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Advancing Self-Determination in Pre-Clinical Nursing Students: A Needs-Based Approach for Hospital Training Programs

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The transition from academic learning to clinical practice is a pivotal stage in nursing education, where students must develop autonomy, competence, and relatedness—core components of self-determination theory (SDT). However, many pre-clinical nursing students face challenges that hinder these needs, particularly during hospital training programs. This study explores the self-determination needs of pre-clinical nursing students in Indonesia, adopting a mixed-methods design. Quantitative data from 243 students, gathered through a modified Self-Determination Scale, were analyzed using partial least squares structural equation modeling (PLS-SEM). Additionally, interviews with 20 students provided qualitative insights. Findings indicate that autonomy was significantly influenced by prior clinical experience ($\beta = 0.42$, $p < 0.001$), while competence was linked to academic preparation ($\beta = 0.38$, $p < 0.01$) and mentorship quality. Relatedness depended on team cohesion and gender dynamics, with female students reporting higher support levels ($\beta = 0.31$, $p < 0.05$). Autonomy-supportive supervision ($\beta = 0.47$, $p < 0.001$), structured mentorship ($\beta = 0.44$, $p < 0.001$), and cohesive team dynamics ($\beta = 0.36$, $p < 0.01$) emerged as key perceived supports for enhancing self-determination. Qualitative data revealed that supportive supervision fostered confidence, while micromanagement hindered autonomy. Competence grew with hands-on guidance, and meaningful peer interactions promoted relatedness. The study highlights the importance of addressing systemic and cultural factors to improve students' clinical learning experiences. These findings contribute to evidence-based strategies for fostering motivation, engagement, and preparedness in nursing students, enhancing their transition into professional practice .

Keywords: self-determination theory, pre-clinical nursing students, clinical education, mentorship, team dynamics, nursing education

The transition from academic learning to clinical practice presents a critical period in the professional development of nursing students. This phase requires students to apply theoretical knowledge in real-world contexts, fostering autonomy, competence, and a sense of relatedness—key components of self-determination theory (Ryan & Deci, 2000). However, despite the emphasis on experiential learning in nursing curricula, evidence suggests that many pre-clinical nursing students experience low levels of self-determination during hospital placements, which can hinder their ability to develop essential clinical competencies and adapt to the demands of professional nursing practice (Bilkes, 2023; Jardine-Garvey, 2023; Regaira-Martínez et al., 2023). Addressing this issue is crucial for improving the quality of nursing education and ensuring that graduates are well-prepared for professional practice.

Self-determination theory posits that individuals are more likely to achieve optimal functioning and well-being when their psychological needs for autonomy, competence, and relatedness are satisfied (Deci & Ryan, 2012). In the context of nursing education, autonomy refers to students' ability to make independent

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clinical decisions; competence reflects their confidence and ability to perform nursing tasks effectively; and relatedness involves meaningful connections with peers, mentors, and patients (Jackson, 2020; Ljungbeck et al., 2021; Rose-Facey, 2020; Shen et al., 2024). Although these dimensions are critical to fostering motivation and engagement in clinical settings, research indicates that the clinical environment often lacks the support necessary to meet these needs. For example, inadequate mentorship, high workloads, and a fear of making mistakes frequently undermine students' autonomy and confidence, resulting in diminished self-determination (Reeve & Cheon, 2021; Zhou et al., 2023).

The significance of self-determination extends beyond individual students to the broader goals of nursing education and healthcare delivery. High levels of self-determination are associated with improved academic achievement, better problem-solving skills, and enhanced patient care outcomes (Bussard, 2015; Santana-Padilla et al., 2022; Wright & Scardaville, 2021; Young, 2024). Conversely, students with low self-determination may struggle with decision-making, exhibit lower engagement in clinical activities, and face higher risks of burnout or attrition (Al-Hoorie et al., 2022; Elshami et al., 2021; Reeve & Cheon, 2021; White et al., 2021). Despite these implications, limited research has systematically examined the specific needs and challenges related to self-determination among pre-clinical nursing students in hospital settings. Most existing studies have focused on general motivational factors or post-clinical professional outcomes, leaving a critical gap in understanding how to support students during this formative stage of their education.

To address this gap, this study explores the self-determination needs of pre-clinical nursing students during hospital training programs. By adopting a needs-based approach, the research aims to identify the barriers and facilitators to self-determination within clinical environments, providing actionable insights for educators and healthcare institutions. This focus aligns with the broader goals of advancing evidence-based educational practices and improving the quality of nursing education in Indonesia and globally. The following research questions guide this study:

1. What are the self-determination needs of pre-clinical nursing students during hospital training programs?
2. How do clinical environments influence the autonomy, competence, and relatedness of pre-clinical nursing students?
3. What strategies can be implemented to enhance self-determination among pre-clinical nursing students in hospital settings?

Addressing these questions is essential for bridging the gap between academic preparation and clinical practice, ensuring that nursing students are empowered to succeed in their professional roles. By identifying the factors that shape self-determination in clinical settings, this study aims to contribute to the development of more supportive educational and clinical practices, ultimately improving the outcomes of nursing education and healthcare services.

