

The Reflection–Performance Gap in Nursing Education: Examining the Role of Self-Regulated Learning in the Relationship Between Learner-Centered Debriefing and Clinical Performance

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Abstract

Learner-centered debriefing and self-regulated learning are widely recognized as important contributors to nursing education, yet their combined influence on clinical performance remains unclear. This mixed-methods study examined the role of self-regulated learning in the relationship between learner-centered debriefing and clinical performance among nursing students in Mindanao, Philippines. Using an explanatory sequential design, quantitative data were collected from 197 Level 3 nursing students through validated questionnaires on learner-centered debriefing and self-regulated learning, while clinical performance ratings were obtained from clinical instructors. Qualitative data were subsequently collected through interviews with students and clinical instructors to explain the quantitative findings. Quantitative analyses revealed very high levels of learner-centered debriefing, self-regulated learning, and clinical performance. Learner-centered debriefing and self-regulated learning were positively associated with clinical performance, and learner-centered debriefing demonstrated a strong positive relationship with self-regulated learning. However, self-regulated learning did not significantly mediate the relationship between learner-centered debriefing and clinical performance. The study identified a reflection–performance gap in nursing education: learner-centered debriefing promoted self-regulated learning, but reflective learning did not automatically translate into improved clinical performance. Qualitative findings revealed that clinical unfamiliarity, fear of mistakes, and competing patient-care demands frequently constrained students' ability to transform reflection into effective clinical action. Self-regulation remained largely instructor-guided, with students relying on instructor feedback for goal setting, self-monitoring, and help-seeking. Overall, the findings suggest that clinical performance is influenced not only by reflective learning processes but also by technical preparedness, psychological safety, and the realities of the clinical environment.

Keywords: Learner-Centered Debriefing, Nursing Education, Self-Regulated Learning, Mixed-Methods Study, Clinical Performance.

1. Introduction

Clinical performance is a fundamental outcome of nursing education because it reflects students' ability to provide safe, ethical, and competent patient care. Beyond academic achievement, clinical performance encompasses the application of nursing knowledge, clinical judgment, communication skills, and professional behaviors in complex healthcare environments. Global healthcare organizations emphasize clinical competence and patient safety as essential indicators of readiness for professional practice (World Health Organization [WHO], 2021). In the Philippines, the Commission on Higher Education (CHED, 2017) and the Professional Regulation Commission (PRC, 2003) require nursing programs to ensure that graduates demonstrate competence across cognitive, psycho motor, and affective domains. Despite these standards, nursing educators continue to face challenges in helping students effectively translate classroom learning and reflective experiences into high-quality clinical performance.

Learner-centered debriefing has emerged as a promising instructional strategy for enhancing clinical learning. Grounded in experiential learning theory, debriefing provides opportunities for students to actively reflect on clinical experiences, analyze their decisions, and identify areas for improvement (Kolb, 1984). Contemporary debriefing standards emphasize learner agency, reflective engagement, and collaborative dialogue, shifting the focus from instructor-led feedback toward active learner participation (INACSL Standards Committee, 2023). Evidence suggests that learner-centered debriefing enhances critical thinking, clinical reasoning, reflective practice, and professional growth among nursing

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students (Duff et al., 2024). Learner agency encourages students to assume responsibility for their learning, while collaborative dialogue fosters communication, problem -solving, and a deeper understanding of clinical decision-making processes (Gupta et al., 2024).

However, reflection alone may not guarantee improved clinical performance. The ability to transform reflective insights into effective clinical action requires learners to actively regulate their learning processes. Self -regulated learning (SRL) refers to the cyclical process through which learners plan, monitor, evaluate, and adapt their behaviors to achieve learning goals (Zimmerman, 2002). In nursing education, SRL involves metacognitive regulation, effort regulation, and help-seeking behaviors that enable students to manage complex clinical situations and respond effectively to learning challenges (Tinajero et al., 2024). Studies have consistently associated self -regulated learning with improved academic achievement, learner autonomy, and clinical reasoning skills (Arianpoor et al., 2024; Gupta et al., 2024; Tinajero et al., 2024). Help-seeking behaviors, in particular, contribute to patient safety by encouraging students to seek guidance when faced with uncertainty or unfamiliar clinical situations.

The relationship among learner-centered debriefing, self-regulated learning, and clinical performance can be understood through three complementary theoretical perspectives. Kolb's Experiential Learning Theory (1984) posits that learning occurs through the transformation of experience into knowledge through reflective processes. Within this framework, learner-centered debriefing enables students to examine and reinterpret clinical experiences. Zimmerman's Self -Regulated Learning Theory (2002) explains how learners use metacognitive strategies, effort regulation, and help-seeking behaviors to translate reflection into adaptive learning actions. Tanner's Clinical Judgment Model (2006) further suggests that effective clinical performance depends on a nurse's ability to notice, interpret, respond to, and reflect upon patient situations. Collectively, these theories imply that learner-centered debriefing may enhance clinical performance by fostering self-regulated learning processes.

Although previous studies have independently established the positive effects of learner-centered debriefing and self-regulated learning in nursing education, important gaps remain in the literature. Existing research has primarily examined these constructs separately, placing greater emphasis on outcomes such as learner satisfaction, reflective capacity, perceived preparedness, and clinical reasoning than on objective measures of clinical performance (Duff et al., 2024; Gupta et al., 2024). Furthermore, few studies have investigated whether self-regulated learning is an underlying mechanism by which learner-centered debriefing influences clinical performance. The limited use of mixed-methods approaches also restricts understanding of the contextual factors that facilitate or hinder the translation of reflective learning into clinical action (Flores et al., 2023). Consequently, there remains an empirical and methodological gap regarding how reflective instructional practices contribute to actual clinical performance outcomes among nursing students, particularly within the Philippine context. This gap reflects a broader reflection–performance gap in nursing education, wherein reflective learning experiences and enhanced self-regulation do not necessarily result in improved clinical performance.

Therefore, this study seeks to examine the role of self-regulated learning in the relationship between learner-centered debriefing and clinical performance among nursing students in nursing education, using an explanatory sequential mixed-methods design. Specifically, the study seeks to answer the following questions: (1) What is the level of learner-centered debriefing experienced by nursing students in terms of learner agency, reflective engagement, and collaborative dialogue? (2) What is the level of self-regulated learning among nursing students in terms of metacognitive regulation, effort regulation, and help-seeking behaviors? (3) What is the level of clinical performance among nursing students in terms of clinical judgment, clinical management, communication, and professional growth? (4) Is there a significant relationship between learner-centered debriefing and clinical performance among nursing students? (5) Is there a significant relationship between self-regulated learning and clinical performance among nursing students? (6) To what extent do learner-centered debriefing and self-regulated learning significantly predict clinical performance among nursing students? (7) Does self-regulated learning significantly mediate the relationship between learner-centered debriefing and clinical performance among nursing students? and (8) How do nursing students describe the factors that explain the reflection–performance gap observed in the quantitative findings?

