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CROSS-SECTIONAL STUDY

Clinical learning environment quality and academic self-efficacy in nursing students: a cross-sectional study

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Findings:

This cross-sectional study examined whether Clinical Learning Environment (CLE) quality predicts Academic Self-Efficacy (ASE) in first-year nursing students. Findings showed a significant positive association between CLE quality and ASE, with CLEQI scores emerging as the only significant predictor of ASE ($\beta = 0.333$, $p < 0.001$), while sociodemographic and academic variables were not associated. The model explained approximately 25% of the variance in ASE, underscoring the relevance of contextual factors. Tutorial strategies and learning opportunities were rated highest, whereas self-directed learning scored lowest, indicating reliance on tutor support in early training. ASE was strongest in self-regulatory behaviour and weakest in internal emotion management. Overall, the results highlight CLE quality as a key determinant of students' confidence in managing academic challenges, supporting targeted investments in tutoring, autonomy development, and emotional support to enhance academic success.

ABSTRACT

BACKGROUND: Academic failure (AF) is common in nursing programmes, with significant consequences for healthcare systems. The clinical learning environment (CLE) may influence academic self-efficacy (ASE), a key determinant of motivation, resilience, and performance. However, its specific role remains unclear.
AIM: This study examined whether CLE quality predicts ASE among first-year nursing students.

METHODS: A cross-sectional study was conducted. CLE quality was assessed using the Clinical Learning Environment Quality Evaluation Index (CLEQI), and ASE with the Academic Nurse Self-Efficacy Scale (ANSEs). The relationship between CLE and ASE was analysed using linear regression.

RESULTS: A total of 142 students participated. The mean CLEQI score was 45.4 (SD = 14.3), with the highest scores for tutorial strategies and the lowest for self-directed learning. The mean ANSEs score was 49.2 (SD = 9.0), with higher values for self-regulatory behaviour and lower for internal emotion management. CLEQI was the only significant predictor of ASE ($\beta = 0.333$, $p < 0.001$).

CONCLUSIONS: CLE quality significantly predicted ASE. Strengthening tutorial strategies, learning opportunities, and emotional and self-directed learning support may promote academic success.

KEYWORDS: *Clinical Learning Environment, Academic Self-Efficacy, Nursing Students, Academic Success, Academic Failure*

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STUDIO TRASVERSALE

Qualità dell'ambiente di apprendimento clinico e self-efficacy accademica negli studenti di infermieristica: uno studio trasversale

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Riscontri:

Questo studio trasversale ha esaminato se la qualità del Clinical Learning Environment (CLE) predice l'Academic Self-Efficacy (ASE) negli studenti infermieri del primo anno. I risultati hanno mostrato un'associazione positiva e significativa tra qualità del CLE e ASE, con il punteggio CLEQI come unico predittore significativo dell'ASE ($\beta = 0.333$, $p < 0.001$), mentre le variabili sociodemografiche e accademiche non risultavano associate. Il modello spiegava circa il 25% della varianza dell'ASE, evidenziando il ruolo centrale del contesto formativo. Le strategie tutoriali e le opportunità di apprendimento hanno ottenuto i punteggi più elevati, mentre l'apprendimento autodiretto è risultato il più critico. L'ASE era maggiore nei comportamenti autoregolatori e minore nella gestione delle emozioni interne. Nel complesso, lo studio conferma la qualità del CLE come determinante chiave della fiducia degli studenti nell'affrontare le sfide accademiche.

ABSTRACT

INTRODUZIONE: Il fallimento accademico (AF) è un fenomeno frequente nei corsi di laurea in infermieristica, con importanti ripercussioni sul sistema sanitario. L'ambiente di apprendimento clinico (CLE) può influenzare la *self-efficacy* accademica (ASE), un fattore fondamentale per la motivazione, la capacità di affrontare le difficoltà e il rendimento degli studenti. Tuttavia, il ruolo specifico del CLE non è ancora del tutto chiaro. OBIETTIVO: Lo studio ha valutato se la qualità del CLE sia in grado di predire l'ASE negli studenti di infermieristica del primo anno.

