

Stress Levels and Sleep Quality: A Study of Final-Year Nursing Students at ITSK RS dr. Soepraoen Malang

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ABSTRACT

Introduction: Stress is a psychological response that arises when an individual faces certain pressures or demands. One common form of stress experienced by university students is academic stress, particularly among final-year students who are completing their thesis as a graduation requirement. High academic demands often become a major source of stress that affects both physical and mental health, including sleep disturbances. This study aims to determine the relationship between stress levels and sleep quality among final-year Bachelor of Nursing students at ITSK RS dr. Soepraoen Malang.

Method: This research employed a quantitative correlational design with a cross-sectional approach. Sampling was conducted using a total sampling technique, resulting in 159 participants. Data were collected using the DASS-42 questionnaire to measure stress levels and the PSQI to assess sleep quality. Data analysis was performed using the Chi-Square test ($p < 0.05$).

Results: The results showed a p -value of 0.001, indicating a significant relationship between stress levels and sleep quality. Higher levels of stress were associated with poorer sleep quality.

Conclusions: There is a significant relationship between stress levels and sleep quality among final-year nursing students. Therefore, it is recommended that the university provide mentoring or counseling programs to help students manage academic stress, especially for final-year students. Students are also encouraged to enhance positive coping strategies and manage their study time more effectively.

Introduction

Final-year students generally face a demanding academic schedule, particularly during the thesis or final project phase, which serves as a major requirement for obtaining a bachelor's degree (Hale et al., 2023). The high academic demands at this stage often become significant stressors that may affect physical conditions, including changes in sleep patterns that disrupt sleep quality, such as insomnia, sleep-wake schedule disturbances (out of synchrony), nightmares, sleep terrors, and various other types of sleep disorders. When an individual experiences any of these conditions, they may be considered to have a sleep disorder (Ruriyanti et al., 2023; Andiani & Udijono, 2024). Poor sleep quality has the potential to reduce productivity and impair both psychological and physiological functioning. Consequently, students may experience difficulty concentrating, become apathetic, show inadequate responses, feel unwell, become easily fatigued, and encounter a decline in their ability to carry out daily activities (Hutahaean et al., 2022). Therefore, research on sleep quality among final-year students is important to identify existing conditions and to provide a basis for developing



preventive measures and appropriate interventions to support students' health and academic success.

The World Health Organization (WHO) reports that nearly 350 million people worldwide experience stress, placing stress as the fourth most prevalent condition globally. In addition, according to WHO data (2023), approximately 18% of the world's population experiences sleep disorders.

This statement is consistent with the findings of the Indonesian Health Survey (SKI) (2023) conducted by the Ministry of Health, which reported that the national prevalence of depression in Indonesia in 2023 reached 1.4%. The highest prevalence was observed among young individuals aged 15–24 years, at 2%, while the prevalence in East Java was recorded at 0.7%. Meanwhile, according to Lengkong et al (2022), the prevalence of poor sleep quality among adolescents in Indonesia remains high, reaching 63%, with an average sleep duration of less than seven hours per night. At the regional level, a study conducted by Sicilia et al (2023) involving 100 students working on their thesis in Malang City showed that the majority (78%) had moderate levels of academic stress, and 20% experienced high levels of academic stress. Furthermore, research by Fachlefi & Rambe (2021) in Jakarta reported that the prevalence of sleep disorders among adolescents reached 62.9%.

The preliminary study showed that among 10 final-year Bachelor of Nursing students at ITSK RS dr. Soepraoen Malang, interviews revealed that 8 students reported experiencing physical and emotional symptoms such as fatigue, excessive fear, irritability, sadness, and persistent worry about the possibility of not completing their final project on time. These complaints were also associated with assignment deadlines, high academic demands, examinations, unsatisfactory grades, conflicts with peers, lack of understanding of tasks or course material, excessive workload, pressure related to thesis writing, difficulties in finding references, challenges in managing time between coursework and thesis preparation, and difficulties meeting with academic supervisors. Furthermore, 9 respondents stated that their sleep patterns changed during the thesis-writing period, supported by findings that 5 respondents reported a sleep duration of ≤ 7 hours, and 4 respondents stated that they went to bed after midnight.

