

Learning Environment Perceptions, Motivation, and Academic Performance among Nursing Students: A Cross-Sectional Study

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Abstract

Motivation plays an important role in nursing students' academic success; however, its relationship with the learning environment remains complex. This study examined the relationships among nursing students' perceptions of the learning environment, motivation to become a nurse, and grade point average (GPA). A cross-sectional study was conducted among 143 nursing students using questionnaires to assess perceptions of the learning environment and motivation, along with documented GPA records. Multiple linear regression analysis was performed. Students' perceptions of the learning environment explained 37.8% of the variance in motivation to become a nurse ($R^2 = 0.378$, $p < 0.001$), although perceptions of lecturers showed the largest regression coefficient, the association was not statistically significant ($p = 0.052$). Motivation to become a nurse significantly predicted GPA ($R^2 = 0.116$, $p < 0.001$), while perceptions of the learning environment were not directly associated with GPA. These findings suggest that motivation may play an important role in linking students' learning environment perceptions with academic performance. The results highlight.

Keyword: Academic performance, GPA, Nurse student, Learning environment, Motivation

INTRODUCTIONS

Nursing students are individuals who are prepared to become professional nurses in the future. It is very important for nursing students to develop professionalism in care during their education (Del Prato et al., 2011; Dyrbye et al., 2020). Academic achievement is a key indicator in assessing whether graduates are capable and competent in nursing practice and in evaluating academic progress at the university (Del Prato et al., 2011; Indriana & Novianto, 2020). The educational environment of an institution can be reflected through students' perceptions of their learning atmosphere. Ultimately, the quality of education reflects the educational atmosphere within a nursing school (Indriana & Novianto, 2020).

Motivation is an effort that someone makes to move their heart to act and do something in order to achieve certain goals and results (Suprpto et al., 2019). Students who have high motivation are usually involved in positive academic activities, resulting in satisfactory academic achievements. This is why motivation is very important for nursing students to become nurses in the future (Rafii et al., 2019).

Although previous studies have independently demonstrated the importance of the learning environment and motivation, evidence regarding how these factors interact to influence academic performance remains limited and inconsistent. Some studies have reported a direct association between the learning environment and academic

achievement, whereas others have found weak or non-significant relationships. These inconsistent findings suggest that the influence of the learning environment may operate indirectly through psychological factors, particularly students' motivation.

Self-Determination Theory and educational motivation research suggest that a supportive learning environment enhances students' intrinsic motivation, which subsequently promotes greater academic engagement and achievement. Therefore, motivation may function as a mediating mechanism linking students' perceptions of the learning environment with academic performance. However, this mediating relationship has received limited attention among nursing students, particularly in the Indonesian context.

Based on this phenomenon, this study aimed to explore the relationships between nursing students' perceptions of the learning environment, motivation to become a nurse, and grade point average (GPA). Understanding this relationship can help nursing education institutions identify strategies to strengthen the learning environment and foster student motivation for improved academic achievement. The evaluation results are very important to assist the academic section of the Nursing Education Study Program at STIKes Piala Sakti Pariaman in improving the educational environment, encouraging students to become nurses, and enhancing the quality of education. Therefore, this study was conducted to investigate the academic

environment and learning motivation among nursing students at STIKes Piala Sakti Pariaman.

METHODS

This study employed a cross-sectional quantitative design to explore the relationships between nursing students' perceptions of the learning environment, motivation to become a nurse, and grade point average (GPA). The study was conducted between July 2024 and August 2024 at STIKes Piala Sakti Pariaman, Indonesia. The study population consisted of all nursing students enrolled in one health college in Indonesia. A total of 143 students participated, selected using a total sampling technique to ensure comprehensive representation of the study population.

All participants received information about the study and provided written informed consent before participation. Confidentiality and anonymity were maintained throughout the research process. Under license number 137/VII/KE.PS/2024, the research has been ethically assessed and approved by the Piala Sakti Health College Ethics Committee.

Students' perceptions of the learning environment were assessed using the Dundee Ready Education Environment Measure (DREEM), which evaluates five subdomains: perceptions of lecturers, perceptions of learning, academic self-perception (achievement), perceptions of atmosphere, and social environment. Motivation to become a nurse was measured using the Nursing Motivation Questionnaire. The

DREEM scale showed excellent internal consistency (Cronbach's $\alpha = 0.970 > 0.70$), while the Nursing Motivation Questionnaire also demonstrated good reliability (Cronbach's $\alpha = 0.871 > 0.70$), confirming that both tools were reliable for this study. Data on students' GPA were obtained directly from academic records.

Multiple linear regression was selected because the study aimed to examine the simultaneous associations between multiple predictor variables and continuous outcome variables while controlling for the influence of other predictors. In the first model, the five dimensions of the learning environment (DREEM subscales) were entered simultaneously to identify their independent associations with motivation to become a nurse. In the second model, the five DREEM dimensions together with motivation were entered to examine their independent associations with grade point average (GPA). This approach allowed the estimation of the unique contribution of each predictor while accounting for the effects of the remaining variables.

