The Correlation between Breakfast Habits and Learning Concentration Levels with Academic Achievement among Undergraduate Nursing Students of Universitas Muhammadiyah Purwokerto

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ABSTRACT

Academic achievement reflects the success of the learning process and serves as an indicator of educational quality. Various factors may influence academic performance, including breakfast habits and the level of learning concentration. This study aimed to analyze the relationship between breakfast habits and learning concentration with academic achievement among undergraduate nursing students at Universitas Muhammadiyah Purwokerto. This research employed a quantitative analytic observational design with a cross-sectional approach. A total of 89 respondents were selected using stratified random sampling. Data were collected using validated questionnaires and analyzed using chi-square and ordinal logistic regression tests. The results showed a significant relationship between breakfast habits ($p = 0.036$) and learning concentration ($p = 0.001$) with academic achievement. Learning concentration was found to be the most dominant factor associated with academic performance, particularly among students in the low (OR = 0.039; $p = 0.001$) and moderate (OR = 0.213; $p = 0.003$) concentration categories, with a Nagelkerke pseudo R-square value of 0.367. These findings suggest that enhancing learning concentration can contribute more substantially to students' academic achievement.

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1. INTRODUCTION

Education is an important foundation in the development of the quality of human resources. At the higher education level, the success of the educational process is reflected through the academic achievements achieved by students. Academic achievement not only reflects intellectual intelligence, but is also an indicator of learning effectiveness, self-discipline, and the quality of students' lifestyles (Muqarrobi et al., 2024). One of the habits that is believed to play a role in learning success is breakfast and learning concentration levels (Massie & Silaban, 2025).

Breakfast plays an important role in supporting cognitive function and learning readiness, as blood glucose levels decrease after 8–10 hours of sleep without food or fluid intake, even though glucose is the brain's main energy source. Lack of energy intake in the morning can reduce concentration and thinking ability, which aligns with Maslow's theory stating that physiological needs must be fulfilled before

cognitive processes can function optimally. In Indonesia, the prevalence of skipping breakfast remains high, reaching 31.2% in adults and ranging from 16.9% to 59% among children and adolescents (Kemenkes, 2023). This condition highlights the importance of meeting basic physiological needs, as emphasized by Maslow's theory, where adequate nutritional intake particularly breakfastforms the foundation for higher cognitive activities such as learning and academic engagement (Rahmadania & Aly, 2023).

However, global data shows that breakfast habits are still a problem. Research in Latin America shows that about 23% of young adults and 26% of adolescents are not used to breakfast (Fisberg et al., 2020). A study in the United States found that 61% of medical students experienced learning concentration impairment for more than 10% of their study time, which significantly impacted their exam results (Walck-Shannon et al., 2021).

Although many studies have examined the relationship between breakfast, concentration, and academic achievement, most are still partial. Research examining all three simultaneously, especially among nursing students, is still limited. Nursing students have complex academic and practicum demands so they require optimal concentration and a healthy lifestyle.

The purpose of this study is to analyze the relationship between breakfast habits, learning concentration levels, and academic achievement among undergraduate nursing students at Universitas Muhammadiyah Purwokerto, as well as to identify the factor that has the strongest association with academic achievement.

2. RESEARCH METHOD

This research employs a quantitative approach with an analytical observational survey and a cross-sectional design. The study was conducted in January 2025 at the Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto. The population consisted of 846 students enrolled in semesters 3, 5, and 7 of the S1 Nursing Study Program. From this population, 89 participants were selected using a stratified random sampling method, with the sample size proportionally adjusted to the number of students in each semester (Sugiyono, 2020).

The instrument consisted of three parts: a breakfast habit questionnaire (9 items), a study concentration level questionnaire (15 items), and a Cumulative Achievement Index (GPA) fill sheet which was filled out independently by respondents. All instruments have gone through validity and reliability tests at the trial stage. Data collection is carried out by distributing printed questionnaires directly. Before filling out, respondents were given an explanation and asked to sign an *informed consent* form.

Data analysis was carried out through three stages, namely univariate analysis with frequency distribution, bivariate analysis using *the Chi-Square test,* and multivariate analysis using the Ordinal Logistic Regression method to identify the variables that are most related to academic achievement (Sugiyono, 2020).

