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THE RELATIONSHIP BETWEEN ANXIETY LEVELS AND THE MENSTRUAL CYCLE OF FINAL YEAR NURSING STUDENTS A2021 AT BINAWAN UNIVERSITY

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ABSTRACT

Anxiety can significantly affect the menstrual cycle in women. Psychosocial stress activates continuous danger signals within the central nervous system, indicating underlying problems that require immediate attention. This study aimed to examine the relationship between anxiety levels and menstrual cycle patterns among final-year nursing students (Class of 2021) at Universitas Binawan. A quantitative approach was employed using a cross-sectional design. The sampling technique was total sampling, involving 96 final-year nursing students. Data analysis was conducted using the Chi-Square test. The majority of respondents were 21 years old, experienced severe anxiety, and reported irregular menstrual cycles. Bivariate analysis using the Chi-Square test demonstrated a statistically significant association between anxiety levels and menstrual cycle irregularities ($p < 0.001$). The findings indicate a significant relationship between anxiety severity and menstrual cycle disorders. Health services are recommended to provide counseling programs and reproductive health assessments. Educational institutions should enhance student awareness of stress management through seminars and accessible counseling services. Students are encouraged to maintain mental health through relaxation techniques and physical exercise. Future research should explore additional factors influencing anxiety and menstrual cycle regulation.

Keywords: Final year students; Menstrual cycle; Anxiety level

INTRODUCTION

University students frequently encounter academic pressures such as excessive assignments, irregular sleep patterns, and stress related to thesis preparation. These factors may trigger anxiety, which in turn can affect physical health, including menstrual cycle regulation (Afryan et al., 2019). Anxiety itself is a psychological reaction often accompanied by physical symptoms such as headaches, increased heart rate, and gastrointestinal disturbances (Rikandi & Astuti, 2023). One of the most significant impacts of anxiety on women is menstrual cycle disorders, which are influenced by psychosocial stress and environmental factors (Solihat & Maulani, 2019).

A normal menstrual cycle ranges between 21 and 35 days, with an average of 28 days. However, only approximately 15% of women of reproductive age experience truly regular cycles (Rikandi & Astuti, 2023). According to the World Health Organization (2020), 45% of women report menstrual cycle disturbances. A study conducted in Turkey by Cakir et al. (2018) documented menstrual irregularities with the highest prevalence reaching 89.5%. Furthermore, menstrual cycle irregularity accounted for 31.2%, while prolonged menstrual duration was reported in 5.3% of cases. Several contributing factors to menstrual disturbances among adolescents include physical activity levels, stress, and anxiety (Yustikhe, 2022).

According to the Indonesian Basic Health Research (Riset Kesehatan Dasar) report published in 2018 by the Ministry of Health of the Republic of Indonesia, approximately 11.7% of adolescents nationwide experienced irregular menstruation. This figure increased to 14.9% in metropolitan areas. Specifically, in Yogyakarta, the prevalence of irregular menstrual cycles among adolescents reached 15.8% (Wijayanti, 2023).

Menstrual disturbances may be triggered by psychological factors such as stress, anxiety, and mental fatigue, as well as biological factors including hormonal imbalance and suboptimal nutritional status (Rima Wirenviona et al., 2020).

Based on these findings, the present study was conducted to investigate the relationship between anxiety levels and menstrual cycle patterns among final-year nursing students (Class of 2021) at Universitas Binawan. The primary objective of this research is to determine whether a significant association exists between anxiety severity and menstrual cycle irregularities in this population.

Materials and Methods

Research is a structured and systematic process designed to identify, analyze, and resolve problems or to understand specific phenomena. This study employed an analytical observational design with a cross-sectional approach. Two variables were examined: the independent variable (anxiety level) and the dependent variable (menstrual cycle).

The study population consisted of final-year nursing students (Class of 2021) at Universitas Binawan, totaling 96 participants. Preliminary interviews revealed that 8 out of 10 students reported experiencing anxiety accompanied by menstrual cycle disturbances. The sampling technique applied was non-probability sampling,



specifically total sampling (saturated sampling), in which all members of the population were included.

Data collection was conducted at Universitas Binawan using questionnaires. The instrument for measuring anxiety was adapted from Giatika Chrisnawati (2019), utilizing the Hamilton Anxiety Rating Scale (HARS). This scale comprises 14 items assessed on a Likert scale ranging from 0 (no symptoms) to 4 (very severe). Clinical trials have demonstrated high reliability and validity for HARS, with coefficients ranging from 0.93 to 0.97.