Academic stress is the most common form of stress experienced by university students, particularly those in their final year (Rosyidah et al., 2020). Initially, academic stress is physiological and adaptive, representing a normal bodily response to academic demands such as final project completion and graduation pressure. However, when academic pressure persists continuously without adequate coping strategies, it may develop into pathological stress. Chronologically, pathological stress begins with prolonged exposure to academic stressors, followed by sustained emotional strain, sleep disturbances, physical and mental fatigue, and a decline in psychological and physiological functioning that can adversely affect students' health and academic performance (Syawalani et al., 2025; Handayani & Lusida, 2025). Therefore, understanding pathological stress among final-year students is essential as a foundation for developing appropriate preventive measures and intervention strategies.

Prolonged stress can affect both physical and mental health, one of which is by triggering sleep disturbances. During periods of stress, the body increases the production of stress hormones such as epinephrine, norepinephrine, and cortisol, which influence the central nervous system and disrupt sleep quality (Oktaviani et al., 2021). Students experiencing sleep disturbances commonly report difficulty falling asleep, non-restorative sleep, frequent nighttime awakenings, or waking up too early.

According to Mahmudah et al. (2024), sleep is a fundamental human need that plays a crucial role in maintaining physical and mental balance. Lack of sleep can lead to various problems, ranging from decreased concentration and productivity to emotional disturbances



and difficulties in social interactions (Nurhaliza et al., 2024). Therefore, maintaining healthy sleep patterns and ensuring adequate rest are essential for students, especially when facing academic pressures.

Several strategies can be applied to manage stress and improve sleep quality among students, including reducing stress-triggering factors such as balancing study and rest time, practicing relaxation techniques, maintaining a healthy diet, adhering to consistent sleep and wake schedules, creating a comfortable sleep environment, and avoiding activities that may interfere with sleep (Apipudin et al., 2021).

The aim of this study is to analyze the relationship between stress levels and sleep quality among final-year nursing students. This study aims to describe the stress levels and sleep quality experienced by students and to provide a foundation for the development of preventive strategies and appropriate interventions to enhance the health and well-being of nursing students.

Methods

This research used a quantitative correlational design with a cross-sectional approach. The study was conducted among final-year Bachelor of Nursing students at ITS RS dr. Soepraoen Malang over a one-week period, from September 23 to 30, 2025. A total sampling technique was applied, resulting in the inclusion of 159 participants in the study.

The research instruments consisted of the Depression Anxiety Stress Scale (DASS-42) and the Pittsburgh Sleep Quality Index (PSQI). For the DASS-42, this study focused specifically on the stress component, which comprises 14 items designed to assess psychological stress responses. The item numbers used for measuring stress were 1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35, and 39. Stress scores were then categorized into five levels normal (0-14), mild (15-18), moderate (19-25), severe (26-33), and very severe (34+) based on the DASS interpretation guidelines. The results of the validity test indicate that all items of the DASS-42 demonstrated item-total correlation values that met the validity criteria ($r > 0.30$). In addition, the reliability analysis showed Cronbach's alpha values ranging from 0.90 to 0.95, indicating that the DASS-42 questionnaire has very high internal consistency and is suitable for use as a measurement instrument in scientific research.

Sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI), an instrument comprising seven dimensions, including subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. Each dimension is rated on a scale from 0 to 3, resulting in a global score ranging from 0 to 21. Based on the total score obtained, sleep quality was classified as good (score ≤ 5) or poor (score > 5). The PSQI has been reported to demonstrate adequate validity, with item-total correlation coefficients meeting the required validity thresholds. Furthermore, reliability analysis indicated Cronbach's alpha values between 0.70 and 0.83, reflecting good internal consistency.

The data were analyzed using the Chi-square test to examine the association between the independent variable, namely stress level, and the dependent variable, sleep quality. In this analysis, stress level was treated as ordinal data, while sleep quality was categorized as nominal data.

Results

Table 1, it was found that almost all respondents were in the late adolescent age range (17-25 years), totaling 151 individuals (95%). The majority of respondents were female, with 131 individuals (82%). Regarding marital status, nearly all respondents were unmarried, totaling 152 individuals (96%).



