



THE RELATIONSHIP BETWEEN ACADEMIC STRESS AND UNHEALTHY BEHAVIOR OF NURSING STUDENTS

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ABSTRACT

Academic stress is one of the problems that nursing students often experience due to academic demands, clinical practice, and learning loads. Poor stress management can be associated with changes in health behaviors, such as sleep patterns, diet, physical activity, and daily habits that have the potential to affect kidney health. This study aimed to analyze the relationship between academic stress levels and unhealthy behaviors and kidney health risks in nursing students. The study used a quantitative design with a correlational approach. The research was conducted in July 2026 in Blora. Respondents were 160 nursing students who met the research criteria. The sampling technique used simple random sampling. Data was collected using instruments measuring academic stress levels, unhealthy behaviors, and kidney health risks. The instruments were valid and reliable. The results showed that there was variation in academic stress levels, health behaviors, and kidney health risks in nursing students. The analysis showed that academic stress level was significantly related to unhealthy behavior. The findings of the study also show a link between health behavioral factors and kidney health risks. The conclusion is that academic stress and health behaviors are pivotal aspects in nursing students' health. Promotive and preventive efforts through stress management, the implementation of healthy living behaviors, and education on the maintenance of kidney health need to be developed in a sustainable manner in the nursing education environment.

Keywords: academic stress; kidney health; nursing students; stress management; unhealthy behavior

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INTRODUCTION

Nursing college students has significant academic pressures, such as demands to achieve high achievements, an accumulated workload, and intense exam preparation can trigger academic stress that impacts changes in health behaviors. Individuals who experience academic stress tend to adopt unhealthy behaviors such as poor diet, lack of physical activity, and sleep disturbances. These behaviors contribute to obesity and metabolic syndrome, which increases the risk of chronic kidney disease. Stress can reduce motivation to exercise, contributing to obesity and insulin resistance. Stress often leads to sleep disorders, which is associated with increased blood pressure and the risk of chronic kidney disease. Some individuals may increase alcohol consumption or smoking in response to stress, both of which are risk factors for chronic kidney disease (Bruce et al., 2015).

Research shows that high academic stress correlates with increased unhealthy behaviors in nursing students (Quinto et al., 2024). In addition, other research found that academic stress was significantly associated with emotional eating behaviors in adolescents (Ramadhani & Mahmudiono, 2021). Unhealthy behaviors that arise in response to stress, such as irregular diets, consumption of high sugar and fat, lack of sleep, and decreased physical activity, can increase the risk of health problems, including kidney disease. The results of the study revealed that academic stress was associated with increased consumption of unhealthy foods that exceeded recommendations (Montserrat-Hernández et al., 2023). In addition, other studies have also shown that psychosocial stress can affect kidney function through various physiological mechanisms (Su et al., 2021).

Although the relationship between academic stress and unhealthy behaviors has been researched, the specific relationship between academic stress, unhealthy behaviors, and its impact on kidney health in college students has not been widely explored. Therefore, this study aims to analyze the correlation between academic stress levels and the risk of unhealthy behaviors that have the potential to affect kidney health in college students. Special objectives include measuring the level of academic stress in students, identifying the type and frequency of unhealthy behaviors that students engage in when experiencing academic stress, assessing the relationship between academic stress levels and unhealthy behaviors that are risky for kidney health, and providing recommendations to reduce unhealthy behaviors related to academic stress to maintain student kidney health.

This research is important because of its urgency in various aspects. This research plays a role in the early prevention of kidney health disorders in college students. Another urgency is in terms of improving student welfare as the results of this research can be used to design intervention programs aimed at improving the physical and mental well-being of students. This research certainly has a contribution to science which can add insight into behavioral risk factors for kidney health, especially in the context of academic stress in students.

Academic stress is a common phenomenon experienced by students due to high academic demands, such as pressure to achieve achievements, accumulated workload, and intense exam preparation. This stress can trigger a variety of unhealthy behaviors, such as poor diet, lack of physical activity, and sleep disorders. These behaviors have the potential to increase the risk of health problems, including kidney disease. This study aims to review the current literature regarding the correlation between academic stress levels, unhealthy behaviors, and their impact on kidney health. Several studies have examined the relationship between academic stress and unhealthy behaviors in college students. The results found that academic stress was associated with increased consumption of unhealthy foods that exceeded recommendations. Academic stress can decrease motivation to exercise, which contributes to a sedentary lifestyle and an increased risk of obesity. Academic stress often leads to sleep disorders, which can affect overall health (Monserrat-Hernández et al., 2023).