The findings of this study may contribute to nursing education theory, research, and practice. For nursing educators, the results may provide evidence-based insights to inform the design of debriefing strategies that effectively support students' self-regulatory processes and clinical competence. For nursing program administrators and curriculum developers, the findings may inform policies and educational interventions that strengthen clinical instruction and bridge the gap between reflection and performance. For nursing students, the study may enhance awareness of the role of self -

regulated learning in optimizing clinical experiences and improving professional competence. Finally, this study may contribute to the growing body of nursing education literature by advancing understanding of the mechanisms linking reflective learning processes to clinical performance and identifying contextual factors that influence this relationship.

2. Research Method

Research Design. This study employed an explanatory sequential mixed methods design. In this design, quantitative data collection and analysis were conducted during the first phase to examine the predictive relationships among learner-centered debriefing (LCD), self-regulated learning (SRL), and clinical performance (CP). The qualitative phase was subsequently conducted to explain and deepen understanding of the quantitative findings by exploring participants' experiences related to debriefing practices, regulatory processes, and clinical performance development. This design was appropriate because it examined both the statistical relationships among the variables and the processes underlying those relationships. The quantitative strand addressed the study's relationship, prediction, and mediation questions, while the qualitative strand provided contextual and experiential explanations for the statistical findings.

Setting. The study was conducted at a private university in Cagayan de Oro City among Level 3 nursing students. This institution was selected because it featured a structured undergraduate nursing program with established clinical training and standardized evaluation processes. These components made the setting ideal for examining the relationships between teaching methods, learning processes, and clinical performance. As a recognized higher education provider, the university emphasized academic excellence, research, and holistic student development. The College of Nursing offered a competency-based program designed to prepare students for professional practice. This preparation involved a combination of classroom instruction and hands-on practice in specialized nursing skills laboratories. Additionally, students gained extensive clinical experience through rotations in various affiliated hospitals. These facilities provided realistic environments in which patient safety behaviors and professional judgment could be observed and evaluated. This structured clinical framework ensured that the data collected reflected the actual demands of professional nursing practice.

Respondents. A total of 197 Level 3 nursing students from the 2025-2026 school year participated in the quantitative phase of this study. To be included in the study, respondents had to be officially enrolled third-year students with active ward assignments and experience in post-clinical debriefing sessions. Level 3 students were specifically chosen because their frequent exposure to patient care enabled direct evaluation of clinical judgment and professional behavior, a strategy consistent with recent assessments of clinical competence and professional comportment among senior nursing students in the Philippines (Villanueva & Cruz, 2024). For the quantitative phase, student surveys on debriefing and self-regulation were gathered on campus during breaks, while clinical performance ratings were provided by their assigned clinical instructors. This allowed the researchers to match the students' self-reports with their instructors' actual observations in the hospital. For the qualitative phase, purposive sampling was used to select participants based on the quantitative results. These students were chosen to represent different performance profiles, including those with high and low levels of clinical performance and self-regulation. This approach captured a wide range of clinical experiences and challenges.

The researchers used consecutive sampling to select participants who met the inclusion criteria as they became available during their scheduled rotations. This sampling method was essential because students were organized into specific blocks and assigned to different hospital wards on a rotating schedule. By following this method, the researchers could collect data from each student group as they completed their specific clinical duties.

Instruments. Four instruments were used in this study. The Learner-Centered Debriefing (LCD) Questionnaire, adapted from Reed's (2012) Debriefing Experience Scale, measured students' perceptions of debriefing quality regarding learner agency, reflective engagement, and collaborative dialogue. The instrument consisted of 19 items rated on a four-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree), with higher scores indicating a more learner-centered debriefing experience.

The Self-Regulated Learning (SRL) Questionnaire, adapted from the Motivated Strategies for Learning Questionnaire developed by Pintrich et al. (1991), assessed students' metacognitive regulation, effort regulation, and help-seeking behaviors. It contained 20 items using the same four-point Likert scale, with higher scores reflecting stronger self-regulated learning abilities.

The Clinical Performance (CP) Evaluation Rubric was completed by clinical instructors to assess students' observable clinical competence in four domains: clinical judgment and patient safety, management and records, communication and collaboration, and professionalism and reflexive growth. The rubric consisted of 30 indicators rated on a 4-point scale, with higher scores indicating better clinical performance.

Interview Guide. A Semi-Structured Interview Guide and an Observation Checklist were used to explore students' experiences with learner-centered debriefing and self-regulated learning, and to explain the quantitative findings. The observation checklist focused on behavioral indicators of metacognition, learner agency, and reflective practice.

The Clinical Performance Evaluation Rubric was adopted from the institution's standard clinical evaluation system, while the Learner-Centered Debriefing and Self-Regulated Learning questionnaires were adapted from the works of Reed and Pintrich, respectively. All instruments underwent expert validation for content relevance, clarity, and appropriateness. A pilot test involving 33 nursing students was conducted to assess reliability and usability. Reliability analysis using Jamovi on the actual study data demonstrated excellent internal consistency, yielding Cronbach's alpha coefficients of 0.923 for the Learner-Centered Debriefing Questionnaire, 0.951 for the Self-Regulated Learning Questionnaire, and 0.931 for the Clinical Performance Evaluation Rubric.

Data Collection. After obtaining approval from the institutional research board, data collection was initiated to address the research objectives. The quantitative component involved both paper-based and online surveys distributed to 197 nursing students during their scheduled class breaks. These surveys included the Learner-Centered Debriefing Questionnaire and the Self-Regulated Learning Questionnaire. Before starting, all eligible students were informed about the study's purpose and signed an informed consent form. To ensure a complete data set, clinical performance ratings were obtained separately from the students' assigned clinical instructors using the school's established evaluation records. These evaluations focused on observed patient safety, clinical judgment, and professional behavior during hospital shifts. The student surveys were then matched with their corresponding instructor evaluations for statistical analysis.

For the qualitative component, participants were selected purposively based on the quantitative results. This phase involved face-to-face, semi-structured interviews with students and clinical instructors to explore their clinical experiences in more detail. During these sessions, the researcher used a structured observation checklist to identify specific behaviors related to learner agency and self-regulation. All interviews were audio-recorded with the participants' consent and then transcribed verbatim. The qualitative data were analyzed using the reflexive thematic analysis framework to explain why specific learning factors influenced the students' performance outcomes.

