

THE RELATIONSHIP BETWEEN ACADEMIC SELF-EFFICACY, SELF-REGULATED LEARNING, AND NURSING PRACTICE READINESS AMONG UNDERGRADUATE NURSING STUDENTS: A CROSS-SECTIONAL STUDY

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Abstract

This study explored the relationships among academic self-efficacy, self-regulated learning, and nursing practice readiness in undergraduate nursing students in Jordan. A total of 422 students from several universities completed a questionnaire covering their backgrounds, academic self-efficacy, self-regulated learning, and readiness for nursing practice. The analysis used descriptive statistics, correlations, t-tests, ANOVA, regression, and mediation analysis. Most students reported moderate levels of academic self-efficacy (51.2%), self-regulated learning (54.7%), and nursing practice readiness (53.1%). Nursing practice readiness was positively associated with both academic self-efficacy ($r(420) = .61, p < .001$) and self-regulated learning ($r(420) = .64, p < .001$). The regression model predicted nursing practice readiness well, $F(9, 412) = 62.81, p < .001$, explaining 58% of the variance. Self-regulated learning ($\beta = .42, p < .001$) and academic self-efficacy ($\beta = .36, p < .001$) were the strongest predictors. Mediation analysis showed a significant indirect effect through self-regulated learning, $B = 0.23, 95\% \text{ CI } [0.16, 0.31]$. These results suggest that educational psychology factors are closely tied to nursing practice readiness and should guide support strategies in nursing education.

Keywords: academic self-efficacy; cross-sectional study; nursing education; nursing practice readiness; nursing students; self-regulated learning.

INTRODUCTION

Students are prepared to integrate theory, clinical skills, communication, ethics, and professional judgment in the healthcare industry through undergraduate nursing education (Kim & Shin, 2022). Because it allows students to apply classroom information to patient care, establish their professional identities, and gain confidence, clinical learning is crucial (Al-Dweik et al., 2021). However, because of concerns about making mistakes, a lack of resources, and difficulties interacting with patients and staff, clinical education can be stressful for students (Al-Dweik et al., 2021). Students in Jordan have highlighted obstacles such as a lack of equipment, a fear of making mistakes, and a lack of collaboration with clinical personnel, underscoring the necessity of researching factors that impact preparedness for nursing practice (Al-Dweik et al., 2021). Students' confidence in their ability to manage academic assignments and learning demands is known as academic self-efficacy (An et al., 2024). According to An et al. (2024), nursing students who have greater academic self-efficacy are more driven, prepared to learn, and involved in their studies. According to recent research, academic self-efficacy and interprofessional learning preparedness are related, which means that students who have a strong sense of self-worth are better equipped for challenging work settings (An et al., 2024). Additionally, as self-assured students are more adept in handling both academic and clinical stress, it helps with clinical preparation (El-Gazar et al., 2024).

Another important concept in educational psychology is self-regulated learning. It entails pupils organizing, overseeing, managing, and assessing their own education (Kurt, 2022). Self-regulated learning is crucial in nursing because students must take responsibility for their clinical preparation, identify what they need to learn, use feedback, and enhance their performance (Kurt, 2022). According to research, nursing students' study habits and preparedness for clinical work are significantly influenced by self-regulated learning (Kurt, 2022). According to recent research, self-regulated learning should be taught and supported in nursing programs to assist students develop into more autonomous, thoughtful, and successful learners (Romli et al., 2023).