This research has obtained an ethical permit from the Health Research Ethics Committee, Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto with the number: KEPK/UMP/102/1/2025.
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3. RESULT AND DISCUSSION

Based on the research results, the following results were obtained:

3.1 Characteristics of Respondents (n = 89)

Table 1. (n=89)

Characteristics of Respondents	Frequency (f)	Percentage (%)
Gender		
Female	62	69,7
Male	27	30,3
Age (Yars)		
19	18	20,2
20	25	28,1
21	20	22,5
22	16	18
23	10	11,2
Semester		
3rd Semester	36	40,4
5th Semester	30	33,7
7th Semester	23	25,8

Based on Table 1 above, it is known that the majority of respondents are female (69.7%). This is in accordance with research conducted by (Rahmawati et al., 2024) that female students pay more attention to healthy eating patterns, including regular breakfast habits to support cognitive activity and increase concentration during the learning process. The majority of respondents were 20 years old (28.1%), this supports previous research by (Sámano et al., 2019) that students aged 18-25 years tend to be more disciplined at breakfast because they have a high awareness of the importance of breakfast to support academic performance. The majority of respondents were in semester 3 (40.4%). This finding is in line with research by (Rahmi et al., 2023) which shows that students who are in transition to mid-study are prone to academic fatigue, so maintaining nutritional intake, especially through breakfast habits, is important to support focus while studying and daily productivity.

Table 2. Frequency distribution of breakfast habits, study concentration level and academic achievement (n=89)

Variables	Frequency (f)	Percentage (%)
Breakfast Habits		
Unsatisfactory	30	33,7
Moderate	31	34,8
Good	28	31,5
Learning Concentration Level		
Low	22	24,7
Medium	30	33,7
High	37	41,6
Academic Achievement		
Satisfactory (2,76-3,00)	30	33,7
Highly Satisfactory (3,01-3,50)	39	43,8
With Distinction (≥3,50)	20	22,5

Based on table 2 above, the majority of respondents exhibited moderate breakfast habits (34.8%). This result aligns with the findings of Adonu et al. (2023) indicating that the majority of university students lack consistency in daily breakfast consumption, although they recognize the significance of breakfast for maintaining health and supporting academic performance. The learning concentration level of the majority of respondents was in the high category (41.6%). This finding is consistent with research conducted by Caesarridha (2021) which indicated that learning concentration is an important factor in determining students' academic success. Meanwhile, the academic achievement of most respondents was categorized as highly satisfactory (43.8%). This finding aligns with previous research Putri & Sari (2020), showing that the majority of students successfully achieved good academic performance with a Cumulative Grade Point Average above 3.00.

3.2 Relationship between Breakfast Habits and Academic Achievement

Table 3. Relationship between Breakfast Habits and Academic Achievement

Breakfast Habits	Academic Achievement								P-Value
	Satisfactory (2,76-3,00)		Highly Satisfactory (3,01-3,50)		With Distinction (≥3,50)		Totals		
	f	%	f	%	f	%	f	%	
Poor	14	46,7	9	30	7	23,3	30	100	
Moderate	11	35,5	17	54,8	3	9,7	31	100	0,036
Good	5	17,9	13	46,4	10	35,7	28	100	

Based on table 3 above, the results of the Chi-Square test show a p-value of 0.036 (<0.05), which means that there is a significant relationship between breakfast habits and academic achievement of students of the S1 Nursing Science Study Program, Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto. Students who have a high level of learning concentration tend to have a Grade Point Average in the category of very satisfying and with distinction. Meanwhile, students who have a low level of learning concentration tend to have academic achievement in the satisfactory category. The results of this study show that students with better breakfast habits tend to achieve higher academic performance, as indicated by the significant association between the two variables. This suggests that adequate morning nutritional intake may support students' ability to maintain focus and

cognitive readiness during learning activities, which in turn contributes to improved academic outcomes. Regular breakfast consumption ensures stable blood glucose levels, which are essential for optimal brain function, attention regulation, and information processing.

This mechanism aligns with the findings of Al-Faida (2021), who reported that consistent breakfast habits were significantly associated with improved learning concentration. Similarly, Gao et al. (2021), explained that regular breakfast intake enhances academic performance by improving cognitive function and learning motivation. The results of this study also correspond with Al Muswah & Suryaalamsah (2024), who found that breakfast habits significantly contributed to students' academic achievement. Taken together, these findings demonstrate that morning food intake serves as an important factor influencing both concentration and academic success.