Ethical Considerations. Ethical considerations were strictly observed throughout the study. Ethical approval was obtained from the designated research ethics committee prior to implementation. Participants received clear explanations regarding the study's objectives, the procedures involved, the potential benefits and risks, confidentiality measures, and their rights as research participants. Participation was entirely voluntary, and participants retained the right to withdraw from the study at any stage without penalty. Anonymity and confidentiality were maintained throughout data collection and reporting by assigning codes instead of participant identifiers. All research materials, including printed and electronic records, were securely stored in password-protected systems and locked storage areas accessible only to the researcher. Data were retained in accordance with institutional research guidelines and disposed of appropriately after the required retention period.

Data Analysis. The mean and standard deviation were utilized to determine the levels of learner-centered debriefing, self-regulated learning, and clinical performance among nursing students. Due to the non-normal distribution of the data, Spearman's rank-order correlation was used to assess the significant relationships among learner-centered debriefing, self-regulated learning, and clinical performance. Multiple regression analysis was conducted to determine whether learner-centered debriefing and self-regulated learning significantly predicted clinical performance and to identify the unique contribution of each predictor variable. A mediation analysis using bootstrap procedures was conducted to determine whether self-regulated learning mediated the relationship between learner-centered debriefing and clinical performance. Qualitative data obtained from interviews were analyzed using Braun and Clarke's (2013) reflexive thematic analysis framework. Transcripts were read repeatedly to become familiar with the data, followed by coding, theme development, theme review and refinement, and interpretation of findings. Integration of quantitative and qualitative findings was performed during the interpretation stage through narrative weaving and joint displays to provide a comprehensive explanation of how learner-centered debriefing and self-regulated learning influenced clinical performance among nursing students.

3. Results and Discussion

Level of Learner-Centered Debriefing Among Nursing Students

Table 1 shows that nursing students perceived their debriefing experiences to be highly learner-centered ($M = 3.59$, $SD = 0.32$). Among the dimensions, Collaborative Dialogue obtained the highest mean ($M = 3.70$, $SD = 0.39$), followed by Reflective Effort ($M = 3.58$, $SD = 0.40$). Learning Agency received the lowest mean score ($M = 3.50$, $SD = 0.36$), although it remained within the very high descriptive category.

The findings suggest that students experienced debriefing sessions characterized by active discussion, reflection, and participation. The high Collaborative Dialogue score indicates active engagement in discussing and reflecting on clinical experiences with instructors and peers. Although Learning Agency received the lowest score, all dimensions remained highly rated, indicating active participation in the debriefing process.

These findings support the importance of learner-centered debriefing in creating reflective learning environments consistent with current simulation and nursing education standards (INACSL Standards Committee, 2023). The results also provide a foundation for examining how learner-centered debriefing relates to self-regulated learning and clinical performance in the succeeding analyses.

Table 1

Level of Learner-Centered Debriefing Among Nursing Students

Constructs	M	SD	Remarks
Learning Agency	3.50	0.36	Very High
Reflective Effort	3.58	0.40	Very High
Collaborative Dialogue	3.70	0.38	Very High
Overall Learning-Centered Debriefing	3.59	0.32	Very High

Scale: 3.26 – 4.00 (Very High); 2.51 – 3.25 (High); 1.76 – 2.50 (Low); 1.00 – 1.75 (Very Low)

Level of Self-Regulated Learning Among Nursing Students

Table 2 shows that nursing students demonstrate a very high level of overall self-regulated learning ($M=3.62$, $SD=0.32$). Among the dimensions, Help Seeking obtained the highest mean score ($M=3.68$, $SD=0.35$), followed by Metacognitive Regulation ($M=3.65$, $SD=0.39$). Effort Regulation received the lowest rating ($M=3.60$, $SD=0.410$), although it remained within the very high category.

Students demonstrated strong self-management of learning. The high Help Seeking score indicates that students prioritize patient safety by clarifying instructions and seeking assistance when uncertain. Similarly, the strong Metacognitive Regulation score suggests active planning and monitoring of clinical tasks. The lower mean and greater variability in Effort Regulation ($SD = 0.410$) suggest that sustaining effort under fatigue and ward pressures remains the most challenging aspect of self-regulation.

This profile supports Zimmerman's (2002) view of self-regulation as a proactive learning process. The strong Help Seeking scores suggest a clinical culture that encourages students to seek guidance when needed, an important behavior for safe patient care (Arianpoor et al., 2024). Meanwhile, the relative difficulty with Effort Regulation aligns with Tinajero et al. (2024), who found that clinical fatigue can reduce students' ability to sustain focus and effort during demanding clinical duties.

The findings imply that while students possess strong metacognitive and help-seeking skills, greater attention should be given to strengthening effort regulation. Strategies that address clinical fatigue, resilience, and sustained engagement may help students maintain high levels of performance during demanding rotations. These results also provide a basis for the qualitative phase, which further explores the challenges students encounter in the clinical environment.

Table 2

Level of Self-Regulated Learning Among Nursing Students

Constructs	M	SD	Remarks
Metacognitive Regulation	3.65	0.39	Very High
Effort Regulation	3.60	0.41	Very High
Help Seeking	3.68	0.38	Very High
Overall Self-Regulated Learning	3.62	0.32	Very High

Scale: 3.26 – 4.00 (Very High); 2.51 – 3.25 (High); 1.76 – 2.50 (Low); 1.00 – 1.75 (Very Low)

Level of Clinical Performance among Nursing Students

Table 3 shows that nursing students demonstrate a very satisfactory and independent level of overall clinical performance ($M=3.58, SD=0.28$). Among the specific competency areas, Professional and Reflexive Growth achieved the highest mean score ($M=3.72, SD=0.32$). This was followed by Communication and Collaboration ($M=3.59, SD=0.36$) and Clinical Judgment and Patient Safety ($M=3.57, SD=0.34$). The domain of Management and Records received the lowest rating ($M=3.46, SD=0.33$), although it remained well within the "Very Satisfactory" range.

These findings suggest that the students have successfully transitioned from supervised learners to independent practitioners who require minimal prompting. The exceptionally high score in professional and reflexive growth ($M=3.72$) is the most significant finding in this table. It indicates that students have a strong sense of accountability and are highly receptive to professional feedback. However, the lower relative score in Management and Records ($M=3.46$) reveals a common developmental trajectory in nursing education in which interpersonal and ethical competencies often mature more rapidly than the technical and administrative complexities of ward logistics and clinical documentation.

This performance profile aligns with global standards for safe patient care (World Health Organization, 2021). The high proficiency in clinical judgment suggests that students are demonstrating competencies consistent with Tanner's (2006) Clinical Judgment Model, indicating that the university's learner-centered strategies are translating into bedside competence. The relative gap in management skills mirrors Miller's (2023) findings, which noted that documentation, workflow management, and administrative responsibilities are among the most challenging aspects of clinical readiness for nursing students.

The results suggest opportunities to further strengthen technical management skills. Enhanced training in ward workflows and electronic health record (EHR) management may further improve competence. Overall, these findings provide quantitative evidence of professional maturity, confirming that the current educational framework effectively prepares students for the rigors of independent practice.

