

ACADEMIC STRESS AND CLINICAL LEARNING ENVIRONMENT IN RELATION TO THE SATISFACTION AND RETENTION OF GENERATION Z HEALTHCARE STUDENTS AT A PRIVATE HOSPITAL GROUP IN GREATER JAKARTA

Penulis

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Abstrak

Pembelajaran klinis merupakan tahapan kunci dalam pendidikan kesehatan untuk mengintegrasikan teori di akademik ke dalam praktik rumah sakit. Namun, pada mahasiswa Generasi Z, berbagai tantangan dalam lingkungan pembelajaran klinis dan tekanan psikososial berpotensi menurunkan kepuasan belajar dan retensi sebagai calon tenaga kesehatan. Penelitian ini bertujuan menganalisis hubungan antara lingkungan pembelajaran klinis dan stres akademik dengan tingkat kepuasan dan retensi mahasiswa kesehatan Generasi Z selama praktik kerja lapangan di rumah sakit. Penelitian ini menggunakan desain kuantitatif dengan pendekatan cross sectional. Sebanyak 211 mahasiswa program studi keperawatan, fisioterapi, teknologi laboratorium medis, kesehatan masyarakat, dan farmasi yang telah menjalani praktik kerja lapangan di beberapa rumah sakit dipilih secara acak sederhana. Data dikumpulkan menggunakan kuesioner *Academic Stress Scale* (ASS) dan *Clinical Learning Environment Inventory* (CLEI), kemudian dianalisis melalui statistik deskriptif, uji chi-square (χ^2), dan regresi logistik. Hasil penelitian menunjukkan bahwa sebagian besar responden memiliki tingkat kepuasan dan retensi yang tidak baik sebesar 62,1 %, serta menilai *Clinical Learning Environment Inventory* (CLEI) dalam kategori tidak mendukung sebesar 99,1 %. Analisis bivariat menunjukkan bahwa *Clinical Learning Environment Inventory* (CLEI) tidak berhubungan signifikan dengan kepuasan dan retensi (nilai $p = 0,999$; odds ratio = 1,646). Sebaliknya, *Academic Stress Scale* (ASS) dengan karakteristik tidak baik berhubungan signifikan dengan rendahnya kepuasan dan retensi (nilai $p = 0,005$). Dalam analisis didapatkan nilai OR 19,050 (CI 95% : 6,383 - 56,852) artinya dengan risiko 19,050 kali lebih tinggi dibandingkan mahasiswa dengan stres akademik adaptif. Penelitian ini menyimpulkan bahwa faktor psikososial memiliki peran dominan dalam menentukan kepuasan dan retensi mahasiswa kesehatan Generasi Z. Oleh karena itu, penguatan pendampingan klinis dan dukungan psikososial menjadi penting dalam memastikan kesiapan tenaga kesehatan di masa depan.

Kata kunci. *Academic Stress Scale*, *Clinical Learning Environment Inventory*, Faktor Psikososial, Kepuasan Mahasiswa, Retensi Mahasiswa

Abstract

Clinical learning is a crucial phase in healthcare education, as it bridges academic knowledge with real-world hospital practice. However, for Generation Z students, psychosocial stressors may negatively affect their learning satisfaction and their likelihood of remaining in the healthcare profession. The purpose of this study is to evaluate the relationship between the clinical learning environment and academic stress, and how these factors influence the satisfaction and retention of Generation Z healthcare students.

This research adopted a quantitative, cross-sectional design. A total of 211 students from healthcare programs having completed clinical placements in various hospitals were selected through simple random sampling. Data collection was carried out using the Academic Stress Scale (ASS) and the Clinical Learning Environment Inventory (CLEI).