METODI: È stato condotto uno studio osservazionale trasversale. La qualità del CLE è stata misurata tramite il *Clinical Learning Environment Quality Evaluation Index* (CLEQI), mentre l'ASE è stata valutata con l'*Academic Nurse Self-Efficacy Scale* (ANSEs). La relazione tra le due variabili è stata analizzata mediante regressione lineare.

RISULTATI: Hanno partecipato allo studio 142 studenti. Il punteggio medio del CLEQI è risultato pari a 45,4 (DS = 14,3), con valori più elevati nella qualità delle strategie tutoriali e più bassi nell'auto-apprendimento. Il punteggio medio dell'ANSEs è stato 49,2 (DS = 9,0), con valori più alti nel comportamento auto-regolatorio e più bassi nella gestione delle emozioni interne. La qualità del CLE è risultata l'unico predittore significativo dell'ASE ($\beta = 0{,}333$; $p < 0{,}001$).

CONCLUSIONI: La qualità del CLE predice in maniera significativa l'ASE. Potenziare le strategie tutoriali, ampliare le opportunità di apprendimento e offrire un maggiore supporto emotivo e all'auto-apprendimento potrebbe favorire il successo accademico degli studenti di infermieristica.

KEYWORDS: *Ambiente Di Apprendimento Clinico, Self-Efficacy Accademica, Studenti Infermieri, Successo Accademico, Fallimento Accademico*

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BACKGROUND:

Academic Failure (AF), defined as the inability of students to complete their educational programme within the timeframe established by academic regulations (1), represents a major challenge for nursing degree programmes (NDPs) due to its significant repercussions for both students and universities (2). Globally, universities report AF rates in NDPs ranging from 25% to 50% (3,4). In Italy, the situation is equally concerning: more than 35% of students fail to complete their studies on time, with AF and dropouts particularly concentrated during the first academic year (1,5,6). These national data are consistent with the most recent report by the AlmaLaurea Inter-University Consortium, a national Italian organization that monitors university graduates' educational outcomes, showing that only 68.8% of students completed their studies on time, thereby achieving Academic Success (AS) (7). AF affects students' educational trajectories and may reduce the future availability of qualified nurses, with implications for the quality and safety of care, including increased workload for existing staff and an increased risk to patient safety (8,9).

Multiple factors contribute to AF among nursing students, including difficulties in integrating theoretical education with clinical experience, which often results in a mismatch between students' expectations and the reality of clinical practice (10,11). The nursing curriculum, which combines classroom learning with clinical training, is particularly demanding and frequently exposes students to high levels of stress and pressure (12–14). Among the predictors of AF, the literature highlights practical skills (e.g., performing basic clinical procedures, using devices), entry test scores, and previous educational background (15,16). Within the university setting, a lack of emotional and practical support from clinical tutors during internships also emerges as a relevant predictor of AF (17).

In contrast, AS is supported by several factors, including academic self-efficacy (ASE), which plays a crucial role in this context. ASE stems from the broader construct of self-efficacy (18) and is defined as students' perception of their ability to manage and overcome the challenges of their academic pathway (19). High ASE enhances the ability to cope with study demands and mitigates the adverse effects of stress on performance (20,21). Specifically, in educational contexts, ASE has consistently been identified as a reliable predictor of motivation and academic performance (22). More recent evidence confirms that high ASE is associated with greater resilience and more effective stress management, whereas low ASE is associated with reduced motivation and increased AF (20,21,23). This relationship between ASE and AS is particularly relevant in nursing education, as students with higher ASE report lower stress levels during clinical experiences than their peers with lower ASE (23).

