

SURVEY ON SLEEP QUALITY AND RELATED FACTORS AMONG NURSING STUDENTS AT CAN THO UNIVERSITY OF MEDICINE AND PHARMACY IN 2023

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ABSTRACT

Background: Sleep quality is commonly defined in terms of total sleep time, onset latency, sleep efficiency and others. Sleep disturbances are a common health complaint that is expected to surge and have more important consequences in adults, especially in health science students, namely nursing students and midwifery students. Moreover, we have recorded a few studies that have been carried out on sleep quality. **Objectives:** This study aims to survey the current level of sleep quality among nursing students at Can Tho University of Medicine and Pharmacy and determine factors affecting students' sleep quality. **Materials and methods:** A descriptive cross-sectional research was conducted on 294 nursing students at the Faculty of Nursing - Medical Technology, Can Tho University of Medicine and Pharmacy from June to August 2023 through a self-report questionnaire. The participants were 294 nursing students, including nursing and midwifery students. The self-report questionnaire included the Pittsburgh Sleep Quality Index (PSQI) and some questions about the characteristics of research subjects such as the features of external environments, learning activities, and personal activities. The PSQI in the study was used in the Vietnamese, and the reliability was evaluated by Trinh My Linh and colleagues with Cronbach's alpha reliability of 0.67. The data were analyzed using the chi-square test and logistic regression. **Results:** Our study involved 189 students (64.29% response rate). The total students' sleep quality score was 7.18 ± 3.63 , which indicated 71.43% of students had sleep disorders. The major factors were self-study time, being disturbed by light in the bedroom and using mobile devices before bed, which were factors related to students' sleep quality ($p < 0.05$). **Conclusion:** The portion of sleep disorders among nursing students reached large figures. Henceforth, training institutions need to develop health education programs about enhancing the quality of sleep as well as personal lifestyles and self-study methods to help orient and improve the quality of training and quality of life of students. **Keywords:** sleep quality, nursing students, PSQI.

I. INTRODUCTION

Sleep quality is defined in terms of total sleep time, onset latency, sleep onset latency, sleep efficiency, and so on [1]. Sleep issues are recurrent in the general population and medical students in particular [1]. A recommended sleep duration for younger adults from 18 to 45 years and an even longer 9 hours is considered [2]. Sleep disorders can cause many issues for medical students, namely mental function and quality of life, and hence, affect academic performance. Up til now, many measures have been developed. One of the measurements is the Pittsburgh Sleep Quality Index (PSQI), which is an issue that needs attention among students, especially health science students in general and nursing students in particular. In 2016, a study conducted by Tran Ngoc Truc Quynh showed that the rate of sleep disorders among medical and pharmacy students was 59.1% [3]. Additionally, research by Trinh My Linh (2022) showed that the prevalence of sleep disorders at the

faculty of nursing and medical technology in Ho Chi Minh city accounted for 53.4% [4]. Moreover, there are concerns related to sleep quality. According to Trinh My Linh, light noise in the bedroom, using mobile devices before bed, diseases causing pain, and psychological factors are closely related to sleep disorders ($p < 0.05$) [4].

Currently, there is no research on sleep quality at the Faculty of Nursing - Medical Technology, Can Tho University of Medicine and Pharmacy. Therefore, we conducted the study " Survey on sleep quality and related factors among nursing students at Can Tho University of Medicine And Pharmacy in 2023". The purpose of this study was to depict sleep quality and identify factors that are related to sleep quality.

II. MATERIAL AND METHODS

2.1. Study population

294 full-time nursing and midwifery students at the Faculty of Nursing and Medical Technology, Can Tho University of Medicine and Pharmacy

Inclusion criteria: full-time nursing and midwifery students studying in the first to fourth year at the Faculty of Nursing and Medical Technology, Can Tho University of Medicine and Pharmacy from June 2023 to August 2023.

Exclusion criteria: participants were absent during the research period and did not agree to participate in the research.

2.2. Research Methods

Research design: a descriptive cross-sectional study.

Sampling method: convenient sampling.

Sampling size

$$n = Z^2_{1-\alpha/2} \times \frac{\rho(1-\rho)}{d^2}$$

Choose $p=0.534$ [4], $d=0.08$. Therefore, the minimum sample size in our study was 150 students.