Unhealthy behaviors triggered by academic stress can have a negative impact on kidney health. Consumption of foods high in salt and fat can increase blood pressure and the risk of chronic kidney. Sedentary lifestyles are associated with obesity and insulin resistance, which are risk factors for chronic kidney disease. Sleep deprivation is associated with increased blood pressure and the risk of chronic kidney disease (Estevez-Garcia et al., 2021). Psychosocial stress has a direct impact on kidney function through physiological mechanisms including activation of the sympathetic nervous system, dysregulation of the hypothalamic-pituitary-adrenal axis, and increased pro-inflammatory cytokines. Stress increases SNS activity, causing vasoconstriction and increased blood pressure, which puts a strain on the kidneys. While chronic stress causes excessive release of cortisol, contributing to hypertension and insulin resistance. Stressful conditions also trigger systemic inflammation that can damage kidney tissue (Quinto et al., 2024)(Yikealo et al., 2018). The research aimed to identify the relationship between academic stress and unhealthy behavior of nursing students.

METHOD

The research was carried out in June-July 2026 at the Nursing School in Blora Central Java. This study is correlational quantitative research with a cross-sectional approach. The data collection was conducted after obtaining ethical clearance and research permission. A total of 160 nursing students were involved in the research by simple random sampling. The sample was determined by the Slovin formula which is adjusted to the number of populations that meets the inclusion criteria, namely active students and willing to be respondents by signing an informed consent. The

exclusion criteria set include students with a history of kidney disease who have been clinically diagnosed and students who are undergoing psychological therapy for severe stress or psychiatric illness. The independent variable in this research is academic stress levels while the dependent variables are unhealthy behaviors that are risky to kidney health (such as drinking less water, consuming foods high in salt, lack of exercise, staying up late, consuming too much caffeine, etc.).

The research used valid and reliable instruments. Academic stress levels are measured by The Student-Life Stress Inventory (SLSI) with validity score > 0.159 and reliability score 0.959 (Lidya et al., 2025). Unhealthy behaviors were assessed by a health behavior questionnaire based on the Self-Reported Health Behavior Questionnaire. Risk to kidney health is measured through a combination of: Lifestyle history survey and Simple screening: urine color, frequency of urination, and early symptoms of kidney disorder (optional: serum creatinine test if available). The analysis data pearson product moment correlation because data distribution was normal. Logistic or linear regression analysis is also used to examine the effect of stress on risk behaviors and control factors. Statistical significance was determined by $p < \text{value of } 0.05$ and CI of 95%.

RESULT

Table 1
Respondents' Characteristics

Characteristics	Categories	f	%
Gender	Women	142	88,8
	Male	18	11,2
Age	<20 years old	82	51,2
	20–23 years old	78	48,8
Domicile during college	Parents' house, in the city	80	50,0
	Boarding house	62	38,8
	Parents' house, outside the sub-district/city	13	8,1
	Brother's house, in the city	4	2,5
	Brother's house, outside the sub-district/city	1	0,6
Sources of tuition fees	Parents	156	97,5
	Brother	3	1,9
	Self-Sufficient	1	0,6
Parents' Job	Farmer	61	38,1
	Self-employed	47	29,4
	Private	28	17,5
	Civil Servant	24	15,0

According to the table, 88.8% of the study's respondents were female. 51.2% of the respondents are under 20 years old, and 50% of them live in boarding houses. Parents pay 97.5% of their tuition. Their parents worked as farmers.

Table 2
Academic stress and unhealthy behaviour

Academic stress and unhealthy behaviour				
Variable	f (%)	Mean $\pm$ SD	Median	Min – Max
Academic Stress				
- Mild stress	60 (37,5%)	76.84 $\pm$ 20.55	79,00	30–125
- Moderate stress	92 (57,5%)			
- Heavy stress	8 (5%)			
Risk of Unhealthy Behavior				
- Low risk	95 (59,4%)	38.02 $\pm$ 9.29	38,00	17–60
- Medium risk	65 (40,6%)			
- High risk	0 (0%)			

The table showed that in the academic stress variable, an average score of 76.84 ± 20.55 was obtained, with a median of 79.00, a minimum score of 30, and a maximum score of 125. Based on the categorization of academic stress levels, most of the respondents experienced moderate stress, namely 92 respondents (57.5%). Furthermore, as many as 60 respondents (37.5%) experienced mild stress, while only 8 respondents (5.0%) experienced severe stress. These results show that most

nursing students in this study experienced a moderate level of academic stress, with a relatively low proportion of severe stress.

Table 3
Correlation of academic stress level with risk of unhealthy behavior

Variable	N	Correlation coefficient	p-value
Academic stress – risk of unhealthy behavior	160	0,661	<0.001

The results showed a strong and statistically significant positive relationship between academic stress levels and the risk of unhealthy behavior in nursing students ($r = 0.661$; $p < 0.001$).