Another crucial determinant of AS in nursing students is the Clinical Learning Environment (CLE), the context in which students apply theoretical knowledge and develop clinical competencies (24,25). The quality of the CLE has a direct impact on student satisfaction and clinical self-efficacy. Recent studies have highlighted the link between CLE quality and students' clinical self-efficacy, suggesting that a high-quality CLE can foster self-efficacy and improve academic performance (26–28). However, despite these findings, a gap remains concerning the specific role of CLE quality in determining ASE among nursing students.

While the literature supports a positive effect of CLE quality on clinical self-efficacy (26–28), the extent to which CLE quality predicts ASE within NDPs is still unclear. Understanding this relationship is pivotal, as higher ASE has been associated with resilience, intrinsic motivation, and effective management of academic stressors that reduce the risk of AF and support persistence in studies

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(20,22,23). Clarifying the predictive role of CLE quality in ASE would help identify areas for improvement within the clinical learning context and inform targeted interventions to strengthen ASE and support AS among nursing students. Accordingly, the primary aim of this study was to determine the extent to which CLE quality predicts ASE in nursing students.

METHODS

Study design

A single-centre, cross-sectional observational study was conducted. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines were followed to ensure transparency and methodological quality (29).

Setting

The study was conducted within an NDP in Northern Italy. For the academic year 2024/2025, there were 815 available places across 16 teaching sites, covering a geographical area of approximately 100–150 km. Each site was affiliated with one or more hospitals or healthcare facilities, where students attended their clinical training.

Participants

Since first-year students are at the highest risk of AF (1,5,16,30), participants were recruited through consecutive sampling among first-year students.
Inclusion criteria:

- Admission in the 2024/2025 academic year
- First time admission to the NDP
- Completion of clinical training in any setting

Exclusion criteria:

- Incomplete or interrupted clinical training
- Failure to provide informed consent to participate

Data collection was carried out in July 2025. The Principal Investigator (PI), based at one of the 16 sites, was granted institutional access to the email addresses of first-year students currently enrolled in clinical training. Students were invited to attend online information sessions via Zoom®, during which the PI explained the study objectives and procedures and clarified participation requirements. At the end of each session, a Quick Response (QR) code was displayed, providing direct access to the online questionnaire. Students completed the questionnaire after scanning the QR code and providing informed consent for participation and data processing.

Variables

Demographic and academic variables (age, gender, educational background, employment status, caregiving role, and family situation) were collected, together with data on CLE quality and students' ASE.

Data sources

Two instruments were used to collect data on CLE quality and ASE:

- **Clinical Learning Environment Quality Evaluation Index (CLEQI)**: validated in Italian by Palese et al. (31), the CLEQI assesses several aspects of the CLE, including support from clinical tutors, the quality of interactions with healthcare professionals, and the ability of students to apply theoretical knowledge in clinical practice. It uses a 5-point Likert scale, with total scores ranging from 0 (absence of elements necessary to promote high-quality clinical learning processes) to 66 (high presence of elements). Higher scores indicate higher perceived CLE quality, whereas scores below 22 identify teaching sites that may require improvement in their training processes.
- **The Academic Nurse Self-Efficacy Scale (ANSEs)**, validated in Italian by Bulfone et al. (32), assesses different dimensions of students' ASE, including internal emotion management, self-regulatory behaviour, external emotion management, and sociality.

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It uses a 5-point Likert scale, with total scores ranging from 14 to 70. Higher scores indicate greater perceived ability to face and overcome academic challenges during the nursing education pathway.

Bias

Three potential sources of bias were addressed: 1. Selection bias, minimized through consecutive sampling; 2. Response bias, reduced by anonymous questionnaire completion; 3. Measurement bias, mitigated using validated Italian-language instruments.