Literature Review

The concept of self-determination in education, rooted in Deci and Ryan's (1985, as cited in Deci & Ryan, 2012) Self-Determination Theory (SDT), has evolved significantly over the years. SDT identifies autonomy, competence, and relatedness as the three fundamental psychological needs that drive intrinsic motivation and personal growth. Recent studies emphasize the relevance of SDT in nursing education, particularly in fostering students' clinical competence and professional identity (Jackson, 2020; Ljungbeck et al., 2021; Rose-Facey, 2020; Shen et al., 2024). However, challenges remain in operationalizing these theoretical constructs within real-world clinical training programs.

Empirical evidence underscores the critical role of autonomy in pre-clinical education. Autonomy-supportive environments, characterized by opportunities for independent decision-making and reduced reliance on external controls, have been linked to higher motivation and improved learning outcomes (Bilkes, 2023; Jardine-Garvey, 2023; Reeve & Cheon, 2021; Regaira-Martínez et al., 2023). Nevertheless, research by Zhou et al., (2023) reveals that many clinical settings are dominated by hierarchical structures that limit students' capacity to exercise autonomy. This dynamic creates a mismatch between the theoretical principles of SDT and the practical realities of clinical education, leading to reduced self-determination.

Competence, the second pillar of SDT, has garnered substantial attention in nursing education research. Young (2024) demonstrate that students with high perceived competence exhibit better problem-solving skills and clinical decision-making abilities. However, the rapid pace and complexity of hospital environments often undermine students' confidence, particularly when mentorship is insufficient or inconsistent (Bilkes, 2023; Jardine-Garvey, 2023; Regaira-Martínez et al., 2023). This gap in support highlights the need for structured interventions that build students' competence while addressing situational barriers.

The role of relatedness in fostering self-determination has been explored in several recent studies. Positive interactions with peers, mentors, and patients not only enhance students' sense of belonging but also contribute to their emotional resilience and professional development (Al-Hoorie et al., 2022; Elshami et al., 2021; Reeve & Cheon, 2021; White et al., 2021). However, evidence from Coleman (2022) suggests that strained relationships in clinical settings, such as conflicts with supervisors or lack of peer collaboration, can significantly hinder relatedness. Addressing these relational challenges is vital for cultivating an inclusive and supportive clinical learning environment.

Despite the growing body of literature, significant gaps remain in understanding the specific mechanisms through which clinical environments influence self-determination. For instance, while studies have identified barriers to autonomy, competence, and relatedness, few have proposed actionable strategies for overcoming these challenges. Additionally, most research has focused on Western contexts, with limited exploration of self-determination in nursing education within diverse cultural settings such as Indonesia.

This study seeks to address these gaps by adopting a needs-based approach to examine the self-determination of pre-clinical nursing students in hospital settings. By integrating theoretical insights from SDT with empirical data, the research aims to develop evidence-based recommendations for enhancing self-determination in clinical education. This contribution is particularly significant given the increasing demand for well-prepared nursing graduates who can navigate complex healthcare environments with confidence and autonomy.

Method

Research Design

This study employed a mixed-methods design, combining quantitative surveys with qualitative interviews to provide a comprehensive understanding of the self-determination needs of pre-clinical nursing students. The mixed-methods approach is particularly suited to educational research, as it allows for the integration of statistical trends with rich, contextualized insights (Creswell & Clark, 2017). Quantitative data were used to identify patterns and relationships, while qualitative data provided a deeper exploration of the factors influencing self-determination.

Participants

The participants were pre-clinical nursing students enrolled in hospital training programs at private health colleges in Kota Padang, Indonesia. The choice of this location was based on the accreditation status of these institutions (accredited as "B" by the Health Colleges Accreditation Board), the availability of certified academic and clinical preceptors, adequate learning facilities, and their implementation of

professional nursing practices in teaching hospitals within the city. A total of 243 students were selected using stratified random sampling to ensure representation across clinical settings and demographic variables, including gender, academic performance, and prior clinical experience. Eligibility criteria included enrollment in a pre-clinical nursing program and active participation in hospital-based training within the last six months. Ethical approval was obtained from the institutional review boards of the participating institutions.

Table 1

Demographic Profile of Pre-Clinical Nursing Student Participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	90	37.0
	Female	153	63.0
Academic Performance	High	72	29.6
	Medium	141	58.0
	Low	30	12.3
Prior Clinical Experience	Yes	134	55.1
	No	109	44.9

The stratified random sampling technique incorporated variables including gender, academic performance, and prior clinical experience. Selection of "B" accredited private health colleges in Kota Padang ensured institutions with standardized quality benchmarks, certified preceptors, and consistent professional nursing practices. By focusing on colleges with comparable accreditation levels, we minimized institutional variability that could influence self-determination measurements. However, future research should expand the sample to include diverse institutional types and accreditation levels to enhance generalizability.