Table 3

Level of Clinical Performance among Nursing Students

Constructs	M	SD	Remarks
Clinical Judgment and Patient Safety	3.57	0.34	Very High
Communication and Collaboration	3.59	0.36	Very High
Management and Records	3.46	0.33	Very High
Professional and Reflexive Growth	3.72	0.32	Very High
Overall Clinical Performance	3.58	0.28	Very High

Scale: 3.26 – 4.00 Very Satisfactory (Independent), 2.51 – 3.25 Satisfactory (Supervised), 1.76 – 2.50 Fair (Assisted), 1.00 – 1.75, Needs Improvement (Dependent)

Test of Significant Correlation between Learner-Centered Debriefing and Clinical Performance of Nursing Students

Table 4 illustrates the statistical connections between reflective teaching practices and actual student performance at the bedside. The data reveal that a learner-centered approach to debriefing is significantly and positively associated with overall clinical performance ($r_s = 0.242, p < .001$). Among the dimensions of learner-centered debriefing, learner agency emerged as the strongest correlate of clinical performance ($r_s = .234$). While reflective engagement ($r_s = 0.191, p = 0.007$) and collaborative dialogue ($r_s = 0.156, p = 0.029$) also showed positive links to performance, their effects were slightly weaker. An interesting nuance in the data shows that professionalism and reflexive growth did not have a significant relationship with how well students engaged in reflection ($r_s = 0.081, p = 0.260$) or dialogue ($r_s = 0.099, p = 0.167$). However, within the performance scores themselves, clinical judgment and patient safety emerged as the strongest indicators of a student's overall proficiency ($r_s = .891, p < .001$).

These findings suggest that student autonomy is the primary element behind clinical success. While talking about an experience is helpful, it is a student's willingness to take charge of their own learning that actually changes how they care for patients. The fact that talking and reflecting did not automatically lead to better professionalism is a critical discovery. This suggests that a student can be very good at participating in a group discussion without necessarily translating those ethical values into their actual behavior in the ward.

This dynamic aligns with international standards that emphasize a shift toward student -led learning to ensure safety in healthcare settings (INACSL Standards Committee, 2023). Research suggests that when students are allowed to drive the discussion, they develop a deeper understanding of their own clinical choices and reasoning (Duff et al., 2024). In the Philippine setting, the observed gap between reflection and professional behavior mirrors recent studies that identify inconsistencies in how students maintain their professional conduct during high-pressure hospital rotations (Villanueva & Cruz, 2024). Ultimately, these results reinforce the long-standing idea that the most important mark of a nurse is the ability to use clinical judgment to notice and respond effectively to patient needs (Tanner, 2006).

The study suggests that nursing programs may move beyond traditional feedback methods and intentionally build student independence. Clinical instructors may benefit from faculty development initiatives that emphasize facilitation strategies, encouraging students to set their own learning goals rather than relying solely on instructor-directed feedback.

Table 4

Results of the Test of Correlation between Learner-Centered Debriefing and Clinical Performance of Nursing Students using Spearman's rank

		Learner Agency	Reflective Engagement	Collaborative Dialogue	Learner Centered Debriefing	Clinical Judgment and Patient Safety	Management and Records	Communication and Collaboration	Professionalism and Reflexive Growth	Clinical Performance
Learner Agency	r_s	—								
	p	—								
Reflective Engagement	r_s	0.622** *	—							
	p	<.001	—							
Collaborative Dialogue	r_s	0.609** *	0.600***	—						
	p	<.001	<.001	—						
Learner Centered Debriefing	r_s	0.869** *	0.852***	0.828***	—					
	p	<.001	<.001	<.001	—					
Clinical Judgment and Patient Safety	r_s	0.204**	0.175*	0.162*	0.223**	—				
	p	.004	.014	.023	.002	—				
Management and Records	r_s	0.212**	0.191**	0.160*	0.234***	0.811***	—			
	p	.003	.007	.025	<.001	<.001	—			
Communication and Collaboration	r_s	0.189**	0.211**	0.151*	0.233***	0.773***	0.712***	—		
	p	.008	.003	.034	<.001	<.001	<.001	—		
Professionalism and Reflexive Growth	r_s	0.195**	0.081	0.099	0.151*	0.415***	0.399***	0.408***	—	
	p	.006	.260	.167	.035	<.001	<.001	<.001	—	
Clinical Performance	r_s	0.234** *	0.191**	0.156*	0.242***	0.891***	0.868***	0.889***	0.618***	—
	p	*								—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Test of Significant Correlation between Self-Regulated Learning and Clinical Performance of Nursing Students

Table 5 presents the relationship between self-regulated learning and clinical performance among nursing students. The results revealed a significant positive correlation between overall self-regulated learning and clinical performance ($r_s = 0.265, p < .001$). Among the self-regulation dimensions, Effort Regulation demonstrated the strongest relationship with clinical performance ($r_s = 0.233, p = .001$), followed by Metacognitive Regulation ($r_s = 0.182, p = .011$) and Help-Seeking ($r_s = 0.156, p = .029$). Help-Seeking was not significantly associated with Clinical Judgment and Patient Safety ($p = .065$) or Management and Records ($p = .061$). While the individual self-regulation dimensions were not significantly related to Professionalism and Reflexive Growth, the overall self-regulated learning score showed a significant positive relationship with this domain ($r_s = 0.197, p = .005$).

Students with stronger self-regulatory behaviors tended to demonstrate better clinical performance, although the relationships were weak. Effort Regulation showed the strongest association with performance, indicating that persistence and sustained engagement may be particularly important during clinical duty. The non-significant relationships between Help-Seeking and the technical domains of performance suggest that seeking assistance alone may not directly translate into stronger clinical judgment or management skills.

The findings support Zimmerman's (2002) view of self-regulation as a process of planning, monitoring, and sustaining effort toward learning goals. Similarly, Arianpoore et al. (2024) found that students with stronger self-regulatory skills tend to perform better in clinical settings. However, the weak correlations observed in this study suggest that self-regulated learning is only one of several factors influencing clinical performance, supporting Foster's (2023) view that complex educational outcomes are shaped by overlapping learning and contextual influences.

These results highlight the value of developing students' self-regulatory capacities, particularly effort regulation, within clinical education. At the same time, the modest strength of the relationships suggests that additional factors beyond self-regulated learning contribute to clinical competence, warranting further investigation in the succeeding analyses.