Study size

Consecutive sampling aimed to recruit all first-year NDP students enrolled in the 2024/2025 academic year (416 students). To ensure the validity of statistical analyses, the minimum required sample size was also calculated using Green's formula, commonly applied in studies employing multiple regression (33):

$$N \geq 50 + 8 \cdot k$$

N represents the minimum sample size, and k represents the number of predictors in the regression model. With nine predictors (age, gender, diploma grade, type of diploma, employment status, caregiving role, marital status, presence of underage children, and living arrangement), the minimum required sample size was 122 participants.

Quantitative variables

Quantitative variables were treated as continuous variables, including age, diploma grade, ANSEs and CLEQI scores. Categorical variables (gender, type of diploma, living arrangement, marital status, presence of underage children, caregiving role, employment status) were considered multi-level factors in the models.

Statistical methods

The association between CLE quality and ASE was assessed using a multiple linear regression model, with the CLEQI score as the primary predictor and the following pre-specified covariates, identified from the literature, as potential confounders: age, gender, employment status, family situation, caregiving role and educational background. Model assumptions of linearity, normality, and homoscedasticity of residuals were verified to confirm model applicability. Multicollinearity was assessed using variance inflation factors (VIF), with a pre-defined threshold of VIF < 10. Results were reported as regression coefficients (β) with 95% confidence intervals (CIs) and R^2 values. Subgroup, interaction, and multilevel analyses were not conducted due to the small sample. Missing data were absent as all questionnaires were fully completed. No specific analytical methods were required for the sampling strategy, as consecutive sampling was employed, and no sensitivity analyses were performed. All analyses were performed using Jamovi software (version 2.3.21).

RESULTS

Participants

During the data collection period, 416 first-year students enrolled in the NDP were potentially eligible for participation. Of these, 142 (34.1%) completed the questionnaire.

Descriptive data

The median age of participants was 21 years (IQR 5.75). Most were female (78.9%), held a high-school diploma in scientific, classical, art or human sciences (53.5%), and lived with their parents (74.6%). Most were unmarried (83.8%) and had no underage children (90.8%); 11.3% reported a caregiving role. More than half were full-time students (57.7%), while 22.5% worked more than 16 hours per week. The

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mean diploma grade (out of 100) was 76.2 (SD 11.1) (Table 1).

Table 1. Sociodemographic and academic characteristics of the sample

Variable	
Age (median, IQR)	21 (5.75)
Gender n (%)	
Female	112 (78.9)
Male	28 (19.7)
Prefer not to answer	2 (1.4)
Diploma grade/100 (mean, sd)	76.2 (11.1)
High school degree n (%)	
Scientific/classical/art /social sciences	76 (53.5)
Technical	28 (19.7)
Professional	38 (26.8)
Living arrangement n (%)	
Parents	106 (74.6)
Partner	23 (16.2)
Alone	10 (7.0)
With other students	3 (2.1)
Marital status n (%)	
Unmarried	119 (83.8)
Cohabiting	9 (6.3)
Married	9 (6.3)
Divorced	2 (1.4)
Separated	3 (2.1)
Underage children n (%)	
Yes	13 (9.2)
No	129 (90.8)
Caregiving role n (%)	
Yes	16 (11.3)
No	126 (88.7)
Caregiving hours per week (mean, sd)	33.9 (44.1)
Employment status n (%)	
Full-time student	82 (57.7)
<16h per week	28 (19.7)
≥16h per week	32 (22.5)

IQR interquartile range

Outcome data

The mean total CLEQI score was 45.4 (SD 14.3), which was above the threshold of 22, indicating an urgent need for improvement. Among the CLEQI subscales, the highest mean scores were observed for tutorial strategies (12.7, SD 4.6) and learning opportunities (12.4, SD 4.4), whereas the lowest was for self-directed learning (5.1, SD 2.5).

The mean total ANSEs score was 49.2 (SD 9). Among the subscales, higher scores, indicating better

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ASE, were observed for self-regulatory behaviour (16.1, SD 3.1), whereas the lowest were found for internal emotion management (9.4, SD 2.5) (Table 2).

