to 21 years, distributed across the first to third years of the Nursing Science Program at Sam Ratulangi University in Manado. The inclusion criteria for this research are active nursing science program students, and the exclusion criteria are students who do not complete the questionnaire. Univariate analysis was conducted to obtain frequency distribution data related to respondent characteristics.

The Mann-Whitney and Kruskal-Wallis tests were used to identify the differences sleep quality on the characteristics of the respondents. The Mann-Whitney test was utilized to determine the difference in sleep quality based on gender because the data being tested involved two unpaired and non-normally distributed groups. Meanwhile, the Kruskal-Wallis test was employed to investigate the difference in age and academic year concerning sleep quality. This test was chosen because the data being tested

involved more than two unpaired groups and was not normally distributed.

The research was conducted after obtaining research permission from the Nursing Science Program, Faculty of Medicine, Sam Ratulangi University, with the reference number 69/UN12.1.34/LL/2023. Before collecting the data, the researcher distributed the informed consent form to the respondents.

The questionnaire used to assess sleep quality in this study is the Pittsburgh Sleep Quality Index Indonesian version (PSQI-I), which the sample used to report their sleep quality and sleep problems in the past month. The PSQI-I was evaluated for reliability with a result of a Cronbach's alpha value of 0.72 and the correlation between item totals ranged between 0.36 to 0.56 (Setyowati & Chung, 2020). Meanwhile, the validity result was 0.365 – 0.733 (α = > 0,361) (Fandiani et al., 2017).

The PSQI was developed by Buysse et al., (1989) and consists of 19 items that assess 7 components of sleep evaluation: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. The PSQI has adequate internal consistency (Cronbach alpha = 0.73) (Buysse et al., 1989).

RESULT

Based on Table 1, it shows that the majority of respondents are female, accounting for 88.9%, the majority are aged 19 years, comprising 36.8%, and the largest number of respondents are in the first year of study, representing 46.2% of the total sample.

Table 1. Characteristics of Nursing Students' (N: 117)

Characteristics	f	%
Sex		
Male	13	11,1%
Female	104	88.9%
Age		
17 years old	2	1.7
18 years old	36	30.8
19 years old	43	36.8
20 years old	25	21.4
21 years old	11	9.4
Academic Year		
1st year	54	46.2
2st year	35	29.9
3st year	28	23.9

Tabel 2. Sleep Quality and the Scores of Its Components in Nursing Students as Measured by the Pittsburgh Sleep Quality Index (PSQI) (N: 117)

Domain/ Component	f	%
Total Sleep Quality		
Good sleep	15	12.8
Poor sleep	102	87.2
Subjective sleep quality		
Very good	11	9.4
Fairly Good	59	50.4
Fairly bad	42	35.9
Very bad	5	4.3
Cannot sleep within 30 minutes		
Not during the past mounth	16	13.7
Less than once a week	34	29.1
Once or twice a week	27	23.1
Three or more times a week	40	34.2
Sleep latency component[a]		
≤15 minutes	42	35
16-30 minutes	51	42.5
31-60 minutes	19	15.8
>60 minutes	5	4.2
Sleep duration		
> 7 hours	9	7.7
6 – 7 hours	53	45.3
5 hours	45	38.5
> 5 hours	10	8.5
Sleep efficiency		
> 85%	103	88
75 – 84 %	6	5.1
65 – 74 %	5	4.3
< 65 %	3	2.6
Sleep distrubances[a]		
0	1	0.9
1	63	53.8
2	52	44.4
3	1	9
Use of sleep medication		
Not during the past mounth	122	95.7
Less than once a week	2	1.7
Once or twice a week	3	2.6
Three or more times a week	0	0
Sleep dysfunction[a]		
0	2	1.7
1	41	35
2	52	44.4
3	22	18.8

Note: *n: Sample, f: frequency, %: percentage, [a]Minimum score = 0 (better), maximum score = 3 (worse). For additional details on the scoring of the PSQI components, see Buysse et al., (1989)*

Table 2 shows that 87.2% of the sample has a low sleep quality, indicated by a Total PSQI score greater than 5. However, the majority of subjective sleep quality, accounting for 50.4%, is categorised as good. Nevertheless, while examining the overall PSQI score, a significant proportion of participants are classified as having

substandard sleep quality. According to the evaluation of PSQI components, it was determined that 34.2% of individuals had difficulty sleeping at night for over 30 minutes on at least three occasions each week, while 29.1% require more than 30 minutes to fall asleep once a week. The majority of students, accounting for 42.5%, reported sleeping for a period of 6-7 hours, while 38.5% reported sleeping for 5 hours. In addition, the majority of participants (95.7%) stated that they had not used any sleep medication in the past month.