Table 5

Results of the Test of Correlation between Self-Regulated Learning and Clinical Performance of Nursing Students using Spearman's rank

		Meta-cognitive Regulation	Effort Regulation	Help-Seeking	Self-Regulated Learning	Clinical Judgment and Patient Safety	Management and Records	Communication and Collaboration	Professionalism and Reflexive Growth	Clinical Performance
Metacognitive Regulation	r_s	—								
	p	—								
Effort Regulation	r_s	0.746*	—							
	p	<.001	—							
Help-Seeking	r_s	0.674*	0.725***	—						
	p	<.001	<.001	—						
Self-Regulated Learning	r_s	0.830*	0.812***	0.793***	—					
	p	<.001	<.001	<.001	—					
Clinical Judgment and Patient Safety	r_s	0.152*	0.217**	0.132	0.218**	—				
	p	0.033	0.002	0.065	0.002	—				
Management and Records	r_s	0.168*	0.198**	0.134	0.239***	0.811***	—			
	p	0.018	0.005	0.061	<.001	<.001	—			
Communication and Collaboration	r_s	0.199*	0.254***	0.180*	0.262***	0.773***	0.712***	—		
	p	*	<.001	0.012	<.001	<.001	<.001	—		
		0.005								

Professionalism and Reflexive Growth	r_s	0.129	0.114	0.100	0.197**	0.415***	0.399***	0.408***	—
	p	0.072	0.112	0.164	0.005	<.001	<.001	<.001	—
Clinical Performance	r_s	0.182*	0.233**	0.156*	0.265***	0.891***	0.868***	0.889***	0.618***
	p	0.011	0.001	0.029	<.001	<.001	<.001	<.001	<.001

Predictors of Clinical Performance of Nursing Students

Table 6 presents the multiple regression analysis examining the contributions of Learner-Centered Debriefing (LCD) and Self-Regulated Learning (SRL) to clinical performance. Neither learner-centered debriefing ($\beta = 0.07$, $p = .681$) nor self-regulated learning ($\beta = 0.14$, $p = .407$) significantly predicted clinical performance when considered independently. Although self-regulated learning emerged as the relatively stronger predictor, its contribution remained non-significant.

The overall model was significant ($F = 5.93$, $p = .003$) but explained only 5.8% of the variance in clinical performance ($R^2 = .058$). The elevated VIF (8.06) indicates substantial overlap between learner-centered debriefing and self-regulated learning, suggesting that the constructs are closely related. These findings further support the reflection – performance gap identified in this study. Although learner-centered debriefing and self-regulated learning were associated with clinical performance, their limited predictive power suggests that reflective learning processes alone may be insufficient to explain variation in clinical performance.

These findings align with Zimmerman's (2002) theory, which emphasizes the interaction between environmental and personal factors in shaping learning outcomes. The low explained variance further suggests that clinical performance is influenced by additional factors beyond reflection and self-regulation, including clinical readiness, psychological safety, and the realities of the clinical environment. Nursing programs may therefore benefit from integrating debriefing practices with strategies that strengthen students' ability to apply reflective learning in clinical practice.

Table 6

Regression Analysis of the Predictors of Clinical Performance of Nursing Students

Predictor	Estimate (β)	SE	95% Confidence Interval		T	P	Stand. Estimate	95% Confidence Interval	
			Lower	Upper				Lower	Upper
(Constant)	2.81	0.22	2.36	3.25	12.49	<.001			
Learner-Centered Debriefing	0.07	0.17	-0.27	0.41	0.40	0.68	0.081	-0.31	0.47
Self-Regulated Learning	0.14	0.17	-0.20	0.49	0.82	0.41	0.16	-0.23	0.55
R^2	0.058								
Adjusted r^2	0.048								
F value	5.93								
p-value	0.003								
Clinical Performance	=2.81+0.07 Learner-Centered Debriefing+0.14Self-Regulated Learning								

Mediation Analysis on the Role of Self-Regulated Learning in the Relationship Between Learner-Centered Debriefing and Clinical Performance

Table 7 presents the mediation analysis examining the role of Self-Regulated Learning (SRL) in the relationship between Learner-Centered Debriefing (LCD) and Clinical Performance (CP) among nursing students. The total effect was statistically significant ($c = 0.20$, $p < .001$), indicating a positive association between learner-centered debriefing and clinical performance. However, when Self-Regulated Learning was included in the model, neither the direct effect of Learner-Centered Debriefing on Clinical Performance ($c' = 0.07$, $p = .681$) nor the indirect effect through Self-Regulated Learning ($ab = 0.13$, $p = .407$) remained statistically significant. Moreover, the pathway from Self-Regulated Learning to Clinical Performance was not significant ($b = 0.14$, $p = .407$). These findings indicate that Self-Regulated Learning did not mediate the relationship between Learner-Centered Debriefing and Clinical Performance.

Contrary to the proposed model, self-regulated learning did not significantly mediate the relationship between learner-centered debriefing and clinical performance. Although learner-centered debriefing strongly promoted self-regulatory behaviors ($a = 0.93, p < .001$), these behaviors did not translate into significant improvements in clinical performance. This finding suggests the existence of a reflection–performance gap: students engage in reflective learning and self-regulation but encounter challenges when applying these processes in real clinical settings. Qualitative findings revealed that clinical unfamiliarity, fear of making mistakes, and competing patient-care demands frequently constrained students' ability to transform reflection into effective clinical action. These findings suggest that clinical performance is influenced not only by cognitive and reflective processes but also by contextual, psychological, and environmental factors.

This finding is consistent with contemporary perspectives that view clinical competence as a multifaceted outcome shaped by the interaction of learner characteristics, instructional experiences, and clinical context (Zimmerman, 2002; Goh et al., 2022). The qualitative findings further suggest that technical preparedness, psychological safety, and ward-related demands may exert a more immediate influence on bedside performance than reflective learning alone. These observations support previous research indicating that clinical stress, environmental pressures, and the theory–practice gap can limit students' ability to translate learning into effective clinical action (Labrague, 2022; Dizon, 2023; Li & Zhang, 2023). Collectively, the findings highlight the importance of complementing learner-centered debriefing with strategies that strengthen technical competence, foster psychologically safe learning environments, and support students in managing the realities of clinical practice.