Table 2. CLEQI and ANSEs mean scores (total and factors)

Instrument	Factor	Mean (SD)
CLEQI		45.4 (14.3)
	Tutorial strategies	12.7 (4.6)
	Learning opportunities	12.4 (4.4)
	Safety and quality of care	8.8 (2.5)
	Self-directed learning	5.1 (2.5)
	Quality of the learning environment	6.5 (2.3)
ANSEs		49.2 (9)
	Internal emotion management	9.4 (2.5)
	Self-regulatory behaviour	16.1 (3.1)
	External emotion management	11.8 (4.0)
	Sociality	11.9 (2.3)

Main results

The total ANSEs score showed a significant positive correlation with the CLEQI score (r = 0.292, 95% CI [0.134–0.436], $p < 0.001$). In the multiple linear regression model, including age, gender, educational background, employment status, caregiving role, and family situation, the CLEQI score remained significantly associated with ANSEs (B = 0.210, 95% CI [0.100–0.320], β = 0.333, $p < 0.001$). The model explained about 25.3% of the variance in ANSEs (R^2 = 0.253). None of the covariates was individually associated with ANSEs scores.

Other analyses

Assumptions of linearity, normality, and homoscedasticity of residuals were met. VIF values were all <2.1, indicating the absence of multicollinearity. Cook's distance identified a few cases above the threshold; however, they did not substantially alter the estimates. The Durbin–Watson test confirmed the independence of residuals (DW = 1.99, $p = 0.916$).

DISCUSSION

Key results

This study aimed to investigate the extent to which the quality of the CLE, measured by the CLEQI, was associated with ASE among first-year nursing students. The findings showed that higher CLEQI scores were significantly associated with increased ASE. The final regression model, including CLEQI and sociodemographic covariates, accounted for approximately one quarter of the variance in ASE. Within this model, CLEQI was the only significant predictor, while none of the covariates showed independent associations with the outcome.

According to our results, the available literature suggests that individual factors do not consistently predict outcomes and may vary

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depending on context and cohort (Dante et al., 2016). In particular, a longitudinal Italian study reported that only female gender and diploma grade were associated with AS, whereas other personal characteristics, such as age and family situation, were not significantly related (34). Conversely, our findings differ from those of previous studies, which identified gender, type of diploma, or academic performance as predictors of AS (16,30,35). In our sample, CLE quality emerged as the primary predictor of ASE, supporting the hypothesis that the educational and clinical context plays a more significant role than individual characteristics.

Limitations

Several limitations should be considered when interpreting these findings. The response rate of 34% may introduce nonresponse bias, limiting the sample's representativeness. Although students from 16 different teaching sites were included, all sites belonged to the same academic institution, which may limit the generalizability of the results. However, the small sample size per site did not allow formal multilevel modelling to account for clustering. Future studies with larger samples should explore potential site-level effects. Regarding bias, consecutive sampling reduced the risk of selection bias by including all eligible students. Response bias was likely minimized by anonymous participation, although the possibility of socially desirable responses cannot be excluded. Moreover, using validated instruments reduced the risk of measurement error, though self-report measures inherently present limitations. Finally, the cross-sectional design precludes long-term assessments that could further strengthen the findings; therefore, causal inference cannot be drawn from the observed associations.

Interpretation

ASE is a key construct in explaining motivation, resilience, and AS. It specifically refers to students' perceptions of their ability to face and overcome academic challenges (19). Numerous studies have shown that ASE is a reliable predictor of motivation, persistence, and academic performance (20–22).

The literature has highlighted that a positive CLE fosters competence development, professionalism, and professional identity (24–28). Our findings are consistent with these results, confirming that perceived CLE quality is a key factor in supporting ASE among nursing students. In line with our results, recent studies have shown that high-quality CLEs are not only associated with academic outcomes but also with broader professional behaviours. For instance, students were more likely to disclose patient safety concerns when learning opportunities, tutorial strategies, and care quality were positively evaluated. This suggests that a supportive CLE fosters empowerment and confidence, which are dimensions closely related to ASE (36). Likewise, exposure to higher-quality CLEs was linked to greater involvement in interprofessional educational experiences. These experiences may promote autonomy, problem-solving, and relational skills, which are central elements of ASE (37). These findings support the idea that CLE quality sustains not only educational outcomes but also students' professional development, further reinforcing its role as a determinant of ASE.