Data were analyzed using multiple linear regression to examine the relationships among perceptions of the learning environment, motivation to become a nurse, and GPA. Before regression testing, assumptions of normality, linearity, and multicollinearity were verified. All statistical analyses were conducted with a 95% confidence interval and a significance level of $p < 0.05$.

RESULTS AND DISCUSSION

Table 1. Summary of the Regression Model of Perception on Motivation to Become A Nurse Scores

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.614	0.378	0.355	7.975

As shown in Table 1, the regression model examining the association between learning environment perceptions and motivation to become a nurse explained 37.8% of the variance in motivation ($R^2 = 0.378$; adjusted $R^2 = 0.355$).

Table 2. ANOVA Test of Perception Model on Motivation

Sumber	Sum of Squares	df	Mean Square	F	Sig.
Regression	5286.159	5	1057.232	16.622	0.000
Residual	8713.813	137	63.604		
Total	13999.972	142			

The regression model was statistically significant ($F = 16.622$, $p < 0.001$), indicating that the five learning environment dimensions jointly explained a significant proportion of the variance in motivation.

Table 3. Regression Coefficients of Perception on Motivation Score

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	43.793	2.894	—	15.132	0.000
Perception of social environment	0.104	0.229	0.088	0.454	0.650
Perception of the lecturer	0.481	0.245	0.336	1.958	0.052
Perception of achievement	-0.153	0.304	-0.091	-0.503	0.616
Perception of atmosphere	0.394	0.251	0.335	1.568	0.119
Perception of environment	-0.086	0.325	-0.044	-0.265	0.791

Table 3 presents the regression coefficients for each learning environment dimension. None of the individual predictors reached statistical significance (all $p > 0.05$). Perception of lecturers showed the largest

standardized regression coefficient ($\beta = 0.336$), although the association did not reach statistical significance ($p = 0.052$).

Perceptions of atmosphere, social environment, academic self-perception, and physical environment were also not significantly associated with motivation (all $p > 0.05$).

Table 4. Multiple Regression Analysis of Learning Environment Perceptions and Motivation on GPA

Variabel	B	Std. Error	Beta	t	Sig.
(Constant)	3.216	0.117	—	27.467	0.000
Perception of social environment	-0.002	0.009	-0.075	-0.205	0.838
Perception of the lecturer	0.007	0.010	0.222	0.646	0.519
Perception of achievement	0.015	0.011	0.440	1.340	0.182
Perception of environment	0.010	0.011	0.235	0.857	0.393
Perception of atmosphere	-0.007	0.006	-0.265	-1.042	0.299
Motivation score to become a nurse	0.008	0.002	0.391	3.830	0.000

The second regression model, summarized in Table 4, explained 11.6% of the variance in GPA ($R^2 = 0.116$). Motivation to become a nurse was the only significant predictor of GPA ($\beta = 0.391$, $p < 0.001$). None of the learning environment dimensions were significantly associated with GPA (all $p > 0.05$).

Taken together, the findings indicate that learning environment perceptions were associated with motivation to become a nurse at the model level, whereas motivation was positively associated with GPA. Although the findings are consistent with a possible pathway linking learning environment perceptions, motivation, and academic

achievement, no formal mediation analysis was conducted in this study.

This study demonstrates that students' motivation to become a nurse is significantly associated with academic achievement, as reflected in GPA. Motivation emerged as the only variable that directly predicted GPA, highlighting its importance as an internal factor related to academic performance among nursing students. These findings are consistent with Self-Determination Theory, which proposes that competence, autonomy, and relatedness underpin meaningful engagement and sustained academic effort (Ryan & Deci, 2000), which emphasizes competence, autonomy, and relatedness as key drivers of learning engagement.

Although the observed pattern is consistent with the possibility that motivation may represent an important mechanism linking perceptions of the learning environment and academic performance, this study did not formally evaluate mediation. Therefore, these findings should be interpreted as associations rather than evidence of a mediating effect. Future studies using formal mediation analysis are needed to examine this relationship.

Students who enter nursing education with strong intrinsic motivation—such as a genuine interest in patient care and professional commitment—tend to show greater engagement, persistence, and active participation in learning activities. Previous studies suggest that intrinsically motivated students are more likely to engage deeply with course material, participate in clinical

learning, and seek opportunities for skill development, all of which contribute to improved academic outcomes and professional identity formation (Del Prato et al., 2011; Reeve, 2013). In contrast, motivation driven primarily by external factors may be less stable when students encounter academic or clinical challenges.