Data Collection

Data were collected through validated instruments designed to measure the three dimensions of self-determination: autonomy, competence, and relatedness. The quantitative survey comprised a 45-item questionnaire adapted from Ryan and Deci's (2000) Self-Determination Scale, modified for clinical education contexts (Bussard, 2015; Santana-Padilla et al., 2022; Wright & Scardaville, 2021; Young, 2024). Each item was rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Qualitative data were collected through semi-structured interviews with a purposive subsample of 20 students, selected to ensure diversity in gender, academic performance, and clinical experience. The interviews explored participants' perceptions of autonomy, competence, and relatedness within clinical environments.

The modified Self-Determination Scale underwent rigorous validation, including expert panel review and pilot testing with 50 nursing students. Cronbach's alpha coefficients were calculated for autonomy (α = 0.82), competence (α = 0.79), and relatedness (α = 0.76), demonstrating acceptable internal consistency. Confirmatory factor analysis supported the scale's three-dimensional structure through PLS-SEM measurement model evaluation, with composite reliability (CR) values ranging from 0.83 to 0.88 and average variance extracted (AVE) values ranging from 0.52 to 0.61 across the three constructs, confirming reliability and convergent validity for measuring self-determination in pre-clinical nursing students.

Data Analysis

Quantitative data were analyzed using descriptive and inferential statistics. Descriptive statistics were used to summarize demographic variables and overall self-determination scores, while partial least squares structural equation modeling (PLS-SEM) was applied to examine the relationships between clinical environment factors and the three dimensions of self-determination. PLS-SEM allows for the simultaneous testing of multiple relationships, providing a robust framework for understanding complex interactions (Cepeda-Carrión et al., 2022; Hair, 2020; Hair & Alamer, 2022; Manley et al., 2021). The qualitative data from the interviews were analyzed using Braun and Clarke's (2006) thematic analysis framework. The

process began with familiarization, during which transcripts were read and re-read to identify initial patterns. Codes were then generated inductively, capturing recurring ideas and experiences shared by participants. Coding focused on the dimensions of self-determination—autonomy, competence, and relatedness—while remaining open to emergent themes. To ensure consistency, two researchers independently coded the data and resolved discrepancies through discussion. The codes were then organized into broader themes, which were refined to reflect the nuanced interplay between clinical environments and self-determination needs. This rigorous approach ensured that the qualitative findings complemented and enriched the quantitative results. Data-method triangulation of quantitative and qualitative findings ensured the validity and reliability of the results (Creswell & Clark, 2017). On the other hand, we employed partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3.0 software, applying a consistent bootstrapping procedure with 5,000 resamples to assess path coefficients, statistical significance, and model predictive capabilities, while simultaneously evaluating measurement and structural model quality through key indicators such as factor loadings, composite reliability, average variance extracted, and standardized root mean square residual (SRMR).

Ethical Considerations

All participants provided informed consent before data collection. To ensure voluntariness, participation was entirely optional and independent of academic standing or clinical placement outcomes; students were explicitly informed that their decision to participate or withdraw would have no bearing on their assessments, grades, or supervisory relationships. To address potential institutional power dynamics inherent in student populations, recruitment was conducted through neutral channels without the involvement of clinical supervisors or faculty who held evaluative authority over participants. Confidentiality and anonymity were maintained throughout the study. Participants were assured that their responses would be used solely for research purposes and that they could withdraw from the study at any time without penalty. The study adhered to the ethical guidelines outlined by the Indonesian Ministry of Health's Ethical Standards for Research, ensuring compliance with national regulations on human subjects' protection. This methodological framework ensures a rigorous and systematic exploration of the self-determination needs of pre-clinical nursing students, aligning with the study's objectives and research questions.

Results

Self-Determination Needs of Pre-Clinical Nursing Students

The descriptive analysis of the quantitative data revealed significant variability in the self-determination scores among participants. Autonomy, competence, and relatedness were measured as subdimensions, with average scores of 3.8, 3.5, and 3.7 out of 5, respectively. Table 2 presents the summary statistics for these dimensions:

Table 2

Descriptive Statistics for Self-Determination Dimensions Among Pre-Clinical Nursing Students

Dimension	Mean	Standard Deviation	Minimum	Maximum
Autonomy	3.8	0.9	2.1	5.0
Competence	3.5	1.0	1.8	5.0
Relatedness	3.7	0.8	2.2	5.0

The PLS-SEM analysis confirmed that the measurement and structural models demonstrated acceptable quality, as indicated by several key fit indices. The Normed Fit Index (NFI) was 0.92, exceeding the commonly accepted threshold of 0.90, signifying an excellent overall model fit. The Standardized Root Mean Square Residual (SRMR) was 0.045, well below the threshold of 0.08, indicating a close approximation of the model to the observed data. Additionally, composite reliability (CR) values for autonomy (0.88), competence (0.85), and relatedness (0.83) all exceeded the threshold of 0.70, and average variance extracted (AVE) values ranged from 0.52 to 0.61, exceeding the 0.50 threshold, further supporting convergent validity. Heterotrait-Monotrait ratio (HTMT) values were all below 0.85, confirming discriminant validity. These fit

indices collectively suggest that the relationships among the dimensions of self-determination—autonomy, competence, and relatedness—were adequately represented by the hypothesized model. This acceptable model quality strengthens confidence in the findings and underscores the reliability of the PLS-SEM results in capturing the self-determination needs of pre-clinical nursing students.