The study results indicated that the majority of respondents—62.1%—experienced low satisfaction and retention, and 99.1% rated the Clinical Learning Environment Inventory (CLEI) as unsupportive. Bivariate analysis revealed no significant relationship between Clinical Learning Environment Inventory (CLEI) and satisfaction or retention ($p = 1.000$; odds ratio = 1.646). In contrast, higher levels of maladaptive academic stress, as measured by the Academic Stress Scale (ASS), were significantly associated with lower satisfaction and retention ($p = 0.005$). The odds ratio (OR) of 19.050 (95% CI: 6.383–56.852) suggests that students with maladaptive academic stress were 19 times more likely to report low satisfaction and retention compared to those with adaptive stress.

The study concludes that psychosocial factors significantly influence the satisfaction and retention of Generation Z

health students. As a result, improving clinical mentorship and providing robust psychosocial support are crucial for preparing future healthcare professionals.

Keywords: *Academic Stress Scale; Clinical Learning Environment Inventory; Student Retention; Psychosocial Factors; Student Satisfaction*

Introduction

Clinical learning is a phase where students apply what they have learned in school to real-life hospital situations. This helps them develop both the technical skills and the ability to work professionally with patients (DiMattio & Hudacek, 2020; Lafrance, 2018). When students are in an environment that supports and encourages engagement, they are more likely to succeed in their studies and achieve their goals (Rusticus et al., 2023). Such an environment allows students to thrive, and helps them develop the skills and judgment necessary for effective nursing practice (Alrashidi et al., 2023). However, several problems are making clinical learning less effective than it should be. These include insufficient supervision and assessment effectiveness (32.3%), difficulties students face in their clinical work (70.1%), inadequate communication between staff and students (49%), behavior problems from students (65.6%), and students having low confidence in themselves (39.6%) (Hilli & Sandvik, 2020).

Generation Z (Gen Z) nursing students have special qualities like proficiency in technological skills and a business-like attitude, but they also face more anxiety compared to others. Unlike Baby Boomers, Gen X, and Gen Y, who stick to traditional ways of working, Gen Z likes leaders who aren't strict about hierarchy, wants flexible work arrangements, and values teamwork that works well in practice. These generational differences lead to the need for experienced nurses to use the strengths of different age groups. They should use methods that make their jobs more satisfying, so nursing students stay interested in the profession (Tussing et al., 2024). Both psychosocial factors, along with the level of supervision students receive in hospitals, are important in determining whether nursing students are content with

their work. Aligned with Gen Z preferences, satisfaction is boosted by work autonomy (making decisions and working independently at their own pace) supportive guidance, and constructive feedback.⁴ Enhancing satisfaction not only raises the standard of nursing care but also helps reduce first-year nurse turnover (Kang et al., 2021).

Research on the district characteristics of Generation Z learners in clinical education remains limited (Tan & Chin, 2023). Therefore, this study aimed to analyze the relationship of the clinical learning environment and academic stress with the satisfactions and retention of Generation Z healthcare students during clinical placements a Private Hospital Group. The findings are expected to inform clinical learning strategies and psychosocial support that strengthen healthcare professionals.

This study addressed three research questions: (1) What are the levels of satisfaction and retention, perceived clinical learning environment, and academic stress among Generation Z healthcare students during clinical placements? (2) Is the clinical learning environment (CLEI) associated with students' satisfaction and retention? (3) Is academic stress (ASS) associated with students' satisfaction and retention ?

Accordingly, this study seeks to determine clinical learning strategies that effectively boost the learning satisfaction of Gen Z students. Achieving success in this area is anticipated to strengthen healthcare service quality and support the long-term retention of healthcare professionals.

Literature Review

Clinical learning for Gen Z students demands particular consideration, given

their perception that field practice time is often insufficient (Parker & Igielnik, 2020). While initiatives to enhance student satisfaction have been implemented, research on the distinct traits of Gen Z learners is still limited (Tan & Chin, 2023). Furthermore, they generally respond poorly to traditional criticism methods, favoring autonomy in clinical procedures and supervision that is not overly restrictive (Matlala, 2021).

