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QUALITY OF SLEEP AND RELATED FACTORS AMONG WOMEN AGED 18 – 49 IN PHONG DIEN DISTRICT, CAN THO CITY

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ABSTRACT

Background: *Sleep is a vital biological necessity for maintaining health throughout a woman's life stages. The significance of adequate rest remains constant and critical throughout every single stage of a woman's development and maturation, from the earliest moments of infancy and childhood right through the complexity of adulthood and into old age.* ***Objectives:*** *To describe the sleep quality of women aged 18-49 and identify some factors related to the sleep quality among women in this age group in Phong Dien District, Can Tho City.* ***Materials and methods:*** *A cross-sectional descriptive study was conducted on 405 women aged 18–49 in Phong Dien District, Can Tho City, from December 2024 to February 2025. The Pittsburgh Sleep Quality Index (PSQI) in Vietnamese version which was translated and validated by To Minh Ngoc to assess sleep quality among women.* ***Results:*** *The majority of participants demonstrated good sleep quality with 88.89%. In addition, 11.11% of women had poor sleep quality, with an average score of 2.95 ± 2.29. Chronic health conditions were identified as a factor significantly associated with the sleep quality of women aged 18–49 ($p < 0.05$).* ***Conclusion:*** *Based on the study's findings, which indicated that 11.11% of women aged 18–49 suffered from poor sleep quality, and importantly, that this issue was significantly exacerbated in women with chronic health conditions, a clear need for targeted intervention is apparent. Therefore, developing robust health education and counseling programs is necessary to effectively support all women in reducing their risk of sleep disorders. These tailored initiatives must especially focus on and prioritize providing specialized resources and behavioral strategies for women who are managing existing chronic health conditions, as they represent a particularly vulnerable group requiring dedicated support to improve overall sleep health and quality of life.*

Keywords: *Sleep quality, women aged 18–49, related factors.*

I. INTRODUCTION

Sleep is a natural physiological process that plays a crucial role in the physical and mental well-being of every individual [1]. Sleep quality is comprehensively assessed across various aspects, including sleep duration, sleep latency, sleep efficiency, or sleep symptoms such as spontaneous awakenings or sleep apnea [2]. Sleep disorders have numerous detrimental effects on both physical and mental health, particularly for women in their reproductive years [3]. Sleep disorders in women increase the risk of chronic conditions like hypertension and stroke, and they have a definite impact on reproductive health as well as on illnesses that emerge during the perimenopausal period [4].

Previous studies indicate that women aged 18-49 often experience poorer sleep quality compared to men in the same age group [5]. The contributing factors include hormonal fluctuations, premenstrual symptoms, menstrual cycles, pregnancy, and certain gynecological conditions or other chronic diseases [5]. Additionally, poor sleep quality has been linked to increased instances of miscarriage, abortion, infertility, and subfertility [6]. In various countries globally, 22% of young women in South Korea experience poor sleep quality, with contributing factors identified as electronic device usage and anxiety disorders [7]. Similarly, a study conducted on 9,749 women aged 18-44 in Canada revealed that 38% had poor sleep quality, linked to anxiety disorders, overweight/obesity, and alcohol consumption [8].

In Vietnam, 86.45% of women with cancer experience poor sleep quality, with factors related to employment-education and disease stage being strongly associated with sleep quality [9]. However, to date, there are very few studies on sleep quality conducted among women aged 18-49 in the community. Therefore, this study was undertaken with the following objectives: (1) To describe the sleep quality of women aged 18-49; (2) To identify factors related to the sleep quality of women aged 18-49.

II. MATERIALS AND METHODS

2.1. Participants

Women aged 18-49 in Phong Dien District, Can Tho City, from December 2024 to February 2025.

- Inclusion criteria: Women aged 18-49 years old who are permanent residents and currently living in Phong Dien District, Can Tho City, and who consent to participate in the study.

- Exclusion criteria: Women diagnosed with mental disorders, memory impairment, inability to communicate, or absence at the time of data collection.

2.2. Methods

- Research design: Cross – sectional descriptive study.

- Sampling size and technique:

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

Our study used Z: Confidence coefficient at 95% confidence level (α=0.05), corresponding to $Z(1-\alpha/2) = 1.96$. p= 0.713 (proportion of women with poor sleep quality according to Biruk Bogale's study [10]). d: Permissible error, chosen as 0.05. Therefore, the minimum sample size for our study was 315.