Table 7

Mediation Analysis on the Role of Self-Regulated Learning in the Relationship
Between Learner-Centered Debriefing and Clinical Performance

Effect			Label Estimate	SE	95% Confidence Interval		Z	p	% Mediation	
					Lower	Upper				
Indirect			a x b	0.13	0.16	-0.17	0.47	0.83	.407	65.3%
Direct			C	0.07	0.17	-0.27	0.40	0.41	.681	34.7%
Total			c+ax b	0.20	0.06	0.08	0.33	3.35	< .001	100%
Path Estimates										
Learner-Centered Debriefing	→	Self-Regulated Learning Clinical	A	0.93	0.02	0.88	0.98	37.28	< .001	
Self-Regulated Learning	→	Performance Clinical	B	0.14	0.17	-0.18	0.51	0.83	.407	
Learner-Centered Debriefing	→	Performance	C	0.07	0.17	-0.27	0.40	0.41	.681	

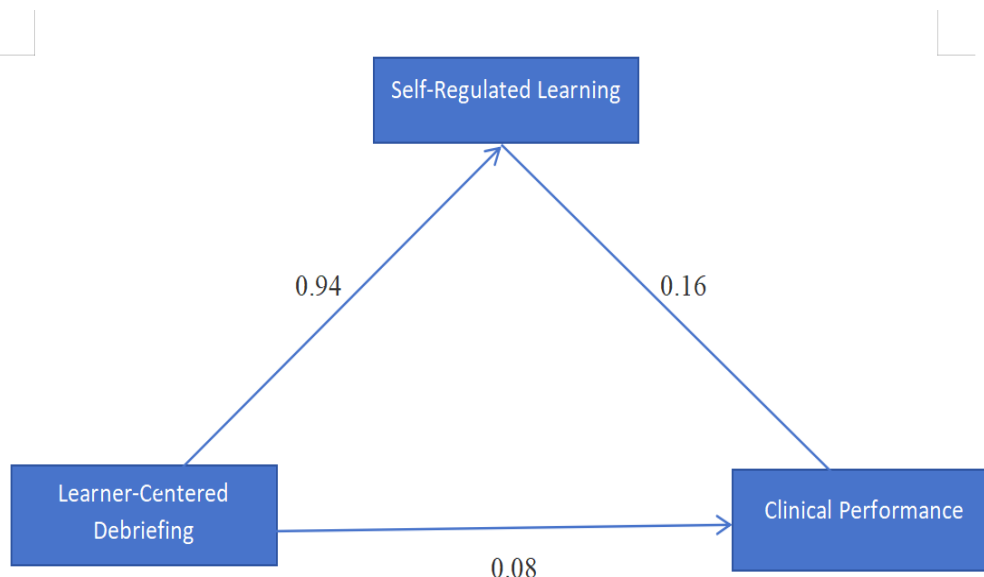


Figure 1 shows the results of the mediation analysis on the role of Self -Regulated Learning (SRL) in mediating the relationship between Learner-Centered Debriefing (LCD) and Clinical Performance (CP).

The diagram illustrates a mediation model showcasing the relationships among three latent variables: Learner-Centered Debriefing (LCD), Self-Regulated Learning (SRL), and Clinical Performance (CP). The path coefficients quantify the strength of these relationships. The strongest pathway was observed between LCD and SRL, indicating that learner-centered debriefing significantly influences students' self-regulated learning. This finding is consistent with contemporary debriefing literature, which suggests that learner-centered reflection promotes metacognitive monitoring, learner agency, and self-directed improvement.

Meanwhile, the path from Self-Regulated Learning to Clinical Performance has a smaller coefficient of 0.16, implying that while self-regulation contributes to performance, its independent influence at the bedside is relatively modest in this model. Additionally, there is a minimal direct effect of Learner-Centered Debriefing on Clinical Performance, with a coefficient of 0.08, suggesting that debriefing may exert some direct influence on clinical outcomes.

These relationships suggest a potential pathway through which learner-centered debriefing may influence clinical performance via self-regulated learning. However, because the indirect effect was not statistically significant, this pathway was not empirically supported in the present study. The residuals near the latent variables reflect unexplained variance, suggesting that factors outside the model, such as the complexity of the ward environment, patient medical needs, and clinical demands, may contribute substantially to clinical performance. Overall, the model underscores the importance of instructional initiatives in cultivating student self-regulation. Although self-regulated learning did not significantly mediate the relationship between learner-centered debriefing and clinical performance, the strong pathway between LCD and SRL suggests that reflective instructional environments remain valuable for fostering the metacognitive and reflective capacities necessary for lifelong professional learning.

Factors Influencing Clinical Performance Among Nursing Students

Nursing students and clinical instructors provided detailed descriptions of their experiences during clinical ward duty, offering insights into why reflective learning did not consistently translate into improved clinical performance. While the quantitative findings showed that learner-centered debriefing strongly promoted self-regulated learning, self-regulated learning did not significantly mediate clinical performance. The qualitative findings, therefore, helped explain the reflection–performance gap observed in the quantitative phase by illuminating the practical, psychological, and environmental challenges encountered during clinical practice.

As shown in Figure 2, six themes were organized into two categories. Barriers to Translating Reflection into Clinical Performance included clinical unfamiliarity, fear of mistakes, psychological vulnerability, and competing demands of patient care. These themes explain how students' ability to transform reflection into effective clinical action was often constrained by the realities of the clinical environment. Instructor-Guided Self-Regulation included using instructor feedback as a source of learning goals, as a source of self-monitoring, and seeking instructor guidance to regulate learning. These themes suggest that self-regulation remained largely instructor-supported, helping explain the strong relationship between learner-centered debriefing and self-regulated learning, but the limited influence of these processes on clinical performance.

Together, these findings suggest that the reflection–performance gap is shaped by technical, psychological, and environmental factors that influence students' ability to apply reflective learning in practice. The succeeding sections discuss each theme through participant narratives and contextual interpretations.

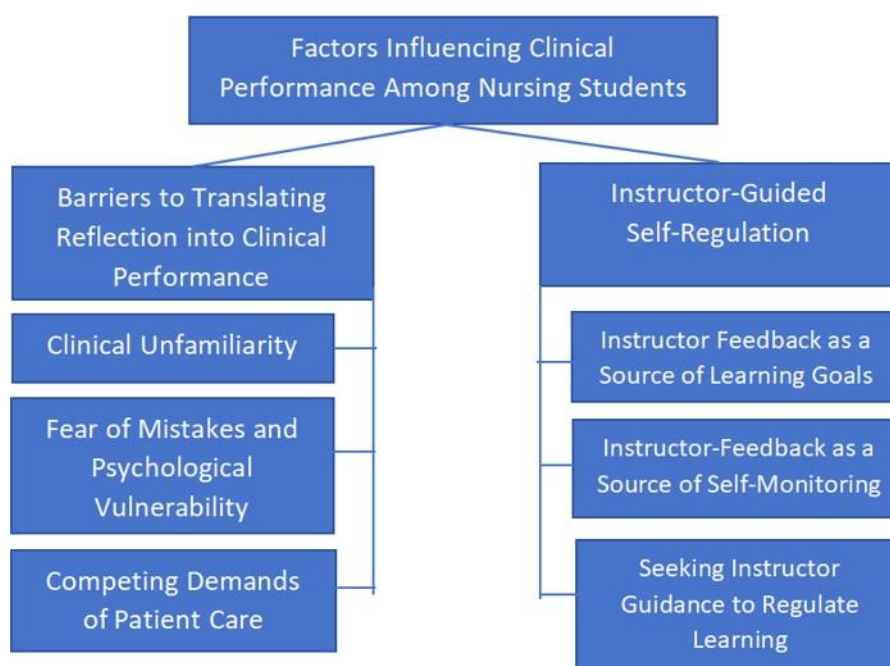


Figure 2. Conceptual Model on the Factors Influencing Clinical Performance Among Nursing Students

Clinical Unfamiliarity

Students described clinical duty as a setting where theoretical knowledge was often tested by unfamiliar patient situations, equipment, and procedures. Although they understood concepts discussed during lectures and debriefing sessions, many reported feeling uncertain when confronted with clinical demands. Participants frequently associated these situations with nervousness, self-doubt, and concern about patient safety.