Gen Z's ability to adapt and remain in collaborative work settings is a critical concern because it directly affects turnover rates (Chicca & Shellenbarger, 2018). Studies show that older generations, such as Baby Boomers and Gen X, are more able to handle work stress and resilience compared with millennials and Gen Z. In medical-surgical nursing, younger nurses like millennials and those from later generations feel more stress and tend to use escape-avoidance strategies to cope, unlike older generations, who are better at managing their own stress through self-regulation (Chicca & Shellenbarger, 2018).

Method

This research utilized a quantitative, cross-sectional design to examine academic stress levels and their association with the clinical learning environment among Gen Z health students during hospital internships. The cross-sectional approach was selected because it enables the assessment of both independent and dependent variables at the same time, making it well-suited for exploring relationships between variables within the clinical learning context.

The study population included students from nursing, physiotherapy, medical laboratory technology (MLT), public health, and pharmacy programs who had completed internships at a Private Hospital network in Jakarta, Bogor, Depok, Tangerang and Bekasi (Jabodetabek) and at Hospital Bandung, and were still actively enrolled during the study period. The sample was determined using total

sampling, in which the entire eligible population was included as the sample. All students in the population met the inclusion criteria, and no additional exclusion criteria were applied at the recruitment stage. This approach resulted in a total of 211 respondents.

The inclusion criteria encompassed students from the five study programs who were classified as Generation Z, born between 1998 and 2010 (approximately 18–26 years old at the time of the study), had completed internships at the specified hospitals, and consented to participate by signing an informed consent form. Participants who failed to complete the questionnaire or withdrew during the study were excluded from the analysis.

Data were gathered using a structured questionnaire that included respondents' demographic information (gender, age, and program of study) along with two primary instruments: the Academic Stress Scale (ASS) and the Clinical Learning Environment Inventory (CLEI). The ASS evaluated students' academic stress associated with academic demands, workload, evaluation pressures, and performance expectations during clinical learning. The CLEI, on the other hand, measured students' perceptions of the clinical learning environment, including supervision, engagement, staff support, and the overall learning climate. Both tools are widely applied in educational and healthcare research and have demonstrated strong validity and reliability.

Data were collected following approval from the relevant institutions and ethical clearance. Participants were fully informed about the study's purpose and procedures and provided their informed consent before taking part. The questionnaires were completed individually by respondents in a non-clinical, controlled setting to reduce situational bias and external influences.

Data were analyzed using statistical

software. Univariable analysis was first conducted to summarize the frequency distributions of respondents' demographic characteristics, academic stress levels, and perceptions of the clinical learning environment. Bivariate analysis was then performed using the Chi-Square (χ^2) test to explore the associations between demographic factors and academic stress categories, with statistical significance defined as $p < 0.05$. Additionally, logistic regression analysis was applied to evaluate the impact of the clinical learning environment and demographic characteristics on the incidence of academic stress among students during their internships.

The study was granted ethical approval by the Health Research Ethics Committee, reference number No.079/KEPK-EC/IKH/XII/2025. All research activities adhered to ethical standards, including safeguarding the confidentiality and anonymity of participants' data and guaranteeing their right to withdraw from the study at any time without facing academic consequences.

Result

As shown in Table 1, the sample was predominantly female (85,8%). Nursing programs accounted for about two-thirds of respondents (65,4%), with Diploma III in Nursing the largest group (47,9%), followed by Diploma III in Pharmacy (22,7%).

Table 1. Frequency and Percentage Distribution of Respondents Based on Demographic Characteristics

Variable	Count (n)	Percentage (%)
Gender		
Male	50	14.2
Female	181	85.8
Study Program		
Diploma III in Pharmacy	48	22.7

Diploma III in 5 2.4
Physiotherapy

Diploma III in Nursing 101 47.9
Diploma IV in Medical Laboratory Technology 14 6.6
Bachelor Science in 37 17.5
Nursing
Bachelor Science in 6 2.8
Public Health

CLEI: Clinical Learning Environment Inventory
ASS: Academic Stress Scale

Table 2 summarizes the distribution of the main study variables. Most respondents reported poor satisfaction and retention (62,1%), and almost all rated the clinical learning environment as poor on the CLEI (99,1%).