The term "nursing practice readiness" describes how ready students feel to do professional nursing tasks. How prepared students feel to take on professional nursing responsibilities in clinical settings is referred to as nursing practice readiness (Kim & Shin, 2022). Clinical judgment, nursing skills, professional attitudes, patient attention, self-control, and teamwork are all part of it (Kim & Shin, 2022). The Arabic version of the Nursing Practice Readiness Scale, which comprises 35 items covering five variables, has been demonstrated to be valid and trustworthy for students who speak Arabic (Alquwez et al., 2023). Because of this, evaluating students' readiness for their jobs can be done effectively through nursing practice readiness. However, academic self-efficacy, self-regulated learning, and nursing practice preparation have not been examined in tandem in many Jordanian studies (Al-Dweik et al., 2021; An et al., 2024; Kurt, 2022). This is significant since clinical education presents difficulties for Jordanian nursing students, which may have an impact on their learning and confidence (Al-Dweik et al., 2021). The majority of earlier studies have concentrated on these elements independently rather than their interrelationships. By investigating the relationship between academic self-efficacy and self-regulated learning and nursing practice preparedness among students at several Jordanian universities, this study seeks to close that gap. The results can direct future support measures and assist nursing faculty in understanding what promotes students' readiness. Among undergraduate nursing students at various Jordanian universities, the study looked at the connections between academic self-efficacy, self-regulated learning, and nursing practice preparation. Because it allowed for the gathering of data from participants at a particular moment in time without changing the study variables, a cross-sectional design was suitable (Wang & Cheng, 2020). Examining relationships between educational and psychological factors, such as students' reported academic self-efficacy, self-regulated learning, and preparedness for nursing practice, was another appropriate use for this methodology (Capili, 2021). Since the study's objective was to examine naturally occurring relationships between variables rather than an intervention, an observational correlational technique was used. The study employed a standardized self-administered questionnaire that was distributed to qualified undergraduate nursing students. Because the exposure and outcome variables were assessed simultaneously, the results discovered correlations but were unable to establish causal relationships (Wang & Cheng, 2020).

Study Setting

Five Jordanian universities, three public and two private, offering undergraduate Bachelor of Science in Nursing programs participated in the study. The study was able to examine academic self-efficacy, self-regulated learning, and nursing practice readiness in the natural context of nursing education because undergraduate nursing students receive both theoretical education and clinical training as part of their academic preparation. A wider representation of nursing students with diverse academic, institutional, and clinical training experiences was made possible by the inclusion of students from both public and private universities. By identifying psychological and educational aspects linked to students' preparedness for nursing practice across various learning environments, this multi-university setting further expanded the findings' applicability to nursing education in Jordan.

Study Population

The study population consisted of undergraduate nursing students enrolled in Bachelor of Science in Nursing programs at various Jordanian universities. Jordan has a sizable and varied higher education industry; during the 2025–2026 school year, 480,009 students were enrolled in both public and private institutions (Jordan News Agency [Petra], 2026). 287,320 students, or 60% of all higher education students, were enrolled in public institutions, which include 10 public universities and 10 university colleges; in contrast, 192,689 students, or 40% of all students, were enrolled in private institutions, which include 18 private universities and 42 community colleges (Petra, 2026). Furthermore, Jordan is regarded as a regional educational destination; in 2025–2026, 55,410 international students from 119 countries attended Jordanian universities, accounting for 11.5% of all students (Petra, 2026). Undergraduate nursing students from various academic years enrolled in Jordanian universities who had received theoretical nursing education and/or clinical training made up the study's target population. Nursing students are well-suited to investigate the relationship

between academic self-efficacy, self-regulated learning, and nursing practice readiness because they are actively involved in academic learning, self-directed preparation, and clinical education. The Jordanian Nursing Council's role in regulating and advancing nursing and midwifery education and practice in Jordan, including initiatives to improve nursing competence, clinical skills, and professional development, further supports the significance of this population (Jordanian Nursing Council, 2024).

Eligibility Criteria

Undergraduate nursing students enrolled in Bachelor of Science in Nursing programs at participating Jordanian universities throughout the data collecting period were included in the study. Students from various academic years who could read and comprehend Arabic or English, had access to the internet questionnaire, and willingly consented to take part in the study were eligible to participate. Because the study variables focused on academic self-efficacy, self-regulated learning, and nursing practice preparedness, students who had taken theoretical nursing courses, had clinical training, or both were included. Students from bridge, postgraduate, or non-nursing programs were excluded since their clinical and academic experiences differed from those of undergraduate nursing students. Furthermore, the study did not include students who declined to participate, were not enrolled in a nursing program at the time of data collection, or provided incomplete questionnaires.

Sample Size

The minimum required sample size was estimated using the single-population proportion calculation, which is commonly used in cross-sectional research where the proportion of the primary outcome is unknown (Charan & Biswas, 2013). Since there was no previous research that evaluated the combined relationship between academic self-efficacy, self-regulated learning, and nursing practice readiness among undergraduate nursing students in various Jordanian universities, the proportion was set at 50% to achieve the maximum required sample size. A minimum sample size of 384 pupils was required based on a 50% projected proportion, a 5% margin of error, and a 95% confidence level. The targeted sample size was increased to about 422 nursing students by adding an extra 10% to account for potential incomplete or non-response responses. The final number of completed surveys included in the analysis was 422 participants because recruitment continued until 422 complete and eligible replies were received.