In our sample, the highest CLEQI mean scores were found for tutorial strategies and learning opportunities, while the lowest were observed for self-directed learning. This finding underscores the central role of clinical tutors, which has been well-documented (25,31), and suggests that first-year students still primarily rely on tutorial support. However, the relative weakness of self-directed learning highlights the need for strategies that promote greater autonomy, a competence essential for future professional practice (38).

Similarly, ANSEs' results showed higher scores for self-regulatory behaviour and sociability, and lower

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scores for internal emotion management. These findings confirm previous evidence that nursing students experience difficulties in managing stress and negative emotions associated with their studies (13,14). Combining a CLE that progressively stimulates autonomy with targeted interventions to support emotional management could further strengthen ASE, enhancing persistence and AS (26,27).

Generalisability

The findings are consistent with international evidence recognizing CLE as a determinant in nursing education (24–27) and in students' emotional well-being and ASE (10,12). This study provides specific data on first-year Italian nursing students, a population that has been scarcely explored to date (16,38). The practical implications underscore the need to implement strategies that support students in addressing the most critical aspects identified, with a particular focus on promoting self-directed learning and emotional support. Future multicentre and longitudinal studies are needed to further investigate the directionality of the relationship between CLE and ASE. They should also assess the impact of targeted interventions aimed at improving CLE quality and strengthening ASE (26). Research could also explore potential mediating factors in this relationship, offering a deeper understanding of the mechanisms through which CLE influences students' ASE.

CONCLUSION

This study demonstrated that CLE quality is a significant predictor of ASE among first-year nursing students. The findings confirm that a high-quality CLE supports students' confidence in coping with academic challenges, while sociodemographic and educational characteristics showed no independent association with ASE. These results highlight the need of investing in the CLE, and particularly in tutorial strategies and learning opportunities. In addition, NDPs should strengthen students' self-regulatory skills while promoting the progressive development of self-directed learning and emotional management skills.

From an operational perspective, the results provide NDPs with an opportunity to reflect on the strategic importance of CLE quality as a key factor to strengthen students' motivation, resilience, and AS.

ETHIC STATEMENT

The study was conducted in accordance with the Declaration of Helsinki and European data protection regulations (GDPR 2016/679 and Legislative Decree 101/2018). The research protocol was approved by the Ethics Committee of the University of Milan on April 8, 2025.

FUNDING STATEMENT

This research received no external funding.

DATA AVAILABILITY STATEMENT

The dataset generated and analysed during the current study is not publicly available due to privacy and ethical restrictions but is available from the corresponding author on reasonable request.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the authors used ChatGPT (OpenAI) in order to support language refinement and ensure consistency in English writing. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