"I felt overwhelmed during the preparation of IV medications. It was a complex drug, and I realized I wasn't 100% sure about the correct dilution and the rate of administration. In my mind, I was worried about the what-ifs, such as, 'What if I make a mistake that hurts the patient?'" (S2)

"During the final rotation, there was a patient whose condition suddenly changed near the end of the shift. At that moment, I felt uncertain, nervous, and scared for the patient as it was the first time I had experienced this type of situation." (S3)

"There was a time when I was assigned to a patient with multiple medications and ongoing monitoring needs. I became overwhelmed because it was my first time, especially during medication preparation and documentation." (S3)

Students frequently reported knowing what should be done but struggling to translate that knowledge into action when confronted with unfamiliar clinical situations. Clinical instructors similarly observed that academic preparation did not always correspond with readiness for the realities of contemporary hospital practice.

"I realized I knew the theory, but I got confused once I saw the actual vial and the syringe...I felt my heart racing a bit because of the responsibility." (S2)

"Students may do well academically but still feel unprepared in real hospital settings because they only fully learn modern equipment, charting systems, and workflows once they become staff nurses." (CI2)

These descriptions suggest that unfamiliarity with clinical situations, procedures, and technologies remained a challenge despite students' theoretical preparation. This finding is consistent with Choi and Kim (2024), who noted that reflective learning may not consistently translate into bedside performance when learners encounter unfamiliar clinical demands. Similarly, Dizon (2023) observed that differences between educational preparation and contemporary hospital environments may contribute to difficulties in clinical adaptation among nursing students.

Fear of Making Mistakes and Psychological Vulnerability

Students described clinical duty as an environment in which concerns about making mistakes, appearing incompetent, or receiving criticism influenced their willingness to fully participate in learning opportunities. Several participants reported feeling hesitant to ask questions, disclose uncertainties, or seek clarification when they feared negative evaluation from clinical instructors.

"One time in the ward, I felt overwhelmed because our CI was very strict, and I was scared to ask questions about my patient because I thought I might get scolded." (S5)

"Yes, there were times when I hesitated to admit my mistakes because I feared being judged." (S3)

"Sometimes I hesitate because I'm scared of looking incompetent or unprepared." (S2)

Students also emphasized the importance of supportive instructor behaviors in helping them feel comfortable admitting mistakes and discussing performance gaps. Participants frequently associated psychological safety with calm communication, respectful feedback, and the absence of public embarrassment. Clinical instructors similarly noted that students were more likely to engage in reflection and improvement when they felt safe enough to be honest about their difficulties.

"I feel safer being honest when the instructor corrects us calmly and explains things properly instead of embarrassing students in front of others." (S2)

"The clinical instructor's positive attitude made me feel safe to ask questions, admit mistakes, and seek guidance. This support motivated me to improve and become a better nursing student." (S5)

"Other students may not improve right away because they feel too embarrassed, nervous, or afraid of being judged. The missing link is often feeling safe enough to be honest." (CI2)

These descriptions suggest that psychological safety influenced students' willingness to seek help, disclose uncertainties, and exercise clinical judgment during patient care. While learner-centered debriefing and self-regulated learning supported reflection and planning, participants frequently described fear of mistakes and negative evaluation as barriers to applying these processes in practice. This finding is consistent with Li and Zhang (2023) and Kalengamaliro and Mwale (2023), who noted that performance anxiety can interfere with clinical decision-making and learning. Similarly, Cheng et al. (2023) argued that students are more likely to engage in reflection and disclose uncertainties when learning environments are psychologically safe. These findings also align with Labrague (2022), who identified clinical stress as a barrier to nursing students' performance.

Competing Demands of Patient Care

Students indicated clinical duty as an environment where multiple responsibilities often competed for their attention. In addition to applying clinical knowledge, participants were expected to manage patient needs, complete documentation, monitor treatments, and respond to unexpected situations. These competing demands frequently created feelings of pressure and made it difficult to focus on learning and reflection while providing patient care.

"There was a time when I was assigned to a pediatric patient, and getting the vital signs was hard. The child could not stop crying and was uncooperative. With my mind overwhelmed and lots of work I needed to do, I was desperate to get the vital signs of the child." (S3)

"There were instances when IV drip regulation and monitoring of IV fluid consumption were delayed due to the unit's heavy workload. It was difficult to manage all patient care responsibilities." (S1)

"During that time, I was really overwhelmed with my classes and duties. I just wanted to focus on what I could do at the moment." (S5)

Participants also shared situations where patient safety requirements, workload pressures, and time constraints took precedence over opportunities for reflection and learning. Clinical instructors similarly observed that busy ward environments often required students to focus on immediate clinical responsibilities rather than reflection and discussion.

"One particular instance was when a fast-paced morning occurred on a shift in the medical-surgical unit where I had some students assigned to critically ill patients. I had no time to utilize student reflection and instead had to give direct instructions." (CI2)

"Barriers were time pressure, patient safety/sterility. Strict compliance with aseptic technique and OR protocols took priority over learning." (CI1)

"When the ward is full, students have to give medications, obtain vital signs, and focus on completing responsibilities according to a set timeline." (CI3)

These descriptions suggest that competing clinical demands often limit students' ability to translate reflection into practice. This finding is consistent with Brown and Williams (2024), who noted that environmental stressors and competing demands can disrupt clinical judgment and performance. Similarly, Berragan (2023) argued that clinical performance is shaped not only by students' internal reasoning processes but also by situational influences within the clinical environment.

Instructor Feedback as a Source of Learning Goals

Students explained debriefing sessions as an important source of direction for future learning. Rather than identifying learning needs independently, participants frequently relied on instructor feedback to recognize weaknesses, clarify expectations, and determine areas requiring improvement.

"I wrote down the things our CI told to us during the debriefing in my small notebook, in order for me to remember how to improve my shortcomings." (S2)

Clinical Instructor initially guided the discussion by asking me what happened, what interventions were done, and what could have been improved." (S1)

"During the debriefing, our CI mostly guided the discussion and asked us about our experiences and what we learned from the situation." (S5)

Students also described translating instructor feedback into specific plans for future improvement. Several participants reported taking notes, reviewing feedback, and setting personal goals based on issues raised during debriefing sessions. These activities suggest that instructor feedback frequently shaped not only reflection on past performance but also preparation for subsequent clinical duties.