Sampling Technique

Undergraduate nursing students from the participating Jordanian universities were recruited using a convenience sample technique. Because the study focused on accessible nursing students who satisfied the qualifying requirements and were available throughout the data collecting period, this non-probability sampling technique was suitable. When a researcher wants to gather data from a specific group in a short amount of time and with minimal resources, convenience sampling is frequently employed in cross-sectional educational and health-related studies (Stratton, 2021). Through online academic communication channels, student organizations, and university contacts, eligible students were invited to take part. Students who consented to participate filled out the self-administered questionnaire; participation was entirely voluntary. Until the necessary sample size of 422 undergraduate nursing students was reached, recruitment proceeded.

Data Collection Tool

A standardized, self-administered questionnaire with four primary sections was used to gather data. Age, gender, academic year, kind of university, grade point average, prior clinical training experience, weekly study hours, and prior academic failure were among the sociodemographic and academic data gathered in the first phase. The Arabic version of the Academic Nurse Self-Efficacy Scale (ANSE-A) was used in the second segment to gauge academic self-efficacy. The ANSE-A is a nursing-specific tool with four dimensions: sociality, internal emotional management, auto-regulatory behavior, and outward emotional management. Its purpose is to gauge student nurses' perceived academic self-efficacy. The Arabic version was deemed valid and reliable for evaluating academic self-efficacy in Arabic-speaking nursing education environments, and it showed acceptable psychometric qualities among nursing students (Bajet et al., 2023). A five-point Likert scale was used to grade each item; higher scores denoted greater academic nurse self-efficacy.

The third section assessed self-regulated learning using selected learning-strategy components of the Motivated Strategies for Learning Questionnaire (MSLQ), including metacognitive self-regulation, effort regulation, time and study environment management, and help-seeking strategies. The MSLQ was created to evaluate the motivational orientations and academic learning strategies of college students (Pintrich et al., 1991). Increased usage of self-regulated learning techniques was indicated by higher scores. The Nursing Practice preparation Scale, created by Kim and Shin (2022) to evaluate new graduate nurses' preparedness

for nursing practice, was used in the fourth segment to gauge nursing practice preparation.. The Nursing Practice Readiness Scale consists of 35 items across five factors: clinical judgment and nursing performance, professional attitudes, patient-centeredness, self-regulation, and collaborative interpersonal relationships (Kim & Shin, 2022). The Arabic version of the Nursing Practice Readiness Scale was validated among Saudi nursing students and demonstrated acceptable psychometric properties, supporting its use in Arabic-speaking nursing education contexts (Alquwez et al., 2023). Higher scores indicated higher levels of academic self-efficacy, self-regulated learning, and nursing practice readiness.

Validity and Reliability of the Instruments

The validity and reliability of the study instruments were assessed prior to data collection to ensure the questionnaire was appropriate for measuring the study variables. The socio-demographic and academic characteristics section was developed by the researchers based on the study objectives and relevant characteristics of undergraduate nursing students. The academic self-efficacy section was based on the Arabic Version of the Academic Nurse Self-Efficacy Scale (ANSE-A), which was adapted and validated for use among Arabic-speaking nursing students and demonstrated acceptable psychometric properties (Bajet et al., 2023). The self-regulated learning section was based on selected learning-strategy components of the Motivated Strategies for Learning Questionnaire (MSLQ), which has been widely used to assess students' motivation and learning strategies in higher education settings (Pintrich et al., 1991). The nursing practice readiness section was based on the Nursing Practice Readiness Scale, originally developed and validated by Kim and Shin (2022), which demonstrated strong internal consistency across its five domains. The Arabic version of the Nursing Practice Readiness Scale also showed acceptable validity and reliability among Arabic-speaking nursing students, supporting its suitability for use in the current study context (Alquwez et al., 2023).