Academic stress showed contrasting patterns across its two dimensions: nearly all respondents scored well on Favorable ASS (92,9%), whereas most scored poorly on Unfavorable ASS (83,9%).

Table 2. Univariate Analysis of Satisfaction and Retention Variables, CLEI, Favorable ASS, and Unfavorable ASS

Variable	Count (n)	Percentage (%)
Satisfaction and Retention		
Poor	131	62.1
Good	80	37.9
CLEI		
Poor	209	99.1
Good	2	0.9
Favorable ASS		
Poor	15	7.1
Good	196	92.9
Unfavorable ASS		
Poor	177	83.9
Good	34	16.1

CLEI: Clinical Learning Environment Inventory
ASS: Academic Stress Scale

The average age of the respondents was 21,40 years, with a standard deviation of 1.528 years, where the youngest respondent was 18 years old and the oldest was 29 years old

Table 4. Bivariate Analysis of the Association between CLEI and Respondent Satisfaction and Retention

CLEI	Satisfaction and Retention				Total		OR (95% CI)	P Value
	Poor		Good		n	%		
	n	%	n	%				
Poor	130	62.2	79	37.8	209	100	1.646 (0.101-26.681)	0,999
Good	1	50.0	1	50.0	2	100		
Count	131	62.1	80	37.9	211	100		

As shown in Table 4, poor satisfaction and retention was equally common among students with poor CLEI (62.2%) and in the total sample (62.1%), and CLEI was not significantly associated with it (OR = 1.646,

95% CI: 0.101–26.681, $p = 0.999$). The very wide confidence interval reflects the small number of respondents with good CLEI ($n = 2$)

Table 5. The Favorable ASS Relationship with Satisfaction and Retention

Favorable ASS	Satisfaction and Retention				Total		OR	P Value
							(95% CI)	
	Poor		Good		n	%	1.742 (0.535-5.667)	0.512
	n	%	n	%				
Poor	11	73.3	4	26.7	15	100		
Good	120	61.2	76	38.8	196	100		
Count	131	62.1	80	37.9	211	100		

Table 5 indicates that the majority of respondents with poor Favorable ASS (73.3%, $n = 11$) also reported poor satisfaction and retention, while 26.7% ($n = 4$) had good satisfaction and retention. The Chi-Square test showed no significant association between Favorable ASS and

satisfaction and retention ($p = 0.512$). The odds ratio (OR = 1.742; 95% CI: 0.535–5.667) suggests that respondents with poor Favorable ASS were 1.742 times more likely to experience poor satisfaction and retention compared to those with good Favorable ASS.

Table 6. The Unfavorable ASS Relationship with Satisfaction and Retention

Unfavorable ASS	Satisfaction and Retention				Total	OR (95% CI)	P Value
	Poor		Good				
	n	%	n	%			

	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%		
Poor	127	71.8	50	28.2	177	100	19.050	0.005
							(6.383-56.852)	
Good	4	11.8	30	88.2	34	100		
Count	131	62.1	80	37.9	211	100		

Table 6 illustrates that 71.8% of respondents with poor Unfavorable ASS ($n = 127$) also reported poor satisfaction and retention, while 28.2% ($n = 50$) had good satisfaction and retention. The Chi-Square test indicated a significant relationship between Unfavorable ASS and satisfaction

and retention ($p = 0.005$). The odds ratio ($OR = 19.050$; 95% CI: 6.383–56.852) indicates that respondents with poor Unfavorable ASS were 19.05 times more likely to experience poor satisfaction and retention compared to those with good Unfavorable ASS.