"I take note of the feedback given by my CI and set small goals for myself, identifying what I did well so I can continue those practices." (S5)

"After debriefing, I reflect on the feedback, set small goals for improvement, review procedures at home, and ask for help when needed to prepare for the next shift." (S3)

"After a debriefing session, I usually reflect on the feedback and think about the areas I need to improve. I also try to ask questions, review procedures, and set personal goals so I can perform better in my next duty." (S4)

These descriptions suggest that learning goals were frequently shaped by instructor feedback rather than generated independently by students. This finding aligns with Yang and Cheng (2022), who described externalized metacognition as a process in which learners adopt external guidance to support planning and goal setting.

Instructor Feedback as a Source of Self-Monitoring

Students described recalling previous debriefing discussions while providing patient care. Participants frequently reported remembering specific feedback, reminders, and instructions from their clinical instructors when encountering uncertainty or situations requiring careful judgment. These recollections often resurfaced during clinical duties, serving as reminders of lessons and expectations previously discussed.

"I suddenly remembered a previous debriefing where my Clinical Instructor emphasized the importance of slowing down and because of that reminder, I paused." (S2)

"I recalled from our most recent debriefing where our clinical instructor emphasized the importance of the rights of medication administration and because of that memory, I reviewed my actions." (S3)

"I recalled a previous debriefing where our instructor reminded us to always stay calm during procedures and double check everything. That memory helped me feel more confident and avoid making a mistake at the bedside." (S5)

Students also described these remembered instructions as a guide for monitoring their actions during patient care. Rather than relying solely on independent judgment, participants frequently used previous instructor feedback to pause, reassess their decisions, verify procedures, and prevent potential mistakes. These recollections appeared to serve as an internal checkpoint that supported safe, deliberate clinical practice.

"Because of that reminder, I paused." (S2)

"That memory made me review my actions." (S3)

"That memory helped me feel more confident and avoid making a mistake at the bedside." (S5)

These descriptions suggest that students frequently used instructor feedback to monitor their performance during clinical practice. This finding aligns with Tinajero et al. (2024), who described regulation as a socially mediated process in which learners draw upon external guidance to support decision-making and performance.

Seeking Instructor Guidance to Regulate Learning

Students described seeking guidance from their clinical instructors as a common response during clinical duty. Rather than managing challenges entirely on their own, participants frequently involved instructors when making decisions, verifying actions, or addressing situations that required additional support. Instructor guidance was often viewed as an important source of clarification and support while navigating patient care responsibilities.

"I immediately informed my Clinical Instructor and the staff nurse about the situation. That experience taught me the importance of asking for help when needed." (S2)

"I consciously decided to stop what I was doing instead of guessing and immediately went to find my CI to ask for guidance." (S2) "I slowed down, focused on one step at a time, and asked guidance from my CI when I wasn't sure." (S2)

Students also viewed instructor guidance as a way to regulate their actions and maintain safe clinical practice. Several participants described seeking help not as a sign of weakness, but as a strategy to verify decisions, prevent errors, and ensure appropriate patient care. These experiences suggest that instructor support often served as a resource that students actively drew upon when managing clinical challenges.

"That experience taught me the importance of asking for help when needed." (S2)

"I consciously decided to stop what I was doing instead of guessing." (S2)

"I asked guidance from my CI when I wasn't sure." (S2)

This finding aligns with Pintrich (2004), who identified help-seeking as an adaptive self-regulated learning strategy used by learners to manage challenges and obtain the support they need when facing uncertainty. Similarly, Tinajero et al. (2024) argued that contemporary models of self-regulated learning recognize regulation as a socially mediated process in which learners strategically draw upon external guidance to support decision-making and performance.

Implications

The findings of this study suggest the existence of a reflection–performance gap in nursing education: learner-centered debriefing promotes self-regulated learning, but reflective learning does not automatically translate into improved clinical performance. Although learner-centered debriefing demonstrated a strong positive relationship with self-regulated learning, the absence of a significant mediation effect suggests that reflective and self-regulatory processes alone may be insufficient to improve clinical performance.

The identified reflection–performance gap supports emerging evidence that clinical competence is influenced by factors beyond reflection alone, including technical readiness, psychological safety, and clinical demands (Goh et al., 2022; Labrague, 2022). Qualitative findings revealed that clinical unfamiliarity, fear of mistakes, and competing patient-care demands frequently constrained students' ability to transform reflection into effective clinical action. These findings support Choi and Kim's (2024) observation that reflective learning may fail to translate into performance when educational preparation does not fully align with clinical realities.

These findings highlight the need to strengthen the translation of reflection into practice. Clinical instructors may facilitate students' progression from instructor-guided regulation to independent clinical reasoning by gradually shifting responsibility for goal setting, self-monitoring, and decision-making to learners. Nursing programs may also strengthen simulation, skills training, ward-readiness activities, and psychologically safe learning environments to reduce the gap between knowing and doing. Future studies may further examine how psychological safety, instructor feedback, workload, and technical readiness influence the development of clinical performance across different educational and clinical contexts.

Recommendations

Nursing schools may benefit from strengthening the connection between reflective learning and clinical performance, integrating debriefing with skills reinforcement, simulation activities, return demonstrations, and opportunities for immediate clinical application. Alignment between educational preparation and contemporary hospital practices may also be supported by regularly updating skills laboratories and training resources. Faculty development initiatives may help clinical instructors foster independent self-regulated learning through learner-centered goal setting, self-monitoring, and clinical reasoning within psychologically safe learning environments. In addition, clinical readiness, resilience, and stress-management strategies may help students navigate workload pressures, difficult patient interactions, and competing demands on patient care. Future research may further examine the influence of psychological safety, clinical readiness, instructor feedback styles, workload, and ward culture on clinical performance, as well as the processes through which reflective learning develops into independent clinical competence over time.

4. Conclusions

Learner-centered debriefing and self-regulated learning were positively associated with clinical performance, and learner-centered debriefing demonstrated a strong influence on students' self-regulatory behaviors. However, self-regulated learning did not significantly mediate the relationship between learner-centered debriefing and clinical performance. The findings indicate that although reflective instructional practices support self-regulation, they do not automatically translate into effective clinical performance. Qualitative findings revealed a reflection–performance gap characterized by clinical unfamiliarity, fear of mistakes, and competing patient-care demands that constrained students' ability to apply reflective learning in practice. Furthermore, students relied heavily on instructor feedback and guidance to support goal setting, self-monitoring, and decision-making, indicating that self-regulation remained largely instructor-guided. Overall, clinical performance appears to be influenced not only by reflective learning processes but also by psychological safety, technical preparedness, and the realities of the clinical environment. These findings highlight the need for nursing education programs to bridge the gap between reflection and action by strengthening clinical readiness and fostering progressively independent self-regulated learning.

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