DISCUSSION

The characteristic of respondents

Most of the respondents in this study were women, which is 142 people (88.8%), while 18 men (11.2%). The composition shows a strong dominance of women in the nursing student population in this study. The dominance of female respondents has relevance in academic stress research because gender is one of the characteristics that is often considered in research on the mental health of nursing students. Recent systematic reviews and meta-analyses show that Female gender includes sociodemographic factors related to stress and depressive symptoms in nursing students (Xu et al., 2026).

Based on the data, respondents aged <20 years as many as 82 people (51.2%), while the age group of 20-23 years is 78 people (48.8%). This means that the research is dominated by a relatively young student age group and is in the transition phase to early adulthood. In this study, the characteristics of respondents describing the ability to adapt to academic demands, independence in making health decisions, and the ability to manage stress can differ based on the individual's developmental stage. Recent evidence in nursing students shows that Younger age is associated with a higher risk of stress and depressive symptoms (Xu et al., 2026). Academic stress not only impacts psychological conditions but can be related to behavioral changes. From a kidney health perspective, young age does not mean that it is risk-free. Lifestyle factors that contribute to hypertension, obesity, diabetes, hyperuricemia, and metabolic disorders can begin to appear at a younger age and are factors associated with the risk of kidney disease later in life (Kuma & Kato, 2022).

The data from this study shows that 50% of respondents still live with their parents in the city, while the other 50% live outside their parents' homes in various forms of domicile such as sixty two students (38.8%) living in boarding houses, thirteen students (8.1%) living in parents' houses outside the sub-district/city, four students (2.5%) living in their parents' houses in the city, and one student (0.6%) lives in a relative's house outside the sub-district/city. In this study, domicile was an important variable to explain hydration behavior and diet. Students who live alone can have different food and beverage consumption patterns than students who get food from their families. These differences could theoretically be related to behaviors relevant to kidney health.

Based on the data above, it is also known that almost all respondents received education fees from parents, namely 156 people (97.5%), while only 3 people (1.9%) obtained from relatives and 1 person (0.6%) financed independently. The source of education costs is an important variable to research because financial conditions can be one of the contexts that affect student stress. A recent systematic integrative review of nursing students found that Financial stress is associated with emotional distress and decreased quality of life, and sources of financial stress can come from personal, academic, or clinical needs (Smith et al., 2026).

The results of this study illustrate that most education cost insurers work as Farmers and Entrepreneurs, which reaches 67,5%. The characteristics of parents' work are an indirect indicator of Family socio-economic background. Family economic conditions can affect students' ability to

meet their education, transportation, housing, food, and health needs. These findings are all the more relevant as recent evidence suggests that financial problems are one of the factors related to the mental health of nursing students (Smith et al., 2026). In the context of kidney health, socio-economic aspects are also important because the ability to obtain healthy food, access to health services, physical activity, and health checks can be influenced by socio-economic conditions. Meta-analysis of kidney health inequality shows that socio-economic factors are part of the determinants that need to be considered in understanding the variation in risk and access to kidney health (Duff et al., 2024).

The academic stress had an average score of 76.84 ± 20.55 . Based on the categorization of academic stress levels, most of the respondents experienced moderate stress (57.5%). Furthermore, as many as 60 respondents (37.5%) experienced mild stress, while only 8 respondents (5.0%) experienced severe stress. These results show that most nursing students in this study experienced a moderate level of academic stress, with a relatively low proportion of severe stress. The prevalence of moderate academic stress indicates that nursing students face real academic demands, but in most respondents the pressure has not developed into severe stress. Theoretically, academic stress arises when educational demands are perceived to be greater or disproportionate to the individual's resources to deal with them. In nursing students, the source of stress comes not only from assignments, exams, grade targets, and time management, but also from the demands of clinical practice, responsibility to patients, interaction with lecturers or clinical supervisors, and the need to balance academic and personal life.

These findings are in line with previous study from Labrague (2024) which shows that nursing students consistently experience stress at moderate to high levels. Major sources of stress include academic demands, responsibilities in patient care, clinical practice experience, and interactions with healthcare workers and educators (Labrague, 2024). The results of this study are also consistent with the national research by Rahmadina and Eka Putri on final year nursing students who found that respondents tended to be in the category moderate academic stress. The findings reinforce that academic stress is a fairly common phenomenon in nursing education in Indonesia (Rahmadina & Putri, 2023).