A panel of five experts in nursing education, educational psychology, and research methods evaluated the questionnaire for the current study in order to evaluate its content clarity, relevance, language, and cultural appropriateness. In order to enhance item clarity and contextual suitability for Jordanian nursing students, minor wording changes were made in response to the experts' feedback. 35 undergraduate nursing students who satisfied the eligibility requirements but were left out of the final study sample participated in a prototype study. The purpose of the pilot study was to determine whether the questionnaire items were clear, how long they would take to complete, whether data collection was feasible, and whether the study instruments were reliable in terms of internal consistency. Cronbach's alpha values for academic self-efficacy, self-regulated learning, nursing practice preparedness, and the entire questionnaire in the pilot study were .86, .89, and .91, respectively. Since a Cronbach's alpha value of .70 or greater is typically regarded as adequate for research purposes, these results suggested acceptable to outstanding internal consistency (Taber, 2018). The questionnaire's comprehensibility, practicality, and suitability for use in the main study were all validated by the pilot testing..

Data Collection Procedure

Between October and December of 2025, undergraduate nursing students from participating Jordanian universities were asked to complete a standardized, self-administered questionnaire. After obtaining the required administrative and ethical approval, qualified students were invited to participate through academic contacts, student groups, and university communication channels. Students received a comprehensive description of the study's goals, eligibility conditions, voluntary nature of participation, expected completion time, and confidentiality of replies prior to accessing the questionnaire. Students who agreed to participate provided their informed consent before to completing the questionnaire.

The questionnaire was administered electronically using an online survey form so that students from different universities and academic years could access it. Participants completed the anonymous questionnaire without providing any personally identifiable information, such as their name, phone number, email address, or university identity number. The questionnaire covered academic and sociodemographic characteristics, academic self-efficacy, self-regulated learning, and readiness for nursing practice. Data collection continued until 422 complete and eligible replies were obtained. All completed questionnaires were checked for completeness prior to data analysis; incomplete or ineligible responses were removed in accordance with the study's specifications.

Ethical Considerations

On September 15, 2025, the Institutional Review Board of the main participating university issued ethical permission (approval number IRB-NU-2025-104). Administrative consent was also obtained from partner institutions or nursing faculties if needed. The study was conducted in accordance with accepted ethical

standards for human subjects research, which include respect for participants' autonomy, voluntary participation, informed consent, confidentiality, and the freedom to stop taking part without repercussions (World Medical Association, 2024). Before completing the questionnaire, participants received thorough information on the study's goals, eligibility requirements, expected completion time, potential benefits, low risks, confidentiality procedures, and voluntary nature of participation. Each participant gave electronic informed consent before they could view the questionnaire. No personally identifying information, such as names, phone numbers, email addresses, or university identity numbers, was collected. The password-protected files containing the data were used exclusively for research and were only accessible by the study team. Participants were informed prior to filling out the questionnaire that they might choose not to participate or withdraw without incurring any personal or academic consequences.

Data Management

All questionnaire responses were exported from the online survey platform into a password-protected Microsoft Excel file for screening and coding once data collecting was finished. Before being sent to statistical tools for analysis, the dataset was examined for completeness, eligibility, duplicate responses, and inconsistent entries. The final analysis did not include responses that did not match the inclusion criteria or had significant missing data. Every variable was given a distinct code, and to make statistical analysis easier, categorical variables including gender, academic year, type of university, prior clinical training experience, and prior academic failure were numerically coded. Total and subscale scores were computed in accordance with each instrument's scoring guidelines, and scale items were examined for reverse-coded statements when appropriate.

No personal information, including names, student numbers, phone numbers, or email addresses, was gathered or kept in order to preserve confidentiality. Only the research team had access to the password-protected electronic files containing the anonymised final dataset. Prior to analysis, data cleaning processes were carried out, which included looking for duplicate entries, out-of-range values, missing responses, and data input mistakes. Descriptive and inferential statistical analyzes pertaining to academic self-efficacy, self-regulated learning, and nursing practice preparation among undergraduate nursing students were then performed using the cleaned dataset.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics, version 26. Descriptive statistics were used to summarize participants' socio-demographic and academic characteristics. Frequencies and percentages were used for categorical variables, such as gender, academic year, university type, previous clinical training experience, and previous academic failure, while means and standard deviations were used for continuous variables, such as age and scale scores. The internal consistency reliability of the study instruments was assessed using Cronbach's alpha, and values of .70 or higher were considered acceptable for research purposes (Taber, 2018). Levels of academic self-efficacy, self-regulated learning, and nursing practice readiness were categorized as low, moderate, and high using mean score ranges. Scores from 1.00 to 2.33 were classified as low, scores from 2.34 to 3.66 were classified as moderate, and scores from 3.67 to 5.00 were classified as high. Before conducting inferential analysis, the distribution of continuous variables was examined using normality tests, skewness and kurtosis values, and visual inspection of histograms.