- Sampling methods: A multi-stage sampling method was applied:

+ Stage 1: Four out of seven communes/towns in Phong Dien District were randomly selected through two steps: *Step 1:* The seven administrative units (communes/towns) of Phong Dien District were divided into two strata: Stratum 1, comprising 1 administrative unit (Phong Dien town); and Stratum 2, comprising 6 administrative communes (Giai Xuan, My Khanh, Nhon Ai, Nhon Nghia, Tan Thoi, Truong Long). *Step 2:* One administrative unit from Stratum 1 and three out of six administrative communes from Stratum 2 were selected using simple random sampling.

+ Stage 2: Two hamlets/zones from each of the four selected communes/towns from Stage 1 were randomly chosen using simple random sampling.

+ Stage 3: Study participants were selected from each chosen hamlet/zone by equally distributing the total sample size among them (392/8 = 49 participants per hamlet or zone). Within each selected hamlet/zone, participants meeting the inclusion and exclusion criteria were chosen using a door-to-door (adjacent house) sampling method until the required number of participants for that hamlet/zone was met. If, after covering the entire selected hamlet/zone, the sample size was insufficient, supplementary data collection would be conducted in the remaining hamlets/zones until the total required sample size was achieved.

In practice, the total number of women participating in our study was 405.

- Research questionnaire:

Our study utilized the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality, a scale developed by Buysse et al. in 1988 [11]. This scale was translated and validated for reliability by To Minh Ngoc (2014), yielding a Cronbach's alpha coefficient of 0.789 [12]. The PSQI comprises 9 items with 19 questions, divided into 7 components designed to evaluate various aspects of sleep quality: (1) Subjective sleep quality, (2) Sleep latency, (3) Sleep duration, (4) Habitual sleep efficiency, (5) Sleep disturbances, (6) Use of sleeping medication, (7) Daytime dysfunction

Higher scores on the PSQI indicate poorer sleep quality. A total score of ≤5 points suggests good sleep quality, while a score of >5 indicates poor sleep quality. In addition, we collected information on participant characteristics including age, occupation, education level, monthly income, history of gynecological infections, presence of chronic diseases, and use of hormonal contraception.

- Data analysis: Descriptive statistics for qualitative variables were presented as frequencies (n) and percentages (%). The Chi-square test and Fisher's exact test were used to determine the association between factors related to sleep quality. $p < 0.05$ will be considered statistically significant. All data were entered and analyzed using STATA 17.0 software.

- Ethics approval: This study received approval from the Can Tho University of Medicine and Pharmacy's Institutional Review Board for Biomedical Research, as documented in approval number 24.154.SV/PCT-HĐĐĐ, dated November 9, 2024. Participants in the study were informed about the purpose, role, and significance of the research. They were also assured of confidentiality regarding their personal information and that their participation was voluntary.

III. RESULTS

Table 1. General characteristics of the study population

Contents		Frequency (n)	Percentage (%)
Age groups	18 - 34	152	37.53
	35 - 49	253	62.47
Occupation	Homemaker	174	42.96
	Other (manual worker, civil servant/office worker, trader/vendor)	231	57.04
Educational level	Secondary and above	296	73.09
	Below secondary	109	26.91
Monthly income (average)	≥5 million VND	285	70.37
	< 5 million VND	120	29.63
	Yes	63	15.56

Contents		Frequency (n)	Percentage (%)
History of gynecological infections	No	342	84.44
Presence of Chronic Diseases	Yes	37	9.14
	No	368	90.86
Using of Hormonal Contraception	Yes	184	45.43
	No	221	54.57

Table 1 indicated that the majority of women participating in the study were aged 35-49 years, accounting for 62.47%. 57.04% of the women were employed as manual workers, civil servants/office workers, or traders/vendors. Regarding educational attainment, 73.09% had completed junior secondary school or higher, and earned over 5 million VND per month. 84.44% of the women had no history of gynecological infections, and 90.86% were free from chronic diseases. The proportion of women using hormonal contraception was 45.43%.

Table 2. Sleep quality of the study participants

Contents		Frequency (n)	Percentage (%)
Sleep quality classification	Good (PSQI≤5)	360	88.89
	Poor (PSQI >5)	45	11.11
PSQI Score	Mean ± SD	2.95 ± 2.29	

Table 2 indicated that the majority of women participating in the study had good sleep quality, with a rate of 88.89% and a PSQI score of 2.95±2.29.