However, the proportion of students with severe stress of 5.0% still needs to be a concern. This group may have lower coping skills, face greater academic or personal burdens, or have inadequate social support. Recent literature suggests that positive coping strategies and social support are important factors in helping nursing students cope with stress during the educational and clinical practice process (Loureiro et al., 2024). Thus, the results of this study can be interpreted as that the nursing education environment produces real academic pressure, but most students are still able to maintain stress conditions at a mild to moderate level. In the unhealthy behavior risk variable, an average score of 38.02 ± 9.29 was obtained, with a median of 38.00, a minimum score of 17, and a maximum of 60. Based on categorization, most of the respondents were in the low-risk category, namely 95 respondents (59.4%), while 65 respondents (40.6%) were in the medium risk category. None of the respondents were included in the high-risk category (0%).

The findings are quite positive because nursing students have a background in health education. Knowledge about the impact of behavior on health can be one of the factors that help students maintain healthier behaviors, even if they still face academic pressure. However, the proportion of 40.6% of students with a risk of moderate unhealthy behavior cannot be ignored. This means that almost 4 out of every 10 students still show behaviors that have the potential to increase health risks, such as unhealthy diets, lack of physical activity, sedentary behavior, lack of sleep, consumption of certain drinks, or other health habits that are part of the research instrument.

Recent study shows that college students are a group that is prone to experiencing changes in health behavior when facing stress. Studies in college students show that higher stress levels are associated with lower dietary quality and predisposition emotional eating, while higher physical activity is associated with lower stress levels (Shatwan & Alzharani, 2024). Other studies have also found that increased academic stress is associated with compulsive eating patterns and poorer sleep quality in college students (Aulia et al., 2024). The findings were strengthened by a national study on Universitas Airlangga students that specifically examined the relationship between academic stress levels and students' eating behaviors (Amelia et al., 2025). Generally, the results of the study show that although most students experience academic stress at a moderate level, most still have a risk of unhealthy behavior in the low category. However, the proportion of respondents with a moderate risk of unhealthy behavior reaching 40.6% shows that behaviors that have the potential to negatively impact health are still found in some students and need attention.

The relationship between academic stress and unhealth behavior in nursing students

The results showed a strong and statistically significant positive relationship between academic stress levels and the risk of unhealthy behavior in nursing students ($r = 0.661$; $p < 0.001$). Positive correlation coefficient values indicate that an increase in academic stress levels is followed by an increase in the risk score of unhealthy behaviors. Thus, students who experience higher academic stress tend to be at greater risk of exhibiting behaviors that are less supportive of health. Theoretically, these findings can be explained through the transactional model of stress and coping developed by Lazarus and Folkman. In this model, stress arises when an individual assesses environmental demands beyond the resources they must deal with. When students perceive the workload, exams, academic targets, clinical practice, and time constraints as pressures that are difficult to control, they will engage in various forms of coping responses. These responses can be adaptive or maladaptive. When an individual's coping skills and resources are inadequate, stress can encourage the emergence of behaviors that provide comfort or stress relief in the short term but have the potential to be detrimental to health in the long term.

In nursing students, academic stress has complex characteristics because the pressure comes not only from classroom learning activities, but also from clinical practice, responsibility to patients, competency evaluations, interaction with supervisors, as well as demands to balance academic and personal life. Umbrella review by Labrague (2024) shows that nursing students consistently face various sources of stress from academic and clinical environments, while coping strategies are an important factor that determines the impact of stress on student well-being and functioning (Labrague, 2024).

The strong positive association in this study indicates that academic stress is likely to be one of the factors closely related to changes in students' health behaviors. When academic pressure increases, students may experience changes in daily routines, such as reducing break time, neglecting physical activity, changing diet, increasing sedentary behavior, or adopting other habits that are considered more practical to deal with time constraints. Longitudinal findings in the student population also show a link between stress and unhealthy eating behaviors, in particular uncontrolled eating (Tan et al., 2024). The results of this study are also relevant to the evidence that nursing students do not always implement healthy behaviors consistently even though they have health knowledge. Studies on the lifestyle and quality of life of nursing students show that there is a gap between the knowledge or role of students as prospective health workers and the health behaviors they carry out in their daily lives. This may explain why the increase in academic stress in this study correlates quite strongly with an increased risk of unhealthy behavior (Putri et al., 2025).

The findings of this study have important implications for nursing education institutions. Given the strong link between academic stress and the risk of unhealthy behaviors, student health promotion efforts should not focus solely on education about diet, physical activity, or healthy sleep

separately. Interventions need to be carried out in an integrated manner with academic stress management programs and strengthening coping strategies.

CONCLUSION

This study shows that academic stress in nursing students is related to changes in health behaviors that have the potential to increase the risk of kidney health disorders. The higher the level of academic stress, the greater the tendency of students to exhibit unhealthy behavior. These findings confirm the importance of stress management and the application of healthy living behaviors as a promotive and preventive effort to maintain kidney health from a young age.

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