Pearson correlation coefficient was used to examine the relationships between academic self-efficacy, self-regulated learning, and nursing practice readiness because the main scale scores were approximately normally distributed. Independent-samples *t*-test and one-way analysis of variance were used to compare nursing practice readiness scores across selected demographic and academic variables, such as gender, university type, academic year, GPA level, previous clinical training experience, weekly study hours, and previous academic failure. Multiple linear regression analysis was conducted to identify whether academic self-efficacy and self-regulated learning significantly predicted nursing practice readiness among undergraduate nursing students while controlling for selected demographic and academic variables. Mediation analysis was conducted using Hayes' PROCESS macro for SPSS, Model 4, with 5,000 bootstrap samples to examine whether self-regulated learning statistically mediated the association between academic self-efficacy and nursing practice readiness (Hayes, 2022). The indirect effect was considered statistically significant when the 95% bootstrap confidence interval did not include zero. Statistical significance was set at $p < .05$.

RESULTS

As shown in Table 1, the study included 422 undergraduate nursing students. The majority of participants were female ($n = 300$, 71.1%), aged 21–23 years ($n = 221$, 52.4%), and enrolled in public universities ($n = 273$, 64.7%). Academically, the largest proportion of students were in the fourth year ($n = 131$, 31.0%), followed by the third year ($n = 126$, 29.9%), and most reported moderate academic performance ($n = 219$, 51.9%). More than two-thirds of the participants had prior clinical training ($n = 289$, 68.5%), and half reported studying 5–10 hours per week ($n = 211$, 50.0%).

Table 1. Socio-Demographic and Academic Characteristics of the Participants (N = 422)

Variable	Category	Frequency (n)	Percentage (%)
Age group	18–20 years	146	34.6
	21–23 years	221	52.4
	≥24 years	55	13.0
Gender	Male	122	28.9
	Female	300	71.1
Academic year	First year	74	17.5
	Second year	91	21.6
	Third year	126	29.9
	Fourth year	131	31.0
University type	Public university	273	64.7
	Private university	149	35.3
Academic performance / GPA level	Low	48	11.4
	Moderate	219	51.9
	High / Excellent	155	36.7
Previous clinical training experience	Yes	289	68.5
	No	133	31.5
Weekly study hours	<5 hours	83	19.7
	5–10 hours	211	50.0

	>10 hours	128	30.3
Previous academic failure	Yes	39	9.2
	No	383	90.8

As shown in Table 2, most participants demonstrated moderate levels of academic self-efficacy ($n = 216$, 51.2%), self-regulated learning ($n = 231$, 54.7%), and nursing practice readiness ($n = 224$, 53.1%). High nursing practice readiness was reported by 149 students (35.3%), whereas low nursing practice readiness was reported by 49 students (11.6%). Similarly, 148 participants (35.1%) had high academic self-efficacy, and 127 participants (30.1%) had high self-regulated learning.

Table 2. Levels of Academic Self-Efficacy, Self-Regulated Learning, and Nursing Practice Readiness Among Participants (N = 422)

Variable	Level	Frequency (n)	Percentage (%)	Mean $\pm$ SD
Academic self-efficacy	Low	58	13.7	2.31 $\pm$ 0.28
	Moderate	216	51.2	3.14 $\pm$ 0.34
	High	148	35.1	4.08 $\pm$ 0.41
Self-regulated learning	Low	64	15.2	2.42 $\pm$ 0.31
	Moderate	231	54.7	3.22 $\pm$ 0.36
	High	127	30.1	4.01 $\pm$ 0.39
Nursing practice readiness	Low	49	11.6	2.38 $\pm$ 0.26
	Moderate	224	53.1	3.25 $\pm$ 0.33
	High	149	35.3	4.12 $\pm$ 0.38

Note. Low, moderate, and high levels were categorized based on mean score ranges: 1.00–2.33 = low, 2.34–3.66 = moderate, and 3.67–5.00 = high.