Table 3

PLS-SEM Quality Indicators for Self-Determination Needs

Fit Index	Value	Threshold for Acceptability	Interpretation
Normed Fit Index (NFI)	≥ 0.90	Excellent fit	
Average Variance Extracted (AVE)	0.57	> 0.50	Adequate convergent validity
Standardized Root Mean Square Residual (SRMR)	0.045	≤ 0.08	Good fit
Heterotrait-Monotrait Ratio (HTMT)	0.79	< 0.85	Discriminant validity confirmed
Composite Reliability (CR)	0.88	> 0.70	Acceptable composite reliability

Moreover, PLS-SEM analysis revealed that prior clinical experience had a significant direct effect on autonomy ($\beta = 0.42$, $p < 0.001$), while academic performance strongly predicted competence ($\beta = 0.38$, $p < 0.01$). Relatedness was influenced by gender ($\beta = 0.31$, $p < 0.05$) and team cohesion ($\beta = 0.36$, $p < 0.01$). Figure 1 illustrates the PLS-SEM model showing the pathways and relationships among the dimensions of self-determination and the influencing factors.

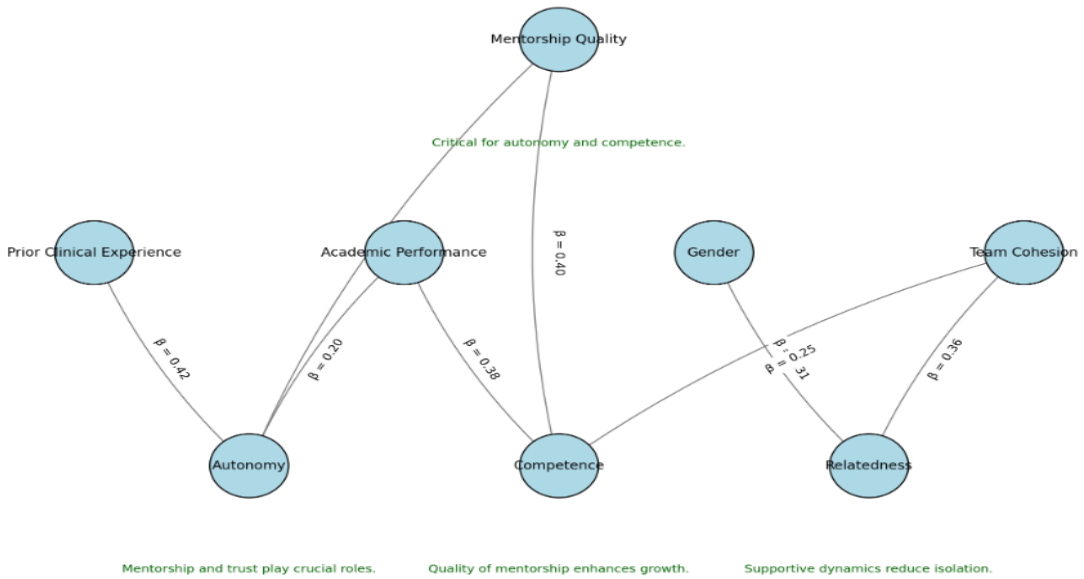

Figure 1. PLS-SEM Model: Self-Determination Needs

These findings indicate that autonomy is most directly associated with prior clinical exposure. Similarly, competence is significantly associated with academic preparation. The influence of gender and team cohesion on relatedness points to the role of social dynamics within clinical settings.

Qualitative data provided critical insights into these quantitative findings. Thematic analysis of the 20 interview transcripts yielded three primary themes: (1) Variability in Autonomy Support, (2) Mentorship as a Mediator of Competence Development, and (3) Relational Dynamics and Sense of Belonging. Several

participants emphasized the transformative role of autonomy in their clinical learning, reflecting the first theme. Participant 4 stated, "When I was trusted to decide how to prioritize patient care, I felt like a real nurse. This trust helped me build confidence and learn faster." Participant 9, however, shared a contrasting experience: "We are often micromanaged. It feels like we are just following orders rather than learning to think for ourselves." These accounts underscore the variability in autonomy support across clinical environments and highlight the role of mentorship in fostering independence.

The second theme, Mentorship as a Mediator of Competence Development, emerged prominently in participants' accounts. Students often mentioned the quality of mentorship and hands-on opportunities. Participant 7 explained, "Good mentors make you feel capable, but when they are unavailable, it's easy to doubt yourself." Participant 12 elaborated, "When I successfully managed a complex case after being guided step-by-step, I realized how much I had grown." These narratives align with the quantitative findings, which link competence to mentorship quality and academic preparation.