Table 3. Sleep Quality (PSQI Total Score) Based on Respondent Characteristics

Characteristics	PSQI total score				
	N	Good	Poor	Mean Rank	p
Sex					
Male	13	1	12	62	0.559[a]
Female	104	14	90	58.63	
Age					
17 years old	11	1	10	37.25	
18 years old	2	1	1	61.63	
19 years old	36	3	33	62.42	0.047[b]
20 years old	43	3	40	50.12	
21 years old	25	7	18	61.18	
Academic Year					
1st year	54	7	47	58.92	
2st year	28	4	24	58.14	0.944[b]
3st year	35	4	31	59.81	

Note: n: sample, [a]Mann-Whitney test, [b]Kruskal-Wallis test

Based on the Kruskal-Wallis test results, it is indicated that there is a significant difference in sleep quality based on the age of respondents, with a p-value of 0.047 (<0.05)

DISCUSSION

This research finding indicated that the total PSQI (Pittsburgh Sleep Quality Index) score of the majority of respondent's falls into the category of poor sleep quality, at 87.2% out of 117 respondents. The high total PSQI score in this study aligns with research conducted by Cox et al., (2022), where 70.5% of 105 nursing students at the University of Texas Board of Nursing experienced poor sleep quality. This result is significantly higher compared to the study conducted by Silva et al., (2016), which found that 31.6% of 403 nursing students in Portugal had poor sleep quality. Research conducted by Blome et al., (2021) in the central-western region of the United States showed that 58.7% of 245 nursing students had poor sleep quality. A study conducted in Indonesia at Riu University found that 72% of 100 respondents among nursing students experienced poor sleep quality (Pitaloka et al., 2015).

Alterations in the activities undertaken by nursing students contribute to the diminished quality of sleep. In this study, it was reported that the teaching and learning activities for nursing students started from 07:30 AM to 04:30 PM, from Monday to Friday. In addition, students were also assigned homework and self-study activities at home, which contributed to their reduced sleep hours. Research by Araújo et al., (2013) found that the activity patterns among nursing students were one of the reasons for irregular sleep patterns because students experienced sleep deprivation during campus hours or clinical practice. Besides changes in activity patterns, there are several other factors that can influence sleep quality, such as engaging in screen time for more than 8 hours per day, consuming soft drinks, exercising less than 3 days a week or limited physical activity, smoking, using technology late into the night, and excessive internet use (Mishra et al., 2022; Belingheri et al., 2020; Blome et al., 2021; Tahir et al., 2021).

Another finding in this research is the assessment of PSQI components, such as the subjective sleep quality assessment, where the majority fell into the "good" category at 50.4%. However, when looking at the total PSQI score, the majority of respondents, at 87.2%, were categorized as having poor sleep quality. This suggests that some students may not be aware that they have poor sleep quality. This is consistent with the study conducted by Becker et al., (2018), where 60.7% of 7600 respondents rated their sleep quality as "good," but 61.9% had poor sleep quality according to the total PSQI score.

Concerning the sleep latency component, which refers to the time it takes to fall asleep, the findings indicated that the majority, accounting for 34.2%, experienced difficulty in falling asleep within 30 minutes more than three times per week. This finding aligns with the study by Becker et al., (2018), where 20.9% of 7600 students had trouble falling asleep within 30 minutes more than 3 times a week. The data on the duration of students' sleep ranged from 6-7 hours, accounting for 42.5%. This is consistent with the study conducted by Silva et al., (2016b), which reported that 61% of 403 respondents among nursing students slept for 6-7 hours. In contrast, a study by James et al., (2019) found that the average sleep duration for 100 students was more than 7 hours per 24 hours. According to sleep length guidelines for individuals between the ages of 18 and 25, it is recommended to sleep for 7 to 9 hours. It is advised not to sleep for fewer than 6 hours or more than 11 hours. (Hirshkowitz et al.,

2015). The use of sleep medication among respondents was found to be 4.3%, and this result is consistent with the study conducted by Albqoor & Shaheen, (2021) which included a larger sample of 1,308 students and found that only 9% used sleep medication.

Furthermore, the difference in the sleep quality of students based on respondent characteristics, analyzed using the Kruskal-Wallis test, and showed that there was no relationship between sleep quality gender and Academic Year. This finding is in line with the study by Ilmaz et al., (2017) at Uludag University, Bursa, Turkey, found that out of the 112 respondents (50.2%) did not observe any correlation between the academic year and the quality of their sleep. However, it is common for first-year students to experience impaired sleep quality as a result of multiple variables, such as variations in the curriculum and adjustment to a new social setting.. This study only indicates differences in sleep quality based on age. which is not in line with the data found Ilmaz et al., (2017) There is no relationship between age and sleep quality. Nevertheless, according to Mander et al., (2017) both the quality and quantity of sleep changes as we progress our older age.

Moreover, The quality of sleep among nursing students is essential to consider because it can impact low academic performance, academic failure, learning disorders, emotional disturbances, attention spans, and daytime behaviors (Hershner & Chervin, 2014; Burns et al., 2016; Gallego-Gómez et al., 2021). Present initiatives aimed at enhancing sleep quality involve implementing SWIS training programmes, such as "Studieren wie im Schlaf," which have demonstrated efficacy in enhancing both sleep quality and cognitive performance in students. Additionally, offering emotion regulation meditation therapy has been linked to improved sleep quality and a reduction in sleep-related issues. Furthermore, educational videos are provided to enhance knowledge and attitudes towards sleep, thereby effectively addressing sleep problems. (Schlarb et al., 2017; Tavernier & Willoughby, 2015; Nisa et al., 2021).

CONCLUSION

The research findings indicate a notable frequency of substandard sleep quality among nursing students. Hence, it is vital to employ both scholarly and non-scholarly methods and advancements to cater to the sleep requirements of students, with the aim of yielding favourable outcomes,

particularly in the realm of academia.

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