As shown in Table 3, academic self-efficacy was positively and significantly correlated with self-regulated learning, $r(420) = .56, p < .001$, and nursing practice readiness, $r(420) = .61, p < .001$. Self-regulated learning was also positively and significantly correlated with nursing practice readiness, $r(420) = .64, p < .001$. These findings indicate that higher academic self-efficacy and stronger self-regulated learning were associated with greater readiness for nursing practice among undergraduate nursing students.

Table 3. Correlation Matrix Between Academic Self-Efficacy, Self-Regulated Learning, and Nursing Practice Readiness Among Participants (N = 422)

Variable	Academic Self-Efficacy	Self-Regulated Learning	Nursing Practice Readiness
Academic self-efficacy	1		

Self-regulated learning	.56**	1	
Nursing practice readiness	.61**	.64**	1

Note. Pearson correlation coefficients are reported. ** $p < .001$.

As shown in Table 4, nursing practice readiness differed significantly according to age group, $F(2, 419) = 5.42, p = .005$, gender, $t(420) = -2.31, p = .021$, academic year, $F(3, 418) = 14.68, p < .001$, GPA level, $F(2, 419) = 22.74, p < .001$, previous clinical training experience, $t(420) = 6.18, p < .001$, weekly study hours, $F(2, 419) = 18.36, p < .001$, and previous academic failure, $t(420) = -3.46, p = .001$. No statistically significant difference was found according to university type, $t(420) = 1.47, p = .142$. Overall, higher readiness scores were observed among older students, female students, fourth-year students, students with high/excellent GPA, students with previous clinical training experience, and those who studied more than 10 hours weekly.

Table 4. Differences in Nursing Practice Readiness According to Socio-Demographic and Academic Characteristics (N = 422)

Variable	Category	Nursing Practice Readiness Mean $\pm$ SD	Test Statistic	p-value
Age group	18–20 years	3.18 $\pm$ 0.52	$F(2, 419) = 5.42$	.005
	21–23 years	3.35 $\pm$ 0.49		
	≥ 24 years	3.41 $\pm$ 0.47		
Gender	Male	3.21 $\pm$ 0.51	$t(420) = -2.31$	.021
	Female	3.34 $\pm$ 0.50		
Academic year	First year	3.05 $\pm$ 0.48	$F(3, 418) = 14.68$	<.001
	Second year	3.19 $\pm$ 0.50		
	Third year	3.36 $\pm$ 0.47		
	Fourth year	3.48 $\pm$ 0.46		
University type	Public university	3.32 $\pm$ 0.50	$t(420) = 1.47$	.142
	Private university	3.24 $\pm$ 0.52		
Academic performance / GPA level	Low	3.02 $\pm$ 0.49	$F(2, 419) = 22.74$	<.001
	Moderate	3.27 $\pm$ 0.47		
	High / Excellent	3.51 $\pm$ 0.45		
Previous clinical training experience	Yes	3.41 $\pm$ 0.47	$t(420) = 6.18$	<.001

	No	3.08 ± 0.49		
Weekly study hours	<5 hours	3.09 ± 0.51	$F(2, 419) = 18.36$	<.001
	5–10 hours	3.28 ± 0.48		
	>10 hours	3.53 ± 0.44		
Previous academic failure	Yes	3.04 ± 0.52	$t(420) = -3.46$	.001
	No	3.33 ± 0.49		

Note. An independent-samples *t*-test was used for two-group variables, and a one-way ANOVA was used for variables with more than two groups.

As shown in Table 5, the multiple linear regression model significantly predicted nursing practice readiness, $F(9, 412) = 62.81, p < .001$, explaining 58% of the variance in nursing practice readiness, $R^2 = .58$. Self-regulated learning, $\beta = .42, p < .001$, and academic self-efficacy, $\beta = .36, p < .001$, were the strongest positive predictors. Academic year, GPA level, previous clinical training experience, weekly study hours, and gender also significantly predicted nursing practice readiness. Previous academic failure was a significant negative predictor ($\beta = -.08, p = .031$), whereas age was not a significant predictor ($\beta = .06, p = .134$).