Regarding thesis progress, most respondents 99 individuals (62%) were in the proposal preparation stage (Chapters 1–4). A smaller proportion of respondents were in the research process stage, totaling 16 individuals (10%); final examination, 14 individuals (9%); proposal revision, 13 individuals (8%); preparation of Chapters 5–7, 11 individuals (7%); and proposal examination, 4 individuals (3%). Only 2 respondents (1%) were still in the title submission stage. In relation to thesis-related difficulties, the majority of respondents 92 individuals (59%) reported experiencing no difficulties, although nearly half, 65 individuals (41%), stated that they did encounter challenges.

In terms of working while studying, almost all respondents 131 individuals (82%) did not work while attending college. Regarding living arrangements, respondents were nearly evenly divided between those living in boarding or rented houses, totaling 78 individuals (49%), and those living with their families, totaling 71 individuals (45%). Meanwhile, a small proportion, 10 individuals (6%), lived in their own homes.

Table 1 Demographic Characteristics of Final-Year Bachelor of Nursing Students at ITSK RS dr. Soepraoen Malang

Demographic Characteristics	N	%
Age		
Late Adolescence (17–25 years)	151	95%
Early Adulthood (26–35 years)	7	4%
Late Adulthood (36–40 years)	1	1%
Gender		
Male	28	18%
Female	131	82%
Merital Status		
Unmarried	152	96%
Married	7	4%
Thesis Progress		
Title Submission	2	1%
Proposal Preparation (Chapters 1–4)	99	62%
Proposal Examination Completed	4	3%
Proposal Revision	13	8%
Research Process	16	10%
Preparation of Chapters 5–7	11	7%
Final Examination	14	9%
Difficulties in Completing the Thesis		
Yes	65	41%
No	94	59%
Working While Studying		
Yes	28	18%
No	131	82%
Living Arrangement		
With Family	71	45%



Own House	10	6%
Boarding House/Rented Room	78	49%
Total	159	100%

Table 2. Stress Levels of Final-Year Bachelor of Nursing Students at ITSK RS dr. Soepraoen Malang

Stress Level	n	%
Normal	46	29%
Mild	55	35%
Moderate	49	31%
Savere	9	6%
Total	159	100%

Table 2, nearly half of the respondents, namely 55 individuals (35%), experienced mild stress. A total of 49 respondents (31%) were categorized as having moderate stress, while 46 respondents (29%) were in a normal stress condition. In addition, a small proportion of respondents, totaling 9 individuals (6%), experienced severe stress.

Table 3. Sleep Quality of Final-Year Undergraduate Nursing Students at ITSK RS dr. Soepraoen Malang

Sleep Quality	N	%
Good	47	30%
Poor	112	70%
Total	159	100%

Table 3, the frequency distribution of sleep quality among final-year nursing students shows that the majority of respondents, totaling 112 individuals (70%), experienced poor sleep quality. Meanwhile, nearly half of the respondents, amounting to 47 individuals (30%), had good sleep quality.

Table 4 Relationship Between Stress Levels and Sleep Quality among Final-Year Bachelor of Nursing Students at ITSK RS dr. Soepraoen Malang

Stress Level	Sleep Quality				Total		Chi - Square Test
	Good		Poor		N	%	
	N	%	n	%	N	%	
Normal	27	58,7%	19	41,3%	46	100%	0,001 (p<0,05)
Mild	14	25,5%	41	74,5%	55	100%	
Moderate	5	10,2%	44	89,8%	49	100%	
Severe	1	11,1%	8	88,9%	9	100%	
Total	47	29,6%	112	70,4%	159	100%	

Table 4, the Chi-Square analysis showed a p-value of 0.001 ($p < 0.05$), indicating a significant relationship between stress levels and sleep quality. Higher stress levels among final-year Bachelor of Nursing students at ITSK RS dr. Soepraoen Malang were associated with poorer sleep quality.



Almost all respondents with moderate stress, totaling 44 individuals (89.8%), and those with severe stress, totaling 8 individuals (88.9%), exhibited poor sleep quality. Most respondents with mild stress, namely 41 individuals (74.5%), also experienced poor sleep quality. In contrast, among those with normal stress levels, the majority 27 respondents (58.7%) had good sleep quality.