Discussion

The results of this study showed that 99.1% of students scored within the unfavorable category on the Clinical Learning Environment Inventory (CLEI), and 62.1% reported low satisfaction and low retention intention. These findings suggest that the quality of the clinical learning environment is a primary determinant of satisfaction among Gen Z nursing students. This is consistent with the findings Saka et al. (2023), who reported among 206 nursing students that task orientation within the clinical environment was significantly associated with satisfaction ($\beta = 0.29$; $p < 0.001$). Saka et al. (2023) asserted that clinical practice takes place within a dynamic and complex social context, requiring a high level of cognitive, psychomotor, and emotional resilience from students, particularly when facilitator support is inadequate. In line with this, DiMaggio & Hudacek, 2020 reported that student satisfaction increased significantly when supervisors provided clear guidance and consistent feedback; conversely, a limited number of clinical supervisors relative to student numbers negatively affected perceptions of the practice environment, resulting in a predominance of low CLEI scores. A contrasting finding was reported by Rodríguez-García et al. (2021), who found that 260 nursing students evaluated the clinical environment and supervision at their placement hospitals very favorably, accompanied by

high satisfaction and a strong intention to remain employed at those institutions. This discrepancy is likely attributable to differences in institutional characteristics, the organizational culture of the placement site, and preceptor-to-student ratios. (Rodríguez-García et al., 2021) further emphasized that a supervisory relationship built on trust and mutual respect between tutor and student is a key factor determining the quality of the clinical learning experience; this finding underscores that the low CLEI scores observed in the present study do not merely reflect an individual student issue but indicate a systemic weakness in the management of clinical placement sites.

Beyond environmental factors, this study identified that 83.9% of respondents scored within the unfavorable category on the ASS, and that students with an unfavorable ASS had a 19 fold greater risk of dissatisfaction compared with students with a more favorable self-concept ($OR = 19$; $p = 0.005$). The magnitude of this risk represents a clinically significant finding that has rarely been reported in the vocational nursing education literature in Southeast Asia. Juanamasta et al. (2023), in their systematic review, confirmed that emotional and personal factors including self-esteem, self-confidence, and interpersonal relationships play a critical role in shaping the professional self-concept of nursing students. A negative self-concept leads individuals to hold less

favorable perceptions of their abilities and professional role, making them more susceptible to dissatisfaction with the clinical practice experience (Juanamasta et al., 2023). Hwang & Kim. (2022) further reported that contributors to an unfavorable ASS include an excessive curricular workload, unhealthy competition among students, and pressure related to nursing competency examinations, in addition to intrinsic factors such as anxiety, depression, and low self-efficacy. Kristensen et al., (2023) reinforced these findings by demonstrating that academic stress consistently affects psychological distress during middle-to-late adolescence, and that declining academic self-efficacy impairs an individual's ability to cope with academic demands, thereby exacerbating the stress cycle. (Meyer et al., 2023) further asserted that academic self-concept is an important predictor of students' mental health and academic achievement, with all of its dimensions dimensional, temporal, and counterfactual contributing substantially to student well-being and burnout. An interesting phenomenon observed in this study was that a small proportion of students with a favorable ASS (16.1%) still reported low satisfaction; this finding can be explained by (Juanamasta et al., 2023), who noted that a student's positive self-concept can be neutralized by strong external factors, such as poor organizational support and unclear clinical career-ladder structures within the placement setting.

The low retention observed among students in this study can also be understood through the lens of career identity. Hu et al. (2022), in a study of 500 nurses across five hospitals, found that weak career identity was significantly associated with intention to leave the nursing profession ($r = -0.342$; $p < 0.001$), with job satisfaction mediating this relationship. This result is relevant to the present context, as students who fail to develop a strong nursing career identity early on—due to an uncondusive clinical experience are likely to be more vulnerable to leaving the profession after

graduation (Hu et al., 2022). This is further compounded by the gap that frequently exists between vocational education and clinical placement settings, which, according to Hu et al. (2022), is one of the principal causes of low career identity among newly graduated nurses. Hendel & Kagan (2011) underscored that structural factors such as staff shortages, budget cuts, and overcrowded classrooms have diminished the quality of nursing practice education worldwide. This issue appears to extend to vocational education in Indonesia, given the high proportion of poor CLEI scores observed in this study.