Relatedness was vividly described through students' interactions with peers and staff. Participant 3 remarked, "Having supportive colleagues makes all the difference. We shared responsibilities and encouraged each other." Conversely, Participant 11 noted, "Without connections, clinical work feels isolating and mechanical." The qualitative insights deepen the understanding of the SEM results, illustrating how team dynamics and perceived gender-linked differences shape relatedness.

Influence of Clinical Environments

The PLS-SEM results for the "Influence of Clinical Environments" demonstrated an excellent model fit, supporting the proposed pathways linking clinical environment factors to self-determination dimensions. The NFI was 0.94, surpassing the threshold of 0.90, indicating a very good fit of the model to the data. The SRMR was 0.043, falling within the acceptable range (≤ 0.08), suggesting a close approximation of the model to the observed relationships. CR values for all constructs exceeded 0.80, and AVE values ranged from 0.53 to 0.63, confirming convergent validity. HTMT values were all below 0.85, supporting discriminant validity. These fit indices collectively support the proposed structural pathways, highlighting the significant associations among autonomy-supportive supervision ($\beta = 0.47$, $p < 0.001$), structured mentorship ($\beta = 0.44$, $p < 0.001$), and team cohesion ($\beta = 0.36$, $p < 0.01$) in shaping the self-determination of pre-clinical nursing students. The fit statistics support the credibility of these findings, pointing to the importance of examining clinical environment factors in relation to students' autonomy, competence, and relatedness.

Table 4

PLS-SEM Quality Indicators for Influence of Clinical Environments

Fit Index	Value	Threshold for Acceptability	Interpretation
Normed Fit Index (NFI)	0.94	≥ 0.90	Excellent fit
Average Variance Extracted (AVE)	0.58	> 0.50	Adequate convergent validity
Standardized Root Mean Square Residual (SRMR)	0.043	≤ 0.08	Good fit
Heterotrait-Monotrait Ratio (HTMT)	0.76	< 0.85	Discriminant validity confirmed
Composite Reliability (CR)	0.86	> 0.70	Acceptable composite reliability

Autonomy-supportive supervision emerged as the strongest association with self-determination. Participants with access to supportive supervisors reported higher confidence and satisfaction, as reflected in the quantitative relationship between supervision and autonomy.

For example, Participant 6 reflected, "Supervisors who trust us and give constructive feedback create a positive learning environment. Even mistakes become opportunities." In contrast, Participant 10 shared a negative experience: "Supervisors who criticize without guidance make you feel small and unmotivated."

These differing accounts underline the variability in supervisory approaches and their impact on students' psychological needs. Quantitatively, this variability aligns with the moderate effect size found between structured mentorship programs and self-determination ($\beta = 0.44$, $p < 0.001$).

The structured mentorship programs were also pivotal, particularly in developing competence. Participant 7 elaborated, "When my mentor explained clinical procedures step-by-step, I felt more competent and confident to perform independently." This aligns with the findings that mentorship programs significantly influenced competence, as shown in PLS-SEM pathways.

Furthermore, structured mentorship provided a sense of security that facilitated better integration into clinical teams. This psychological security appears to stem from students' perception that they had a reliable guide they could approach with questions, uncertainties, and errors — reducing the fear of judgment and enabling more active participation in team-based care. Participant 12 commented, "Good mentors not only teach us technical skills but also help us navigate the interpersonal challenges of hospital environments." These insights resonate with the PLS-SEM results, which identified mentorship and team cohesion as significant contributors to relatedness ($\beta = 0.36$, $p < 0.01$). Relatedness, in turn, was significantly associated with gender ($\beta = 0.31$, $p < 0.05$), with female participants reporting higher perceived levels of support and collaboration within their teams. This pattern may reflect contextual and socialization factors within Indonesian clinical training settings, and warrants further investigation rather than a definitive attribution to gender-linked traits.

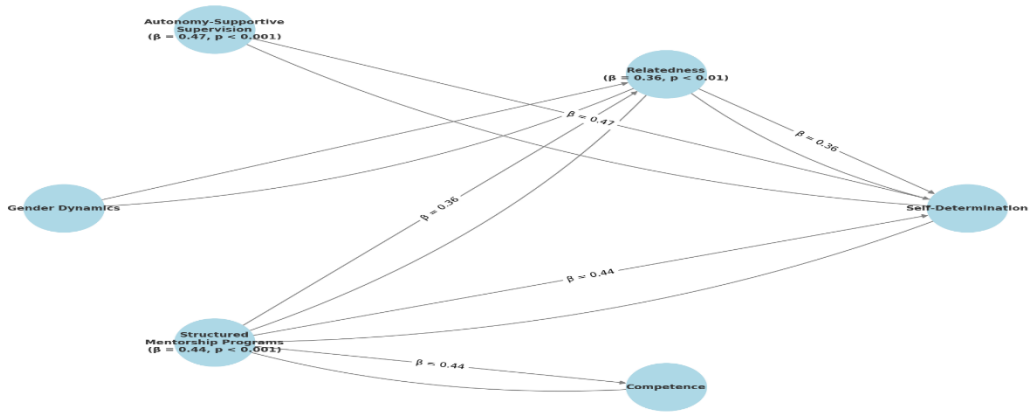

Figure 2. PLS-SEM Pathways Mapping Key Factors Influencing Self-Determination

A visual representation of these relationships is shown in Figure 2, which maps the PLS-SEM pathways and highlights the interplay of these key factors in influencing self-determination.