Discussion

1. Stress Level

Among final-year Bachelor of Nursing students at ITSK RS dr. Soepraoen Malang, nearly half of the respondents, 55 individuals (35%), experienced mild stress, while 49 individuals (31%) were categorized as having moderate stress. This finding is consistent with a study conducted by Ruriyanty et al. (2023) at Sari Mulia University, Banjarmasin, which reported that the majority of final-year students experienced mild stress (50 individuals; 30.9%) to moderate stress (67 individuals; 41.4%). Most students experiencing moderate stress were influenced by internal pressures stemming from high expectations in completing their final project (Nurhaliza et al., 2024).

These pressures are closely linked to the academic workload faced by final-year students during the completion of their final project, particularly the thesis. This result is consistent with the findings of Fradisa et al. (2022), which suggest that stress is a common experience among students in their final year. The final stage of university education is often marked by heightened academic demands, including thesis preparation, expectations to graduate on schedule, and concerns regarding future career prospects. Such pressures may contribute to increased stress levels, arising from both internal factors, such as time management and emotional regulation, as well as external factors, including demands from academic supervisors and family expectations.

Based on age, among late adolescents (17–25 years), nearly half of the respondents experienced mild and moderate stress, totaling 54 individuals (35.8%) and 48 individuals (31.8%), while 9 individuals (6%) experienced severe stress. In comparison, within the early adulthood category (26–35 years), the majority of respondents, 5 individuals (71.4%), were at a normal stress level. In the late adulthood category (36–40 years), the only respondent (100%) was also at a normal stress level. Thus, stress levels generally tend to decrease with increasing age, even when individuals are confronted with similar stressors. Age is closely related to a person's experience in handling pressure, as increasing age provides individuals with opportunities to learn and adapt to various stressful situations (B & Hamzah, 2020). Therefore, more mature students are generally better able to adjust to the same academic stressors, enabling them to manage and reduce their stress levels.

Based on gender, the majority of male respondents, 15 individuals (53.6%), were categorized as having normal stress levels. In contrast, female respondents showed different results, with nearly half, 46 individuals (35.1%), experiencing moderate stress. These findings indicate that stress levels tend to be higher among female respondents compared to males. Another study by Graves *et al.* (2021) reported that female students have higher stress levels than male students. The study also revealed that females are approximately twice as likely to experience stress. Females are more vulnerable to stress than males due to biological mechanisms and social environmental factors (Mengelkoch & Slavich, 2024). When facing stress, female students tend to experience higher stress levels than male students. While male students generally remain calmer when dealing with challenges such as assignments or



examinations, female students are more susceptible to stress due to academic workload and excessive worry.

Based on marital status, among unmarried respondents, 54 individuals (35.5%) experienced mild stress, and 48 individuals (31.6%) experienced moderate stress. In contrast, the majority of married respondents, 4 individuals (57.1%), exhibited normal stress levels. Marital status can function as a stress-buffering factor, as having a partner provides emotional and social support, and may allow for a better distribution of responsibilities, enabling the body's stress response to be more controlled (Chin *et al.*, 2017). Final-year nursing students face various pressures, including academic, time-related, emotional, and family demands. For those who are married, spousal support can help manage stress, making marital status an important factor in coping with these pressures.

Based on the stages of thesis progress, during the preparation of Chapters 1–4, nearly half of the students experienced mild stress, totaling 33 individuals (33.3%), while 31 individuals (31.3%) experienced moderate stress. At the proposal revision stage, the majority of students experienced mild stress, totaling 8 individuals (61.5%). Meanwhile, during the research process, half of the students experienced moderate stress, totaling 8 individuals (50%), and during the final examination, most students experienced mild stress, totaling 8 individuals (57.1%). These stages represent academic demands that can create psychological pressure if students feel limited in the necessary resources or support (Tanjung Sari *et al.*, 2024). Students tend to experience higher stress levels during the thesis preparation stage due to several factors. Working on Chapter 4, which is still halfway completed, creates pressure, particularly after the proposal defense, when students must promptly complete revisions to begin the research process on time. The research stage itself adds to stress, especially due to tight time constraints, while the final examination represents the peak of pressure that must be faced. Thus, the sequential demands of thesis progress significantly contribute to influencing students' stress levels.