This study demonstrates that students with an unfavorable ASS had a 19-fold greater risk of dissatisfaction with clinical learning, indicating that a negative academic self-concept can reduce satisfaction and potentially diminish retention intention. Educational institutions therefore need to strengthen the quality of the clinical learning environment through structured and sustained preceptor training to enhance academic self-concept, learning satisfaction, and the retention of nursing students. Griffiths et al. (2022), in a systematic review, emphasized that developing preceptor competencies encompassing clinical teaching, the provision of feedback, and support for students' achievement of learning objectives constitutes a critical foundation for the quality of the clinical practice experience. The strengthening of career identity from the early stages of education should be integrated into the curriculum as part of a broader strategy to improve learning quality, given that students with a stronger career identity tend to exhibit higher satisfaction and a lower intention to leave the profession. Furthermore, at the policy level, establishing standardized preceptor to student ratios and implementing accreditation of clinical placement sites based on validated instruments, such as the Clinical Learning Environment Inventory (CLEI), should be considered as part of regulatory efforts to ensure the quality of the clinical learning environment.

This study has several limitations that should be considered when interpreting the results. First, the cross-sectional design precludes any determination of causal relationships among the quality of the clinical learning environment, academic self concept, satisfaction, and student retention. Second, the use of self-report instruments may have introduced response bias, including social desirability bias and variation in perception across respondents. Third, this study was conducted at a single teaching hospital, and generalization of the findings to other institutions or regions should therefore be made with caution. In addition, the distribution of data heavily skewed toward unfavorable CLEI and unfavorable ASS categories may have limited data variability and affected the stability of the estimated associations between variables. This study also did not control for other potential confounding factors, such as the level of academic stress, clinical workload, preceptor characteristics, or institutional support. Future research is therefore recommended to employ a longitudinal or mixed-methods design, involve multiple teaching hospitals, and incorporate these variables to achieve a more comprehensive understanding of the factors influencing nursing students' satisfaction and retention.

Conclusion

This study aimed to analyze psychosocial factors and student satisfaction among Generation Z nursing students in clinical learning and their relationship with the retention of newly graduated health practitioners in several hospitals in Indonesia. The results showed that 99.1% of respondents rated the CLEI as poor, and 62.1% of students reported low satisfaction levels. Beyond environmental factors, psychosocial aspects were also a significant concern, with 83.9% of respondents exhibiting Unfavorable ASS, which was significantly associated with low student satisfaction ($p = 0.005$; $OR = 19$). The study's significance lies in providing empirical evidence that

deficiencies in clinical mentoring—driven by high preceptor workloads and limited institutional support—directly reduce student motivation and retention. The findings also make an important theoretical contribution by demonstrating that clinical satisfaction arises from a multidimensional interaction between external factors (such as supervision quality and organizational dynamics) and internal factors (such as academic self-concept). Misalignment between students' academic abilities and the realities of an unsupportive clinical environment was shown to create a negative feedback loop that further undermines students' perceptions of their own competence.

Hospitals and higher education institutions should strengthen preceptorship programs through formal training and workload management for clinical supervisors, while also integrating technology-based interventions to enhance students' self-concept. Although this study is limited by its cross-sectional design and the generalizability of its findings, the results provide an important foundation for developing health human resource management policies. Therefore, improving the quality of the clinical learning environment and providing psychosocial support are essential and inseparable components for ensuring students' successful transition into professional practice.

Acknowledgment

The authors would like to thank all parties involved, especially Private Hospital Groups, which served as the location for the final-year student's internship program.

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