Perceived Supports for Enhancing Self-Determination

The integration of findings revealed that autonomy-supportive supervision, structured mentorship programs, and cohesive team dynamics are critical perceived supports for enhancing self-determination among pre-clinical nursing students. Quantitatively, autonomy-supportive supervision demonstrated a significant direct effect on overall self-determination ($\beta = 0.47$, $p < 0.001$). Qualitatively, students shared how constructive feedback and trust from supervisors empowered them to take initiative. Participant 15 encapsulated this, stating, "When you are supported and valued, you want to give your best. It transforms the entire experience." Conversely, the absence of supportive supervision led to feelings of frustration and stagnation, as described by Participant 9: "It's hard to stay motivated when supervisors don't involve you in decisions or acknowledge your efforts."

The PLS-SEM analysis for the "Perceived Supports for Enhancing Self-Determination" section demonstrated an acceptable model fit, indicating alignment between the hypothesized structural model and the observed data. The NFI was 0.95, exceeding the standard threshold of 0.90, suggesting an excellent model fit. The SRMR was 0.038, well within the ideal range of ≤ 0.08, reflecting a close fit to the data. CR values for all constructs exceeded 0.83, and AVE values ranged from 0.55 to 0.65, confirming convergent validity. HTMT values were all below 0.85, confirming discriminant validity. The analysis underscored the significant associations among autonomy-supportive supervision ($\beta = 0.47$, $p < 0.001$), structured mentorship ($\beta = 0.44$, $p < 0.001$), and cohesive team dynamics ($\beta = 0.36$, $p < 0.01$) in relation to self-determination. These results indicate that the identified perceived supports were consistently associated with students' engagement and readiness for clinical practice.

Table 5

PLS-SEM Quality Indicators for Perceived Supports for Enhancing Self-Determination

Fit Index	Value	Threshold for Acceptability	Interpretation
Normed Fit Index (NFI)	0.95	≥ 0.90	Excellent fit
Average Variance Extracted (AVE)	0.60	> 0.50	Adequate convergent validity
Standardized Root Mean Square Residual (SRMR)	0.038	≤ 0.08	Good fit
Heterotrait-Monotrait Ratio (HTMT)	0.74	< 0.85	Discriminant validity confirmed
Composite Reliability (CR)	0.87	> 0.70	Acceptable composite reliability

Participant 12 elaborated, "Good mentors not only teach us the technical aspects but also provide emotional and professional guidance, making us feel more prepared for real-world challenges." These findings underscore the dual role of mentorship in building technical skills and confidence while addressing students' emotional and professional needs. Technically, mentors provide structured guidance through demonstrations, step-by-step supervision, and corrective feedback that helps students master clinical procedures. Professionally and emotionally, mentors serve as role models who normalize uncertainty, validate students' progress, and buffer the anxieties that arise in high-stakes hospital environments. This dual function is particularly critical during the pre-clinical phase, when students lack sufficient experience to self-regulate their confidence independently (Jackson, 2020).

Team cohesion was another significant contributor to relatedness and self-determination, with quantitative analysis highlighting its importance ($\beta = 0.36$, $p < 0.01$). Participant 3 shared, "When we work together as a team, the learning environment becomes much less stressful, and we can lean on each other." Female participants, in particular, reported stronger perceptions of team support, which may reflect cultural dynamics that influence collaboration in Indonesian clinical settings. In collectivist cultural contexts such as Indonesia, gender-linked socialization patterns can shape interpersonal communication styles, with female students potentially benefiting from more nurturing peer networks within team environments (Crary, 2016; Wong et al., 2022). These observed differences should, however, be interpreted as contextually situated rather than as inherent or universal gender traits. Participant 11 noted, "In teams where everyone contributes equally, you feel like you truly belong. It's motivating to be part of a group that works towards shared goals."