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REFERENCES

1. Lancia L, Caponnetto V, Dante A, Mattei A, La Cerra C, Cifone MG, et al. Analysis of factors potentially associated with nursing students' academic outcomes: A thirteen-year retrospective multi-cohort study. Nurse Educ Today. 1 novembre 2018;70:115–20.
2. Hamshire C, Jack K, Forsyth R, Langan AM, Harris WE. The wicked problem of healthcare student attrition. Nurs Inq. 1 luglio 2019;26(3):e12294.
3. Eudy C, Brooks S. Factors impacting student success in a fundamentals course of an associate degree nursing program. Teach Learn Nurs. gennaio 2022;17(1):11–6.
4. Harris RC, Rosenberg L, Grace O'Rourke ME. Addressing the Challenges of Nursing Student Attrition. J Nurs Educ. gennaio 2014;53(1):31–7.
5. Dante A, Ferrão S, Jarosova D, Lancia L, Nascimento C, Notara V, et al. Nursing student profiles and occurrence of early academic failure: Findings from an explorative European study. Nurse Educ Today. 1 marzo 2016;38:74–81.
6. Destrebecq A, Destefani C, Sponton A. [Abandonment of nursing courses: a survey regarding the motivations which lead the students to the abandonment of the nursing degree course]. Prof Inferm. 1 aprile 2008;61:80–6.
7. AlmaLaurea. Profilo dei Laureati [Internet]. 2023 [citato 24 settembre 2024]. Disponibile su: https://www2.almalaurea.it/cgi-php/universita/statistiche/visualizza.php?anno=2023&corstipo=L&ateneo=tutti&facolta=tutti&gruppo=14&livello=1&area4=3&pa=tutti&classe=10043&postcorso=tutti&isstella=0&isstella=0&presiui=tutti&disaggregazione=&LANG=it&CONFIG=profilo
8. Milstein R, Schreyoegg J. The relationship between nurse staffing levels and nursing-sensitive outcomes in hospitals: Assessing heterogeneity among unit and outcome types. Health Policy Amst Neth. 1 ottobre 2020;124(10):1056–63.
9. OECD. Health at a Glance 2021: OECD Indicators. OECD Publ Paris [Internet]. 2021 [citato 8 luglio 2022]; Disponibile su: https://doi.org/10.1787/ae3016b9-en.
10. Jamshidi N, Molazem Z, Sharif F, Torabizadeh C, Najafi Kalyani M. The Challenges of Nursing Students in the Clinical Learning Environment: A Qualitative Study. Sci World J. 2016;2016:1–7.
11. Mussa YM, Muhammed QH, Ali RI. Difficulties of nursing students during clinical training. J Natu Sci Res. 2016;6:125–35.
12. Attridge RL, LaGrange L, Frei B, Gottlieb H, Horlen C, Lord K, et al. Using admissions criteria for predicting student failure outcomes of supplemental instruction and remediation in a doctor of pharmacy programme. Pharm Educ. 2017;17(1):75–80.
13. Deary IJ, Watson R, Hogston R. A longitudinal cohort study of burnout and attrition in nursing students. J Adv Nurs. luglio 2003;43(1):71–81.
14. Labrague LJ, McEnroe-Petitte DM, Al Amri M, Fronda DC, Obeidat AA. An integrative review on coping skills in nursing students: implications for policymaking. Int Nurs Rev. 1 giugno 2018;65(2):279–91.

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15. Al-Alawi R, Oliver G, Donaldson JF. Systematic review: Predictors of students' success in baccalaureate nursing programs. Nurse Educ Pract. ottobre 2020;48:102865.

16. Bulfone G, De Maria M, Maurici M, Macale L, Sili A, Vellone E, et al. Academic failure and its predictors in Baccalaureate nursing students: A longitudinal study. J Clin Nurs. 1 luglio 2021;30(13–14):1953–62.

17. Canzan F, Saiani L, Mezzalira E, Allegrini E, Caliaro A, Ambrosi E. Why do nursing students leave bachelor program? Findings from a qualitative descriptive study. BMC Nurs. 2022;21(1).

18. Bandura A. Self-efficacy: Toward a Unifying Theory of Behavioral Change. Psychol Rev. 1977;84,(2):191–215.

19. Pajares F. Self-Efficacy Beliefs in Academic Settings. Rev Educ Res. 1996;66(4):543–78.

20. Liu X, Zhu C, Dong Z, Luo Y. The Relationship between Stress and Academic Self-Efficacy among Students at Elite Colleges: A Longitudinal Analysis. Behav Sci. 26 giugno 2024;14(7):537.