Menstrual cycle assessment was measured using a questionnaire adapted from Sriati (2008), as cited in Nathalia (2019), consisting of a single item addressing menstrual cycle regularity.

RESULTS

The total sample in this study consisted of 96 final-year nursing students at Universitas Binawan. Descriptive analysis revealed that the majority of respondents were 21 years old. A considerable proportion of participants reported experiencing severe anxiety accompanied by irregular menstrual cycles.

Table 1. Frequency Distribution by Age of Final-Year Nursing Students (Class of 2021) at Universitas Binawan

Age	Frequency (n)	Percentage (%)
19	1	1.0
20	6	6.3
21	44	45.8
22	29	30.2
23	13	13.5
24	3	3.1
Total	96	100

Based on the findings presented in Table 1, the frequency distribution by age indicates that the majority of final-year nursing students (Class of 2021) at Universitas Binawan were 21 years old, accounting for 45.8% of the total respondents. This age group represented the largest proportion within the study population, highlighting that most participants were in the early adulthood stage, a period often associated with heightened academic stress and psychosocial challenges.

Table 2. Frequency Distribution by Anxiety Levels among Final-Year Nursing Students (Class of 2021) at Universitas Binawan

Anxiety Level	Frequency (n)	Percentage (%)
Very Severe	11	11.5
Severe	52	54.2
Moderate	12	12.5
Mild	11	11.5
No Present	10	10.5
Total	96	100

As presented in Table 2, out of the 96 respondents included in this study, 54.2% were categorized as experiencing severe anxiety. This finding demonstrates that the majority of final-year nursing students at Universitas Binawan tend to experience higher levels of anxiety compared to those classified as non-anxious or within the mild-to-moderate categories. The predominance of severe anxiety among respondents underscores the significant psychological burden faced by students during the final stages of their academic program, which may contribute to disturbances in their menstrual cycle regulation.

Table 3. Frequency Distribution by Menstrual Cycle Regularity among Final-Year Nursing Students (Class of 2021) at Universitas Binawan

Menstrual Cycle Regularity	Frequency (n)	Percentage (%)
Reguler	48	50
Irregular	48	50
Total	96	100

As shown in Table 3, from a total of 96 respondents, 48 students (50%) reported irregular menstrual cycles. This finding indicates that half of the final-year nursing students (Class of 2021) at Universitas Binawan experienced menstrual cycle irregularities. The high proportion of irregular cycles suggests that menstrual disturbances are a prevalent issue among this population, potentially influenced by psychosocial stressors such as severe anxiety, as identified in the preceding analysis.

Table 4. Frequency Distribution of the Relationship between Anxiety Levels and Menstrual Cycle among Final-Year Nursing Students (Class of 2021) at Universitas Binawan

Anxiety Level	Menstrual Cycle Regularity					p-value	
	Irregular		Regular		Total		
	N	%	N	%	N	%	
Very Severe	8	8.3	3	3.1	11	11.5	0.000
Severe	33	34.4	19	19.8	52	54.2	
Moderate	7	7.3	5	5.2	12	12.5	
Mild	2	2.1	9	9.4	11	11.5	
No Present	0	0.0	10	10.4	10	10.4	
Total	48	50.0	48	50.0	96	100	

As presented in Table 4, the cross-tabulation between anxiety levels and menstrual cycle regularity revealed that among 52 respondents, 34.4% of students experienced severe anxiety accompanied by irregular menstrual cycles, while 19.8% of students reported severe anxiety but maintained regular cycles.

The Chi-Square test yielded a significance value of $p = 0.000$ (2-tailed), which is below the threshold of $\alpha = 0.05$. Therefore, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_a) was accepted. These findings confirm the presence of a positive and statistically significant relationship between anxiety levels and menstrual cycle irregularities among final-year nursing students at Universitas Binawan.

DISCUSSION

The findings of this study revealed that among 96 respondents, the largest age group was 21 years old (45.8%), and the majority experienced severe anxiety (54.2%). This indicates that most final-year nursing students at Universitas Binawan are at a critical stage of early adulthood, facing heightened academic demands that contribute to significant psychological distress. The predominance of severe anxiety underscores the need for targeted interventions to support student mental health.

These results are consistent with the study conducted by Sumarno (2020) at Universitas Aisy'iyah Yogyakarta, which involved 96 respondents and reported that 35.8% of students experienced mild anxiety. Sumarno further noted that irregular sleep patterns and habits such as staying up late were common among students, often due to difficulties in formulating ideas for thesis writing and the accumulation of academic



assignments. Such lifestyle factors exacerbate anxiety and may contribute to menstrual cycle disturbances.