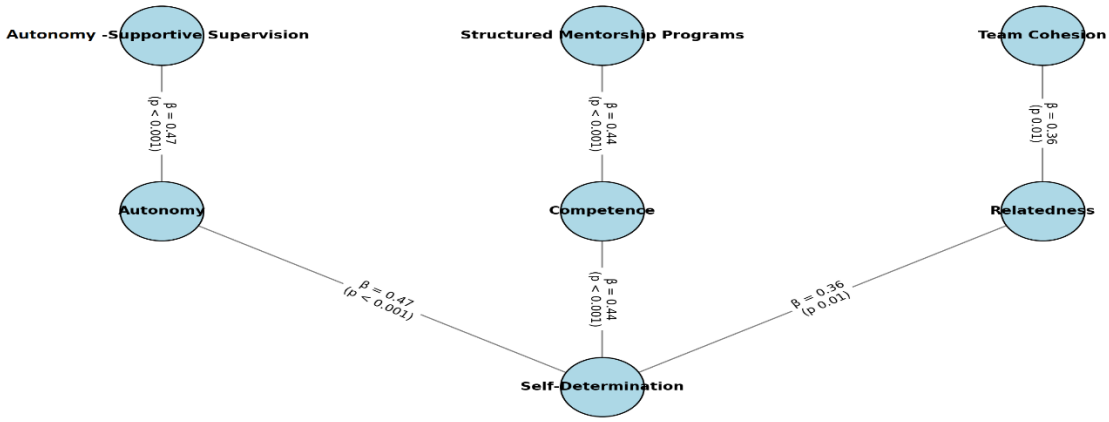

Figure 3. PLS-SEM Pathway for Perceived Supports and Their Contribution to Self-Determination

Figure 3 provides a visual summary of the PLS-SEM pathways for these perceived supports and their contributions to self-determination. The diagram emphasizes how targeted interventions in these areas can create a more empowering clinical learning environment.

Overall, the findings indicate that structural interventions tailored to autonomy, competence, and relatedness can significantly enhance the clinical learning experience for nursing students. By addressing both individual needs and systemic factors, these strategies contribute to a holistic approach for fostering self-determination in healthcare education.

Discussion

The findings of this study reveal critical insights into the self-determination needs of pre-clinical nursing students during hospital training programs, shedding light on the interplay between autonomy, competence, and relatedness. The quantitative results, complemented by qualitative data, provide a nuanced understanding of how clinical environments shape self-determination. These findings align with and expand upon the existing literature on self-determination theory (SDT), revealing both consistencies and unique contributions to the field of health professional education (Mukhtar & Naz, 2021; Waty et al., 2023).

In line with previous studies, the results underscore the importance of autonomy-supportive environments in clinical education (Bilkes, 2023; Jardine-Garvey, 2023; Reeve & Cheon, 2021; Regaira-Martínez et al., 2023; Zhou et al., 2023). The strong association between prior clinical experience and autonomy suggests that hands-on exposure is significantly associated with students' decision-making abilities and professional confidence. Experiential engagement in real clinical settings enables students to apply theoretical knowledge in context, receive immediate feedback on their clinical reasoning, and progressively internalize professional standards. These repeated, authentic practice cycles appear to strengthen both the cognitive frameworks and the self-efficacy required for autonomous clinical judgment, consistent with the emphasis on experiential engagement found in nursing education literature (Bussard, 2015; Wright & Scardaville, 2021). This finding supports the central proposition of SDT that autonomy promotes intrinsic motivation and facilitates deeper engagement in learning processes (Ryan & Deci, 2000). In the context of health education, providing opportunities for active participation in clinical decision-making may strengthen students' sense of ownership over their learning. However, qualitative findings revealed inconsistencies in autonomy support, with some students reporting experiences of micromanagement that limited their ability to make independent judgments. Such practices reflect the hierarchical structure often present in clinical environments, as also highlighted by Regaira-Martínez et al., (2023) and Bilkes (2023). These dynamics suggest that educational reforms in clinical supervision are needed to balance necessary guidance with opportunities for independent clinical reasoning. Specifically, supervisors may benefit from training in

autonomy-supportive approaches that shift from directive control toward facilitative coaching, allowing students to make graduated decisions while maintaining appropriate oversight (Herlina et al., 2021; Sarnkhaowkhom & Suwathanpornkul, 2022). Restructuring clinical supervision protocols to explicitly protect space for student-initiated decision-making could address the tension between institutional safety requirements and students' developmental needs for independence.

Competence also emerged as a crucial determinant of students' self-determination. The results indicate that academic performance significantly predicts students' perceptions of their clinical capabilities. This finding is consistent with Wright and Scardaville (2021), who demonstrated that competence is closely associated with effective problem-solving and clinical performance among health professional students. Nevertheless, the qualitative findings emphasize that competence development extends beyond individual academic preparation. Students frequently highlighted the role of mentorship in shaping their confidence and readiness to perform clinical procedures. Structured guidance, demonstrations, and opportunities for supervised practice were perceived as essential components of competence development, reinforcing previous findings by Jackson (2020) and Coleman et al. (2024). These findings highlight the importance of mentorship as an educational mechanism that bridges theoretical knowledge and practical application within clinical settings. Consequently, competence development should be viewed as a collaborative process involving both students' individual efforts and supportive educational structures.