Research tools: Our study used the Pittsburgh Sleep Quality Index (PSQI) scale which was developed by Buysse and colleagues in 1988 [5]. The scale was translated and evaluated for reliability by Trinh My Linh (2022) with a Cronbach's alpha coefficient of 0.67 [6]. The scale includes 19 item questions assessing 7 aspects; the global score of PSQI ranges 0 to 21. Higher scores indicate worse sleep quality. Global scores > 5 are considered to have poor quality of sleep [6]. In addition, our research also collected basic information from participants on demographic and, environmental, physiological, and social characteristics.

Data analysis: Descriptive statistics with qualitative variables were described by frequency (n) and proportion (%), and quantitative variables were described by mean and standard deviation (SD). The chi-square test and logistic regression analysis were used to determine the association between influencing factors and the rate of sleep quality. Significant level was set at 0.05. Analyses were performed using STATA 14.2 software.

Research ethics: The research was approved by the Institutional Review Board at Can Tho University of Medicine and Pharmacy. Students, whose participation was completely voluntary, received both oral and written information about the purpose, content, and extent of the study and were assured that their responses were confidential.

III. RESULTS

Our study had 189/294 students participating (64.29% response rate).

Table 1. Participant’s demographic characteristics

Characteristic		Frequency (n)	Percentage (%)
Age	(Mean ± SD)	20.54 ± 1.75	
Genders	Male	26	13.76
	Female	163	86.24
Majors	Nursing	116	61.38
	Midwives	73	38.62
Academic year	First year	72	38.10
	Second year	26	13.76
	Third year	91	48.15
Academic performance	Excellent	4	2.12
	Very good	21	11.11
	Good	102	53.97
	Average	50	26.46
	Poor	7	3.70
	Very poor	5	2.65

Participants in the study had an average age of 20.54 ± 1.75 years old. The majority of participating students were female (86.24%), with the nursing major accounting for the highest percentage (61.38%). The majority of students were third-year students, accounting for the highest percentage (48.15%) and mostly with good academic performance (53.97%).

Table 2. Environmental, physiological, and social characteristics of participants

Characteristic		Frequency (n)	Percentage (%)
Being disturbed by noise while sleeping	Never	22	11.64
	Seldom	59	31.22
	Sometimes	85	44.97
	Frequently	23	12.17
Disturbed by light in the bedroom	Never	55	29.10
	Seldom	72	38.10
	Sometimes	46	24.34
	Frequently	16	8.47
Having a chronic disease that causes pain	Yes	28	14.81
	No	161	85.19
Average self-study time weekly	< 6 hour	47	24.87
	≥ 6 hour	142	75.13
Physical activity time weekly	< 80 minutes/week	46	24.34
	80 – 150 minutes/week	33	17.46
	> 150 minutes/week	110	58.20
Use mobile devices (phone, iPad, laptop) before bed	Almost every night	162	85.71
	Several nights/week	27	14.29

Students were occasionally disturbed by noise when sleeping (44.97%) and were rarely affected by light in the bedroom (38.10%), and 85.19% of students did not suffer from chronic diseases. Besides, students spent ≥ 6 hours/week on self-study, with the majority rate being 75.13%. In addition, >150 minutes/week of physical activity (58.20%), and the majority of students used mobile devices before bed (85.71%).

Table 5. Sleep quality of study subjects

PSQI score		Frequency (n)	Percentage (%)
		7.18 \pm 3.63	
Classification of sleep quality	No sleep disorders (PSQI \leq 5)	54	28.57
	Sleep disorders (PSQI $>$ 5)	135	71.43

Students with PSQI score of 7.18 \pm 3.63, in measuring sleep disorders, had the highest rate at 71.43%.

Table 6. Association between characteristics of study subjects and sleep quality

Content		Quality of sleep		χ^2	p
		No sleep disorders	Sleep disorders		
Age* (Mean \pm SD)				1.82	0.07
Gender	Male	3 (11.54)	23 (88.46)	2.50	0.11
	Female	42 (25.77)	121 (74.23)		
Majors	Nursing	25 (21.55)	91 (78.45)	0.84	0.36
	Midwives	20 (27.40)	53 (72.60)		
Academic year	First year	16 (22.22)	56 (77.78)	0.73	0.70
	Second year	5 (19.23)	21 (80.77)		
	The third year	24 (26.37)	67 (73.63)		
Academic ability	Excellent	1 (25.00)	3 (75.00)	3.24	0.67
	Very good	6 (28.57)	15 (71.43)		
	Good	27 (26.47)	75 (73.53)		
	Average	9 (18.00)	41 (82.00)		
	Poor	2 (28.57)	5 (71.43)		
	Very poor	0 (0.00)	5 (100.00)		

(*) Logistic regression

By analyzing demographic characteristics, no relationship was recorded with sleep quality.