Among students experiencing difficulties in completing their thesis, totaling 65 individuals (41%), 23 students (35.4%) experienced mild stress, 19 students (29.2%) experienced moderate stress, and 9 students (13.8%) experienced severe stress. Thesis-related difficulties refer to conditions that hinder students' progress in completing their final project. Students face various challenges during thesis preparation, such as limited academic writing skills, lack of interest in research, difficulties in determining the thesis topic or title, and obstacles in finding relevant literature and references. Additionally, students often encounter challenges in communicating with or meeting their academic supervisors (Susanti & Kalengkongan, 2021). According to the researcher, difficulties encountered during the thesis completion process, whether internal or external, have the potential to increase students' stress levels. Supervisor support, effective time management, and appropriate coping strategies are important factors in helping students complete their theses more smoothly and reduce psychological pressure.

2. Sleep Quality

The majority of respondents, totaling 112 individuals (70%) out of 159, experienced poor sleep quality. This finding is consistent with the study conducted by Azwar & Darungan (2023) among final-year medical students at FK UISU, where out of 145 respondents, 112 students (77.2%) reported poor sleep quality, while a smaller portion, 33 students (22.8%), had good sleep quality. Similarly, a study by Nainggolan & Rantung (2025) found that among 47 final-year students at Universitas Advent Surya Nusantara (UASN) who were completing their final project, the majority experienced poor sleep quality, totaling 46 students (97.9%), whereas only 1 student (2.1%) reported good sleep quality. Sleep quality refers to an individual's level of



satisfaction with their sleep, which can be assessed through various aspects such as sleep duration, difficulty initiating sleep, wakefulness during sleep, sleep efficiency, and factors that may disrupt the sleep process (Clariska, 2019).

Based on the study results, the majority of respondents, totaling 88 individuals (55%), reported a sleep duration of 5–6 hours per night. This finding aligns with the study conducted by Solikhah (2022) on the profile and probability of sleep duration disturbances and perceived sleep quality among medical students: a formative study. The study indicated that the average sleep duration of medical students was 5.7 hours per night, which is considered below the ideal sleep requirement for adults. According to Ariyanto et al. (2022), the ideal sleep duration for adults ranges from 8 to 10 hours per night. Therefore, it is essential to raise awareness about proper time management and healthy sleep habits to maintain optimal bodily functions and mental performance.

Another factor affecting respondents' sleep quality is the occurrence of nighttime sleep disturbances. The majority of respondents, 110 individuals (69%), reported difficulty falling asleep within 30 minutes of lying down, and nearly all respondents, 123 individuals (77%), frequently woke up during the night or very early in the morning. These findings are consistent with the study conducted by Ho et al. (2022), which found that the frequency of nighttime awakenings is significantly associated with reduced sleep quality and academic performance among students. Nighttime sleep disturbances can disrupt deep sleep and REM phases, which are crucial for physical and cognitive recovery (Hidayat, 2021). Even if an individual achieves an adequate sleep duration, sleep quality can still decline if nighttime disturbances occur frequently.

Based on age, the majority of respondents experiencing poor sleep quality, totaling 109 individuals (72.2%), were in late adolescence (17–25 years). In contrast, among early adulthood (26–35 years), the majority, 4 individuals (57.1%), and in late adulthood (36–40 years), all respondents, 1 individual (100%), reported good sleep quality. Crowley & Wolfson (2021) explain that during late adolescence, natural circadian rhythm changes occur the biological system that regulates the sleep-wake cycle over 24 hours causing individuals to go to bed later and wake up later, which reduces effective sleep time. In addition to biological factors, increasing academic demands, work, and social activities at this age also contribute to sleep disturbances (Zhang et al., 2022). Sleep quality in late adolescence tends to decline due to a combination of biological factors and individual behaviors. This condition results in suboptimal sleep, affecting both physical and cognitive recovery.