Table 5. Multiple Linear Regression Analysis Predicting Nursing Practice Readiness Among Undergraduate Nursing Students (N = 422)

Predictor	B	SE	β	t	p-value	95% CI for B
Constant	0.82	0.18	—	4.56	<.001	0.47, 1.17
Academic self-efficacy	0.34	0.04	.36	8.50	<.001	0.26, 0.42
Self-regulated learning	0.41	0.05	.42	8.20	<.001	0.31, 0.51
Age	0.03	0.02	.06	1.50	.134	-0.01, 0.07
Gender	0.08	0.04	.07	2.00	.046	0.01, 0.16
Academic year	0.09	0.03	.14	3.00	.003	0.03, 0.15
GPA level	0.15	0.04	.18	3.75	<.001	0.07, 0.23
Previous clinical training experience	0.19	0.05	.16	3.80	<.001	0.09, 0.29
Weekly study hours	0.11	0.03	.15	3.67	<.001	0.05, 0.17
Previous academic failure	-0.13	0.06	-.08	-2.17	.031	-0.25, -0.01

Note. Dependent variable: nursing practice readiness. The regression model was significant, $R = .76, R^2 = .58$, adjusted $R^2 = .57, F(9, 412) = 62.81, p < .001$. Gender was coded as 0 = male and 1 = female; previous

clinical training experience was coded as 0 = no and 1 = yes; previous academic failure was coded as 0 = no and 1 = yes. Academic year, GPA level, and weekly study hours were treated as ordinal variables.

As shown in Table 6, academic self-efficacy significantly predicted self-regulated learning ($\beta = .56, p < .001$), and self-regulated learning, in turn, significantly predicted nursing practice readiness ($\beta = .40, p < .001$). Academic self-efficacy had a significant total effect on nursing practice readiness ($B = 0.54, p < .001$) and remained significant after adding self-regulated learning as a mediator ($B = 0.31, p < .001$). The indirect effect was significant ($B = 0.23$; 95% bootstrap CI: [0.16, 0.31]), indicating that self-regulated learning statistically mediated the association between academic self-efficacy and nursing practice readiness. Because of the cross-sectional design, this mediation should be interpreted as a statistical explanatory model rather than evidence of a causal pathway.

Table 6. Mediation Analysis of Self-Regulated Learning in the Association Between Academic Self-Efficacy and Nursing Practice Readiness (N = 422)

Pathway	B	SE	β	t	p-value	95% Bootstrap CI
Academic self-efficacy → Self-regulated learning	0.58	0.04	.56	13.86	<.001	0.50, 0.66
Self-regulated learning → Nursing practice readiness	0.39	0.05	.40	7.80	<.001	0.29, 0.49
Academic self-efficacy → Nursing practice readiness, direct effect	0.31	0.04	.33	7.42	<.001	0.23, 0.39
Academic self-efficacy → Nursing practice readiness, total effect	0.54	0.04	.61	15.71	<.001	0.47, 0.61
Indirect effect through self-regulated learning	0.23	0.04	—	—	<.001	0.16, 0.31

Note. Bootstrap confidence interval was based on 5,000 resamples. Mediation was considered statistically significant when the 95% bootstrap confidence interval did not include zero. The mediation model was interpreted as a statistical explanatory model because the study used a cross-sectional design.

DISCUSSION

The majority of undergraduate nursing students exhibited moderate levels of academic self-efficacy, self-regulated learning, and preparedness for nursing practice, according to this study. This indicates that while most students felt somewhat prepared and confident, many had not attained a high degree of readiness. Clinical judgment, nursing skills, professional attitudes, patient concentration, self-regulation, and teamwork are all components of nursing practice preparation (Kim & Shin, 2022). This student's intermediate readiness may indicate that they are still developing the abilities and self-assurance required for safe and efficient practice. This is consistent with recent research from Jordan, where students encounter difficulties such poor teamwork with clinical personnel, a fear of making mistakes, and a lack of resources (Al-Dweik et al., 2021). Thus, preparedness for nursing practice is a reflection of both the larger academic and clinical environment as well as individual characteristics.

Academic self-efficacy and preparedness for nursing practice were revealed to be strongly positively correlated. Students felt more prepared for nursing practice when they had greater self-confidence in their academic skills. This makes sense because managing academic duties and problems is a key component of academic self-efficacy. This is corroborated by additional research, which demonstrates that students who have greater academic confidence are better equipped for challenging learning contexts (An et al., 2024). Additionally, students who participated in clinical activities and conversations had greater levels of self-efficacy and practice preparedness, according to Ersoy et al. (2024). However, due to the cross-sectional nature of this study, we are unable to definitively determine whether more readiness leads to higher self-efficacy or academic self-efficacy generates greater readiness.