Table 7. Relationship between environmental, social, and physiological characteristics with sleep quality of research subjects

Content		Quality of sleep		χ^2	p
		No sleep disorders	Sleep disorders		
Being disturbed by noise while sleeping	Never	8 (36.36)	14 (63.64)	1.38	0.71
	Seldom	18 (30.51)	41 (69.49)		
	Sometimes	23 (27.06)	62 (72.94)		
	Frequent	5 (21.74)	18 (78.26)		

Content		Quality of sleep		χ^2	p
		No sleep disorders	Sleep disorders		
Disturbed by light in the bedroom	Never	23 (41.82)	32 (39.30)	10.43	0.02
	Seldom	19 (26.39)	53 (73.61)		
	Sometimes	10 (21.74)	36 (78.26)		
	Frequent	2 (12.50)	14 (87.50)		
Having a chronic disease that causes pain	Yes	7 (25.00)	21 (75.00)	0.21	0.65
	No	47 (29.19)	114 (70.81)		
Average self-study time is 1 week	< 6 hour	8 (17.02)	39 (82.98)	4.21	0.04
	\geq 6 hour	46 (32.39)	96 (67.61)		
Physical activity time in 1 week	< 80 minutes/week	8 (17.39)	38 (82.61)	6.05	0.04
	80 – 150 minutes/week	8 (24.24)	25 (75.76)		
	> 150 minutes/week	38 (34.55)	72 (65.45)		
Use mobile devices (phone, iPad, laptop) before bed	Almost every night	37 (22.84)	125 (77.16)	18.27	<0.001
	Several nights/week	17 (62.96)	10 (37.04)		

Students who were bothered by light in the bedroom and had an average self-study time per week of \geq 6 hours and used mobile devices before bed had a higher rate of sleep disorders than the group that was not bothered by light in the bedroom, self-studying for less than 6 hours, and using mobile devices before bed less. The difference is statistically significant ($p < 0.05$).

IV. DISCUSSION

Our research recorded that 71.43% of nursing and midwifery students had sleep disorders. Our research results are higher than Tran Ngoc Truc Quynh's research (59.1%) on Preventive Medicine students and higher than Trinh My Linh's research (53.40%) [3], [4]. According to D. Yilmaz and colleagues (2017), sleep quality is closely related to quality of life as well as other social activities, and at the same time, sleep disorders affect academic performance and the health of students [7]. Therefore, a high rate of students having sleep disorders is a warning sign about quality of life, so there is a need for intervention methods to help students improve sleep quality [7].

Through analyzing factors related to sleep quality, we found that self-study time, light in the bedroom, and using mobile devices before bed could affect sleep ($p < 0,05$). Students who are often bothered by bright images in the bedroom have sleep disorders. Our research results are similar to the research of Trinh My Linh (2022) and Meng (2020) [4,8]. As for bedroom lighting, exposure to light during sleep leads to altered circadian rhythms thereby contributing to poor sleep [9].

Regarding students' self-study time, our research shows that students with more self-study time will have higher sleep disorders. This is explained by the fact that in addition to

the all-day theoretical and clinical schedules, students will use their evenings or free time to do self-study and research documents themselves. At the same time, the correct self-study method will help save self-study time, so guiding self-study methods for students plays a role in improving students' sleep [10].

Besides, our research also shows that students using mobile devices before bed affects their sleep. Our study is similar to that of Trinh My Linh and Exelmans [11]. This influence is explained by the fact that using blue light devices before bed can make it difficult to fall asleep due to melatonin suppression and nerve stimulation [4], [12].

V. CONCLUSION

71.43% of nursing and midwifery students at Can Tho University of Medicine and Pharmacy have sleep disorders. Can Tho University of Medicine and Pharmacy needs to develop seminars and healthcare education programs that combine self-study methods and factors related to sleep to help improve the quality of life of students, from That contributes to improving learning and training. effectiveness.

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