The majority of students experienced poor sleep quality at various stages of thesis preparation, particularly during the preparation of Chapters 1–4, with 73 individuals (73.7%), during the proposal defense stage, with 3 individuals (75%), and during the final examination stage, with 9 individuals (64.3%). Additionally, nearly all respondents in the research process stage, 14 individuals (87.5%), reported similar conditions. The biopsychosocial theory emphasizes that sleep quality is influenced by the interaction of biological, psychological, and social factors. According to Becker et al. (2020), in the context of thesis students, psychological factors such as academic pressure, social factors including demands from supervisors and the environment, and individual behaviors such as staying up late to complete assignments, can simultaneously reduce sleep quality. The researcher assumes that the combination of staying up late and poor time management makes it difficult for students to obtain sufficient sleep. Consequently, sleep becomes less restorative, affecting concentration, productivity, and both physical and mental recovery during the thesis completion process.



3. Relationship Between Stress Levels and Sleep Quality among Final-Year Bachelor of Nursing Students at ITSK RS dr. Soepraoen Malang

The study results indicate a significant relationship between stress levels and sleep quality, with a p-value of 0.001 ($p < 0.05$). Nearly all respondents with moderate stress, totaling 44 individuals (89.8%), and those with severe stress, totaling 8 individuals (88.9%), exhibited poor sleep quality. The majority of respondents with mild stress, 41 individuals (74.5%), also experienced poor sleep quality. In contrast, among respondents with normal stress levels, the majority, 27 individuals (58.7%), had good sleep quality.

This study is consistent with the findings Maziyyah et al. (2023), which reported that among 35 respondents experiencing moderate stress, 26 individuals (74.3%) had poor sleep quality. Similarly, among 16 respondents experiencing severe stress, 12 individuals (75.0%) reported poor sleep quality. These results indicate a significant relationship between stress levels and sleep quality. Another study by Nur (2021) reported that respondents experiencing severe stress had poor sleep quality, with 42 out of 100 respondents (52.5%) affected. The study demonstrated a significant relationship between stress levels and sleep quality among nursing students during thesis preparation.

Stress is a contributing factor to sleep disturbances, as it stimulates the increased release of stress hormones such as epinephrine, norepinephrine, and cortisol, which influence the central nervous system. Among students, sleep problems commonly manifest as difficulty initiating sleep, poor or non-restorative sleep, trouble maintaining sleep, frequent awakenings during the night, and waking up too early in the morning (Mahmudah et al., 2024).

Even individuals with normal stress levels can experience impaired sleep quality. This is influenced by the Reticular Activating System (RAS), a system responsible for regulating wakefulness and sleep, as well as controlling alertness and various processes in the central nervous system, located in the mesencephalon and upper pons (Windayanti et al., 2020). Increased RAS activity keeps an individual awake, whereas decreased activity induces sleep. Furthermore, neurotransmitter activity, which is influenced by stress levels, significantly affects RAS function (Nurasih et al., 2022).

Final-year students generally face various challenges, obstacles, and difficulties that cause them to feel pressured and burdened (Sari & Haryati, 2023). These pressures lead to psychological problems, such as stress, which in turn affect physical conditions, including changes in sleep patterns, thereby disrupting students' sleep quality (Ariyanto et al., 2022) According to the researcher, the implementation of stress management is critically important for final-year students, particularly through the use of problem-focused coping and emotion-focused coping strategies to help control sources of stress, promote emotional regulation, and maintain a balance between academic demands and mental health.

Conclusion

A significant association was found between stress levels and sleep quality among final-year Bachelor of Nursing students at ITSK RS dr. Soepraoen Malang. Students who experienced higher levels of stress tended to have poorer sleep quality. Therefore, it is advisable for students to practice effective time management, establish consistent sleep routines, and apply appropriate coping strategies to manage academic demands. Additionally, incorporating relaxation activities and ensuring a balance between academic responsibilities and sufficient rest are essential to support both physical and mental well-being.

Ethics approval and consent to participate



This study has received ethical approval from the KEPK ITSK RS dr. Soepraoen Malang with the certificate number KEPK-EC/340/X/2025. Furthermore, all respondents willingly participated in the study by providing informed consent during the completion of the data collection through Google Forms.

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