21. Shengyao Y, Salarzadeh Jenatabadi H, Mengshi Y, Minqin C, Xuefen L, Mustafa Z. Academic resilience, self-efficacy, and motivation: the role of parenting style. Sci Rep. 6 marzo 2024;14(1):5571.

22. Schunk DH, Pajares F. The Development of Academic Self-Efficacy. In: Development of Achievement Motivation [Internet]. Elsevier; 2002 [citato 3 ottobre 2024]. p. 15–31. Disponibile su: https://linkinghub.elsevier.com/retrieve/pii/B9780127500539500036

23. Ozsaker E, Aykut Z, Doruker NC, Koze BS, Gecit S. The relationship between the academic self-efficacy and perceived stressors among nursing students in clinical settings: a cross-sectional study. BMC Nurs. 26 febbraio 2025;24(1):216.

24. Henderson A, Twentyman M, Heel A, Lloyd B. Students' perception of the psycho-social clinical learning environment: An evaluation of placement models. Nurse Educ Today. 2006;26(7):564–71.

25. Saarikoski M, Leino-Kilpi H. The clinical learning environment and supervision by staff nurses: developing the instrument. Int J Nurs Stud. marzo 2002;39(3):259–67.

26. Gao Z, Wei X, Yang L, Cui D, Kong L, Qi L, et al. Mediating role of career self-efficacy between clinical learning environment and professional identity in nursing students. J Adv Nurs. 2022;78(4):1012–9.

27. Ibrahim AF, Abdelaziz TM, Akel DT. The relationship between undergraduate nursing students' satisfaction about clinical learning environment and their competency self-efficacy. J Nurs Educ Pract. 4 settembre 2019;9(11):92.

28. Milton-Wildey K, Kenny P, Parmenter G, Hall J. Educational preparation for clinical nursing: The satisfaction of students and new graduates from two Australian universities. Nurse Educ Today. aprile 2014;34(4):648–54.

29. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Ann Intern Med. 16 ottobre 2007;147(8):573–7.

30. Dante A, Petrucci C, Lancia L. European nursing students' academic success or failure: A post-Bologna Declaration systematic review. NURSE Educ TODAY. 2013;33(1):46–52.

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31. Palese A, Grassetti L, Mansutti I, Destrebecq A, Terzoni S, Altini P, et al. The clinical learning quality evaluation index for nursing students. Assist Inferm E Ric AIR. aprile 2017;36:41–50.

32. Bulfone G, Vellone E, Maurici M, Macale L, Alvaro R. Academic self-efficacy in Bachelor-level nursing students: Development and validation of a new instrument. J Adv Nurs. 2019;76(1):398–408.

33. Green SB. How Many Subjects Does It Take To Do A Regression Analysis. Multivar Behav Res. 1991;26(3):499–510.

34. Dante A, Fabris S, Palese A. Predictive power of individual factors and clinical learning experience on academic success: findings from a longitudinal study. Nurse Educ. 8 maggio 2015;40(3):E1–6.

35. Caponnetto V, Dante A, Masotta V, La Cerra C, Petrucci C, Alfes CM, et al. Examining nursing student academic outcomes: A forty-year systematic review and meta-analysis. NURSE Educ TODAY. 2021;100.

36. Palese A, Gonella S, Grassetti L, Mansutti I, Brugnolli A, Saiani L, et al. Multi-level analysis of national nursing students' disclosure of patient safety concerns. Med Educ. novembre 2018;52(11):1156–66.

37. Palese A, Gonella S, Brugnolli A, Mansutti I, Saiani L, Terzoni S, et al. Nursing students' interprofessional educational experiences in the clinical context: findings from an Italian cross-sectional study. BMJ Open. 20 marzo 2019;9(3):e025575.

38. La Sala R, Ruozi C, Gavagni S, Martelli M, Marletta G, Primosa F. Nursing students' perception of the quality of clinical learning: a mixed methods inquiry. Acta Bio Medica Atenei Parm. 8 luglio 2019;90(6-S):78–86.

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