Although perceptions of the learning environment did not directly predict GPA in this study, they were strongly associated with students' motivation to become nurses. This finding suggests that the learning environment may play an important contextual role in supporting students' motivation. In the present study, motivation was positively associated with academic achievement. Consistent with prior research, a supportive educational climate may enhance students' engagement, focus, and commitment to learning by fostering a sense of belonging and purpose (Reeve, 2013; Salamonson et al., 2012).

The learning environment is particularly critical in nursing education, where students must integrate theoretical knowledge with clinical practice. A positive educational climate that supports student-centered learning, collaboration, and psychological safety may facilitate motivation and sustained engagement (Alotaibi, 2015). Conversely, environments perceived as stressful or unsupportive may contribute to disengagement and reduced motivation (Kassab et al., 2024). These findings underscore the importance of viewing the learning environment as a foundational context that supports motivational

development rather than as a direct determinant of academic achievement.

Although perceptions of lecturers showed the largest standardized regression coefficient among the learning environment dimensions, the association did not reach statistical significance. Nevertheless, previous studies have highlighted the importance of supportive teaching practices, constructive feedback, and positive teacher–student relationships in promoting student motivation and engagement (Dyrbye et al., 2020)(Van Nguyen et al., 2023). Supportive teacher–student relationships characterized by empathy and respect have been associated with improved motivation and academic engagement (Lambert, 2025; Opoku-Danso et al., 2025).

In the present study, perceptions of the physical learning environment were not significantly associated with GPA or motivation. Adequate learning facilities, including well-equipped classrooms, skills laboratories, and simulation centers, may support concentration, skill acquisition, and confidence development (Cutillas et al., 2023; Lambert, 2025). Structured and supportive clinical placements further facilitate the integration of theory and practice, which is essential for competence development in nursing education (Kassab et al., 2024). While these factors were not directly associated with GPA in the present study, they form part of the broader context that supports motivation and learning engagement.

Taken together, the findings indicate that students' perceptions of the learning environment were associated with motivation to become a nurse, whereas motivation was positively associated with academic achievement. Although no direct associations were observed between the learning environment dimensions and GPA, these findings underscore the importance of considering both educational context and student motivation when seeking to understand academic performance among nursing students.

Limitation

Several limitations should be considered when interpreting the findings of this study. First, the cross-sectional design limits the ability to infer causal relationships among perceptions of the learning environment, motivation to become a nurse, and academic achievement. The observed associations represent relationships at a single point in time and do not capture changes in motivation or academic performance over the course of nursing education. Longitudinal studies are therefore recommended to examine the directionality and developmental patterns of these relationships.

Second, the use of self-reported instruments, including the DREEM and motivation questionnaires, may be subject to response bias. Participants may provide socially desirable responses or may not fully reflect their actual experiences and perceptions. Future research could enhance measurement validity by incorporating objective indicators such as faculty

evaluations, academic observations, or mixed-method approaches that include qualitative data.

Third, this study was conducted in a single nursing education institution, which may limit the generalizability of the findings to other settings with different institutional characteristics, curricula, or cultural contexts. Studies involving multiple institutions and diverse geographic regions are needed to improve external validity and provide broader comparative insights.

Fourth, although the regression analyses identified significant associations among the study variables, formal mediation analysis was not conducted. Therefore, the present study cannot determine whether motivation explains the relationship between perceptions of the learning environment and academic achievement. Future studies employing mediation analysis, such as structural equation modeling or bootstrapped mediation procedures, together with longitudinal designs, are warranted to further investigate these relationships.

Finally, although several relevant variables were included, other factors that may influence academic achievement—such as prior academic ability, learning strategies, psychological well-being, socioeconomic status, and clinical placement experiences—were not examined. The omission of these variables may have contributed to the relatively low explanatory power of the regression model predicting GPA. Future studies should incorporate a broader range of academic, personal, and contextual factors to

provide a more comprehensive understanding of academic performance among nursing students.

CONCLUSION

This study examined the relationships among nursing students' perceptions of the learning environment, motivation to become a nurse, and academic achievement. The findings showed that motivation to become a nurse was positively associated with academic performance, whereas perceptions of the learning environment were associated with students' motivation but not directly with GPA. These findings emphasize the importance of considering both educational context and student motivation when understanding academic outcomes in nursing education.

From a scientific perspective, this study contributes to the growing body of evidence by demonstrating that the learning environment and motivation are interconnected factors associated with academic performance among nursing students in the Indonesian context. The findings extend previous research by highlighting that students' motivation may be more closely linked to academic achievement than individual dimensions of the learning environment.

From a practical perspective, the results suggest that nursing education institutions should focus not only on improving physical learning facilities but also on creating supportive educational environments through effective teaching practices, constructive feedback, academic mentoring, and positive

teacher–student relationships. Strategies that strengthen students' motivation may contribute to improved engagement and academic performance.

Future longitudinal and multicenter studies incorporating formal mediation analyses are recommended to further clarify the mechanisms through which learning environments and motivation influence academic achievement.

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