3.3 Relationship between Learning Concentration Level with Academic Achievement

Table 4. Relationship between Learning Concentration Level with Academic Achievement

Learning Concentration	Academic Achievement							P-Value
	Satisfactory (2,76-3,00)		Highly Satisfactory (3,01-3,50)		With Distinction (≥3,50)		Totals		
	f	%	f	%	f	%	f	%	
Low	17	77,3	3	13,6	2	9,1	22	100	
Medium	10	33,3	17	56,7	3	10	30	100	0,001
High	3	8,1	19	51,4	15	40,5	37	100	

Based on table 4 above, the results of the chi-square test show a p-value of 0.001 (<0.05), which means that there is a significant relationship between the level of learning concentration and the academic achievement of students of the S1 Nursing Science Study Program, Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto. Students who have a high level of learning concentration tend to have a Grade Point Average in the category of very satisfying and with distinction. Meanwhile, students who have a low level of learning concentration tend to have academic achievement in the satisfactory category.

This finding is in line with research by Nasriruddin & Idris (2022) that learning concentration plays an important role in academic achievement with a p-value of 0.000 <0.05, because learning concentration helps students absorb and process information more effectively. Similarly Simorangkir et al. (2023) who reported a significant relationship between learning concentration and learning outcomes with a p-value of 0.017. These results reinforce that learning concentration is one of the important factors that can affect students' academic success. In addition, Hamri & Suriani (2025) also emphasized that learning concentration has a crucial role in supporting students' academic success. These three findings reinforce that learning concentration is one of the main factors significantly related to academic achievement.

3.4 Multivariate

Table 5. Factors most strongly associated with Academic Achievement

Variables	Estimate (B)	P-Value	OR (95% Confidence Interval)	Nagelkerke R-Square
Low Concentration	-3,255	0,001	0,039 (0,010-0,145)	
Medium Concentration	-1,545	0,003	0,213 (0,076-0,596)	0,367
Unsatisfactory Breakfast Habits	-0,396	0,467	0,673 (0,231-1,957)	
Moderate Breakfast Habits	-0,737	0,167	0,478 (0,168-1,364)	

Based on Table 5, the results of the ordinal logistic regression analysis indicate that learning concentration is the factor most strongly associated with academic achievement. Students with low concentration levels (p = 0.001; OR = 0.039) and moderate concentration levels (p = 0.003; OR = 0.213) had significantly lower odds of achieving high academic performance. In contrast, breakfast habits were not significantly associated with academic achievement (p > 0.05). The Nagelkerke R-square value of 0.367 suggests that the model explains 36.7% of the variance in academic performance.

These findings demonstrate that learning concentration plays a pivotal role in determining academic achievement, as students who are able to sustain attention and process information effectively are more likely to perform well academically. A higher level of concentration enhances cognitive processing, retention of learning materials, and overall engagement during academic activities, which

may explain why concentration emerged as the most dominant factor in this study. This interpretation is supported by Sativa & Purwanto (2022), who found that concentration significantly influenced academic outcomes in mathematics. Similar results were also reported by Fatchuroji et al. (2023), who highlighted the role of concentration in facilitating comprehension and information processing during lectures, and by Khairinal et al. (2021), who showed that concentration contributes meaningfully to learning outcomes in Economics subjects. Collectively, these findings reinforce the notion that the ability to maintain focused attention is essential in optimizing the learning process and achieving better academic results.

However, this study has a limitation, as the sample was drawn from a single study program, which may restrict the generalizability of the findings. Future research is encouraged to include students from multiple study programs or institutions to provide a broader and more representative understanding of the factors influencing academic achievement.

4.   CONCLUSION

Based on the findings of this study, breakfast habits were found to be related to students' academic achievement. Students who regularly consumed breakfast tended to demonstrate better academic outcomes compared to those with irregular breakfast habits. In addition, learning concentration showed a strong and consistent association with academic achievement. Students with higher levels of concentration were more likely to achieve superior academic performance. Overall, learning concentration emerged as the most influential factor in determining academic achievement among nursing students.

For future research, it is recommended to explore other variables that could potentially affect academic performance, such as stress management, sleep quality, and learning style. In addition, the use of a longitudinal approach also needs to be considered to obtain a more in-depth picture of the changes and influences of these variables on academic performance over a period of time.

Acknowledgements

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