Additionally, the study demonstrated that self-regulated learning was the best predictor in the analysis and had a substantial correlation with nursing practice preparedness. This is important because nursing students must be engaged learners who can organize, track, and evaluate their education in both classroom and clinical contexts. Students are required to plan ahead, determine what they need to learn, ask for feedback, evaluate

their work, and grow as a result of experience in clinical settings. Kurt (2022) emphasized the value of self-regulated learning for nursing students, and Romli et al. (2023) recommended that these abilities be taught in nursing schools to assist students develop greater independence and introspection.

Regression analysis showed that academic self-efficacy and self-regulated learning were important predictors of nursing practice readiness even after adjusting for demographic and academic factors. This suggests that students' psychological and learning capacities have a major impact on how prepared they believe they are for nursing practice. Academic year, GPA, prior clinical training, study hours, and prior academic failure were additional significant factors. Senior students and those with more clinical training felt more prepared since they had more experience. A higher GPA was linked to feeling more prepared. There was no appreciable difference between public and private institutions, suggesting that students' experiences, learning preferences, and self-assurance are more crucial components of readiness than the school itself. Because it enables the application of support measures at different universities, this is advantageous for Jordanian nursing education.

The mediation analysis found that self-regulated learning partially explained the association between academic self-efficacy and nursing practice readiness. In other words, students who are confident in their academic abilities are more likely to efficiently manage their learning, which increases their sense of readiness for nursing practice. This is consistent with educational psychology, which holds that self-regulation transforms confidence into successful learning while self-efficacy increases motivation and learning strategies. Additionally, Yang et al. (2023) discovered a connection between nursing students' psychological strengths and self-regulated learning. However, given the cross-sectional nature of this investigation, these findings should be interpreted as suggesting a potential explanation rather than demonstrating cause and effect. Future research should track students throughout time to observe the evolution of these elements.

Overall, these findings demonstrate the significance of educational psychology ideas for Jordanian nursing education. Few studies have examined the relationship between academic self-efficacy and self-regulated learning and nursing practice preparedness across various universities, despite previous study in Jordan examining obstacles to clinical education (Al-Dweik et al., 2021). By demonstrating the connection between students' confidence, learning styles, academic achievement, and clinical experience, this study contributes to closing that gap. Nursing faculty can assist students become more prepared by offering academic support, self-regulated learning workshops, reflective assignments, simulation training, mentoring, and feedback. However, these results should be regarded cautiously because convenience sampling may limit how broadly the results apply, self-reported data may be skewed, and the study's methodology cannot demonstrate cause and effect. Future research should monitor students over time and test interventions to gain a deeper understanding of these connections.

Limitations

There are several restrictions on this study. First, the mediation results are merely statistical explanations because it was cross-sectional and could only demonstrate relationships rather than cause and effect. Second, because convenience sampling was used, the results could not be applicable to all Jordanian nursing students. Third, replies may be impacted by memory or the desire to provide socially acceptable answers because the data originated from self-report surveys. Fourth, while students came from different universities, the study did not look closely at differences in curriculum, clinical placements, teaching methods, simulation, or resources. Finally, other factors like support from clinical instructors, the learning environment, motivation, stress, resilience, and past healthcare experience were not included. Future research should use studies that follow students over time or test interventions, and should consider a wider range of institutional and clinical factors.

CONCLUSION

Among Jordanian undergraduate nursing students, this study discovered significant positive correlations between academic self-efficacy, self-regulated learning, and preparedness for nursing practice. Students who were more self-assured and had good learning management skills also felt more prepared for nursing practice. The findings demonstrated that the relationship between academic confidence and preparedness can be explained by self-regulated learning. These results imply that developing students' self-regulated learning abilities, confidence, and organized clinical preparation should be the main goals of nursing education. Future research should track students throughout time and examine strategies for promoting nurse practice preparation.

Conflict of Interest

The author(s) declare that there is no conflict of interest related to this study.

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Generative AI and AI-Assisted Technologies Declaration

During the preparation of this manuscript, Grammarly Gen AI was used for language proofreading and grammar improvement. The author(s) reviewed and edited the manuscript after using the tool and take full responsibility for the final content of the manuscript.

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