Table 3. Related factors to sleep quality among study population

Characteristics		Sleep quality n (%)		OR (CI 95%)	p
		Poor	Good		
Age groups	18 - 34	11 (7.20)	141 (92.80)	0.50 (0.25-1.02)	0.05
	35 - 49	34 (13.40)	219 (86.60)		
Occupation	Homemaker	20 (11.49)	154 (88.51)	1.07 (0.57 – 1.99)	0.83
	Other (manual worker, civil servant/office worker, trader/vendor)	25 (10.82)	206 (89.18)		
Educational level	Secondary and above	30 (10.14)	266 (89.86)	0.71 (0.80 – 0.18)	0.30
	Below secondary	15 (13.76)	94 (86.24)		
Monthly income (average)	≥5 million VND	27 (9.47)	258 (90.53)	0.59 (0.31 – 1.12)	0.11
	< 5 million VND	18 (15.00)	102 (85.00)		
History of gynecological infections	Yes	11 (17.50)	52 (82.50)	1.92 (0.91-4.02)	0.08
	No	34 (9.90)	308 (90.10)		
Presence of Chronic Diseases	Yes	11 (29.70)	26 (70.30)	4.16 (1.89-9.14)	<0.001 (*)
	No	34 (9.20)	334 (90.80)		
Using of Hormonal Contraception	Yes	22 (11.96)	162 (88.04)	1.12 (0.56 – 2.14)	0.62
	No	23 (10.41)	198 (89.59)		

(*) Fisher's exact test

Table 3 showed that study participants with chronic diseases exhibited poorer sleep quality, with a rate of 29.7%. This difference was statistically significant (p<0.05). There was no association found between sleep quality and age group, occupation, educational

attainment, monthly income, history of gynecological infections, or the use of hormonal contraception (p>0.05).

IV. DISCUSSION

The PSQI scale used in our study revealed that 11.11% of women aged 18-49 participating in the study exhibited poor sleep quality, with an average score of 2.95±2.29. Our study's prevalence of sleep disturbance is lower than that reported by Biruk Bogale et al. (2022), where 71.3% of women of reproductive age experienced poor sleep quality [10]. Similarly, our findings are lower than those of Yaoxiang Lin et al. (2025) in China, whose study found that 29.35% of women had sleep disturbances [13]. This discrepancy might be attributed to differences in cultural factors and the mental health status of the study populations. Furthermore, the sleep quality of women in this age group is linked to their menstrual cycle, with sleep quality in the luteal phase being poorer than in the follicular phase, and individual variations in menstrual cycle length also play a role [14].

Regarding factors associated with sleep quality in women aged 18-49, we only observed that women with chronic diseases exhibited poorer sleep quality, with a prevalence of 29.7% (p<0.05). Our findings align with Jieru Wang's study [15], which indicated that women with a higher comorbidity of chronic conditions had significantly worse sleep quality, with an OR = 2.158 (1.219–3.820, p<0.05). Similarly, previous research has consistently shown a strong correlation between sleep quality and several chronic diseases, such as COPD, hypertension, diabetes, and other conditions like cancer, obesity, and COVID-19 [9,16]. This association stems from the fact that chronic illnesses often cause persistent discomfort, which disrupts sleep. Additionally, the psychological impact and anxiety related to their medical condition contribute to significantly poorer sleep quality in this group compared to those without chronic diseases [10].

Regarding women's age, our study found no association with sleep quality (p>0.05). This finding differs from the study by Biruk Bogale et al. (2022) [10]. This discrepancy might be due to variations in menstrual cycles and accompanying symptoms, as well as early perimenopausal symptoms, which can lead to reduced sleep quality.

Additionally, our study did not find a relationship between sleep quality and the use of hormonal contraception. Previous research indicates that hormonal contraceptive methods can affect sleep, leading to increased somnolence, insomnia symptoms, reduced sleep efficiency, and overall diminished sleep quality [17].

V. CONCLUSION

Our study revealed that 88.89% of women participants had good sleep quality, and chronic diseases were significantly associated with sleep quality. Therefore, it is crucial to focus on supporting women in reducing their risk of sleep disturbances by developing health education and counseling programs, particularly for those with chronic conditions. Concurrently, future longitudinal studies are needed, incorporating continuous sleep monitoring tools and devices to assess sleep quality across multiple dimensions in this age group.

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