External factors also played a role in the heightened anxiety levels observed in this study. For instance, the implementation of the Community Service Program (Kuliah Kerja Nyata/KKN) in January 2025 required students to balance academic responsibilities with active participation in community-based projects. The challenges of adapting to new environments, meeting program demands, and managing limited time for academic tasks further intensified stress levels. These findings highlight the multifactorial nature of student anxiety, encompassing both academic and extracurricular pressures.

Taken together, the evidence suggests that severe anxiety among final-year nursing students is not only a product of academic workload but also influenced by external obligations and lifestyle factors. The significant association between anxiety and menstrual cycle irregularities observed in this study reinforces the importance of integrating mental health support, stress management education, and reproductive health services into nursing curriculum and student support systems.

The results of this study demonstrated that among 96 respondents, 52.1% of final-year nursing students (Class of 2021) at Universitas Binawan experienced irregular menstrual cycles. This finding is consistent with the study conducted by Santoso et al. (2019), who examined 200 final-year students and reported that 40% experienced menstrual irregularities due to severe anxiety. Both studies highlight the significant role of academic pressure and social environmental factors in triggering anxiety, which subsequently affects reproductive health.

Prolonged stress elevates cortisol levels, which disrupts the balance of reproductive hormones such as estrogen and progesterone. Severe anxiety stimulates excessive release of stress-related hormones in the brain, suppressing reproductive hormone signaling and leading to menstrual cycle disturbances. Hormonal imbalance may manifest in changes to cycle duration, frequency, and menstrual bleeding volume.

The present study confirmed a significant association between anxiety levels and menstrual cycle irregularities, with 54.2% of respondents categorized as experiencing severe anxiety and 52.1% reporting irregular cycles. These findings reinforce the biopsychosocial pathway linking psychological stress to reproductive health outcomes. For nursing education and practice, this underscores the importance of integrating mental health promotion, stress management strategies, and reproductive health counseling into student support systems.

Further analysis using the Chi-Square test revealed a significance value of $p = 0.000$, which is less than the threshold of $p < 0.05$. This result confirms a statistically significant relationship between anxiety levels and menstrual cycle irregularities among final-year nursing students (Class of 2021) at Universitas Binawan.

These findings are consistent with the study conducted by Solihat and Maulani (2019), which also employed the Chi-Square test and reported a p -value of 0.034, indicating that anxiety levels significantly contributed to menstrual cycle disturbances. Similarly, Fadilah and Lestari (2023) found that students experiencing high levels of



stress were at greater risk of irregular menstrual cycles compared to those with lower anxiety levels.

Beyond academic demands, external factors such as the Community Service Program (Kuliah Kerja Nyata/KKN) initiated in January 2025 further exacerbated student anxiety. During this period, students were required to adapt to new environments, manage intensive schedules, and fulfill social responsibilities within the community. Disruptions in daily routines—including irregular sleep, imbalanced nutrition, and limited access to health services—may have worsened hormonal imbalances, thereby contributing to menstrual irregularities.

Taken together, these findings reinforce the biopsychosocial model of health, demonstrating that psychological stressors, academic pressures, and environmental changes collectively influence reproductive health outcomes. The significant association between anxiety and menstrual cycle irregularities underscores the urgent need for integrated interventions, including mental health counseling, stress management education, and reproductive health monitoring within nursing education programs.

CONCLUSION

This study demonstrated a significant relationship between anxiety levels and menstrual cycle irregularities among final-year nursing students (Class of 2021) at Universitas Binawan. Of the 96 respondents, 52 students (64.2%) were categorized as experiencing severe anxiety, while 49 students (52.1%) reported irregular menstrual cycles. Bivariate analysis confirmed that higher levels of anxiety were significantly associated with menstrual cycle disturbances. Thus, it can be concluded that the greater the anxiety experienced, the more likely menstrual cycle irregularities occur; conversely, lower anxiety levels are associated with more stable menstrual cycles.

RECOMMENDATIONS

Health services should provide counseling programs and reproductive health examinations to help students manage anxiety and maintain menstrual health.

Educational institutions are encouraged to increase awareness of stress management through seminars, workshops, and accessible counseling services.

Students are advised to maintain mental health through relaxation techniques, regular physical activity, and balanced lifestyle practices.

Future researchers are recommended to explore additional factors influencing anxiety and menstrual cycle irregularities, such as nutrition, physical activity, and social support systems, to provide a more comprehensive understanding of this phenomenon.

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