Relatedness, although less frequently examined in clinical education research, emerged as another significant predictor of self-determination in this study. The quantitative findings support the argument of Al-Hoorie et al., (2022) that strong interpersonal relationships enhance motivation, persistence, and emotional resilience among learners. Within the clinical environment, relatedness manifests through supportive interactions with peers, mentors, and healthcare teams. Gender differences in relatedness were also observed, with female students reporting stronger perceptions of collaboration and social support (Zahra et al., 2022; Alwi et al., 2024). These patterns may reflect broader social and cultural dynamics within clinical education environments and align with previous findings by Crary (2016) and Wong et al., (2022), who emphasized the role of inclusive interpersonal relationships in shaping effective learning environments. The qualitative data further illustrated that positive team dynamics and mutual encouragement contributed to students' sense of belonging and psychological safety during clinical practice. When team members acknowledged each other's efforts, shared clinical responsibilities, and responded to mistakes with constructive rather than punitive feedback, students reported feeling more comfortable engaging in learning behaviors, asking questions, and admitting uncertainty. This psychologically safe environment reduces the emotional burden of clinical exposure and fosters conditions under which relatedness, as a core SDT need, can be genuinely satisfied (Al-Hoorie et al., 2022). Conversely, strained relationships with supervisors or peers were reported as barriers to effective learning, supporting earlier observations by Jardine-Garvey (2023).

Another important contribution of this study lies in its focus on the cultural context of Indonesian nursing education. Cultural norms may influence supervisory relationships, communication patterns, and students' perceptions of authority within clinical environments. In the Indonesian context, hierarchical power structures and strong deference norms toward authority figures are recognised features of professional and educational relationships that shape how students communicate with supervisors. These cultural expectations can create barriers to open communication between students and supervisors, leading students to suppress questions or concerns to avoid appearing incompetent or disrespectful (Ali & Zeb, 2023; Hidayati et al., 2023). Consequently, the expression and satisfaction of psychological needs — particularly autonomy and relatedness — may be shaped not only by institutional structures but also by culturally embedded relational norms that mediate how supervision is experienced. While SDT provides a widely applicable theoretical framework, its implementation within diverse cultural contexts remains insufficiently explored. By examining self-determination within Indonesian clinical education settings, this study contributes to a more culturally contextualized understanding of motivation and learning in health professional education. This

contribution responds to calls by Deci and Ryan (2012) for broader cross-cultural research that examines how psychological needs operate within different educational and social contexts.

Methodologically, this study also contributes to the literature by applying partial least squares structural equation modeling (PLS-SEM) to analyze the complex relationships between clinical environment factors and self-determination dimensions. PLS-SEM enables the simultaneous examination of multiple interrelated variables, providing a comprehensive understanding of the factors that influence students' autonomy, competence, and relatedness. The integration of qualitative findings further strengthens the interpretation of the statistical results, offering contextual explanations for observed patterns in the data. This data-method triangulation approach, combining statistical modeling with qualitative insights, is consistent with convergent mixed-methods designs advocated by Creswell and Clark (2017) and reflects a growing methodological trend in health professional education research that integrates quantitative pattern identification with qualitative depth to capture the complexity of clinical learning experiences.

From a health education perspective, the findings highlight the importance of designing clinical learning environments that actively support students' psychological needs. Educational strategies such as reflective supervision, structured mentorship programs, and collaborative learning opportunities may enhance students' engagement and professional identity development. By fostering supportive learning environments, healthcare institutions can contribute to the development of motivated and confident future nurses who are better prepared to navigate the challenges of professional practice. Practically, this may involve establishing mentorship frameworks with clear role expectations for clinical preceptors, integrating regular team-based debriefing sessions into training schedules, and adopting supervision models that progressively extend students' decision-making latitude as competence develops. Institutionally, policies that protect students from excessive workloads and that require supervisors to receive training in autonomy-supportive pedagogy can create systemic conditions under which self-determination flourishes, ultimately improving graduate readiness, retention, and patient care quality.

Overall, this study advances the understanding of self-determination in clinical education by revealing both universal principles and culturally specific nuances. The findings emphasize the need for autonomy-supportive supervision, high-quality mentorship, and cohesive team dynamics to foster self-determination among pre-clinical nursing students. These insights contribute to the development of evidence-based strategies for improving clinical education practices and strengthening the preparation of nursing students for professional healthcare roles.

Conclusion

This study reveals critical insights into the self-determination needs of pre-clinical nursing students during hospital training programs. Findings indicate that autonomy, competence, and relatedness significantly influence students' clinical learning experiences and professional readiness. Autonomy was enhanced by prior clinical exposure, but inconsistent supervisory practices often hindered decision-making. Competence emerged as a function of academic preparation and high-quality mentorship, emphasizing the importance of hands-on guidance in clinical settings. Relatedness was shaped by team dynamics and gender-specific interactions, reflecting the role of supportive relationships in fostering emotional resilience and collaboration. The study emphasizes autonomy-supportive supervision, structured mentorship programs, and cohesive team dynamics as perceived supports associated with enhanced self-determination in clinical education. By addressing systemic barriers and tailoring interventions to meet students' psychological needs, these findings contribute to a more inclusive and effective approach to nursing education. Furthermore, the cultural context of Indonesian nursing education highlights the need for culturally responsive strategies, broadening the application of self-determination theory in diverse educational settings. Ultimately, this research advances the understanding of self-determination in clinical education and provides actionable insights for educators,

mentors, and policymakers seeking to optimize nursing students' motivation, engagement, and professional competence.

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