Journal of Nursing Science

Journal homepage: www.jns.vn

Exploring research competency, self-efficacy and attitudes toward research among nursing students at Nguyen Tat Thanh University in 2025

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ABSTRACT

***Objective**: To describe research self-efficacy, competency, and attitudes toward research among third- and fourth-year nursing students at Nguyen Tat Thanh University in 2025, with the goal of informing strategies to enhance research capacity in nursing education. **Methodology**: A descriptive cross-sectional design was employed with a sample of 220 nursing students who had completed a scientific research course. Validated scales measuring research self-efficacy, research competency, and attitudes toward research were administered via an online survey. Descriptive statistics, correlation analysis, and path analysis were used to examine relationships among variables. **Results**: Students demonstrated good research self-efficacy (Mean = 3.43 ± 0.84) and positive attitudes toward research (Mean = 2.81 ± 0.91), while research competency remained moderate (Mean = 3.15 ± 0.70). Moderate correlations were observed between writing/evaluating research papers and attitude components ($r = 0.291$, $p < .001$). Path analysis confirmed that self-efficacy significantly mediates the relationship between research attitudes and competency ($\beta = 0.710$, $p < .001$), underscoring its predictive value. **Conclusions**: Despite positive attitudes and confidence, students lacked strong practical skills. Targeted educational interventions-such as mentorship, hands-on training, and curriculum integration-are recommended to bridge the gap between perceived ability and actual research competency, ultimately preparing students for evidence-based nursing practice.*

***Keywords**: Research self-efficacy, research competency, attitudes toward research, nursing Students, Nursing Education*

INTRODUCTION

The involvement of students in scientific research is vital for their academic advancement and professional development[1]. Nonetheless, participation rates in research activities among nursing students remain alarmingly low, often attributed to a lack of awareness regarding the significance of research in nursing practice [2]. Overall, the attitude toward scientific research among nursing students is moderate. Factors such as year of study, academic ranking, frequency of reading scientific literature, and intention to engage in research activities were significantly associated with attitudes toward scientific research [3]. However, in Nurcan Ertug's study, approximately 49.5% of students

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DOI: 10.54436/jns.2025.05.1027

Received: Jul 10, 2025
Accepted: Aug 26, 2025
Published: Aug 27, 2025

reported knowing how to access scientific publications; nevertheless, none actively followed or read them. Only 4.2% of students participated in research activities. Furthermore, 87.0% did not use research findings in their clinical practice, and 34.4% were unaware of how to apply such findings in practice [4].

Research self-efficacy, derived from the social cognitive theory of self-efficacy, is a critical predictor of students' engagement in research activities [5]. Empirical evidence consistently shows that nursing students with greater confidence in their research skills are more likely to participate in research projects and to recognize the importance of research in advancing evidence-based practice [6]. However, while the literature on research competency among practicing nurses is extensive, there remains a significant gap in studies examining nursing students' competencies within the context of competency-based education.

Research self-efficacy, derived from the social cognitive theory of self-efficacy, is a critical predictor of students' engagement in research activities5. Empirical evidence consistently shows that nursing students with greater confidence in their research skills are more likely to participate in research projects and to recognize the importance of research in advancing evidence-based practice [6] .

Participation in research courses or related academic activities has been consistently associated with more positive attitudes toward nursing research [7, 8]. This association underscores the importance of developing and implementing pedagogical strategies that not only convey research knowledge but also actively shape students' perceptions and appreciation of research. Positive attitudes are a critical determinant of students' motivation and willingness to engage in research activities. When nurtured effectively, these attitudes can lead to increased research participation, thereby enhancing the integration of evidence-based practice and ultimately contributing to improved quality of patient care.

In Vietnam, growing interest has emerged in understanding the relationships among research competency, self-efficacy, and attitudes toward research in nursing education. However, comprehensive studies on this interplay remain limited, underscoring the need for further investigation to strengthen the research culture in nursing programs [9, 10]. Addressing this gap, the present study examines the associations among these three factors among third- and fourth-year nursing students at Nguyen Tat Thanh University, aiming to inform strategies that enhance research capacity and educational outcomes.

METHODS

Study design and participants: This study utilized a cross-sectional descriptive design

Sample: Nursing students.

Inclusion criteria: Third-year and fourth-year nursing students. Students who had completed the Scientific Research course in nursing practice.

Exclusion criteria: Students who had not completed the required coursework. Students were not willing to participate in research

Sample size: The sample size was calculated using G*Power software, with parameters set as follows: an effect size (w) of 0.3 (indicating a medium effect),

an alpha error probability (α) of 0.05, and a power (1 - β) of 0.95. This calculation determined a required sample size of 220 participants, ensuring sufficient power to detect statistically significant differences at the 0.05 level.

Sampling: This study employed a convenience sampling method. At the time of data collection, 615 students met the inclusion criteria. The researchers distributed an online survey via Google Forms and introduced the study directly in classrooms to explain its purpose. Data collection continued until the target sample size of 220 participants was reached.

Research instruments: The Research Competency Scale, developed by Chujin Qiu in 2019, consists of 24 questions that assess various subscales related to research skills. The original scale demonstrated high internal consistency, with an overall Scale Content Validity Index (S-CVI) of 0.975 and Item Content Validity Indices (I-CVIs) ranging from 0.80 to 1.0 [11].

The Self-Efficacy Questionnaire, created by Şener Büyüköztürk in 2011, includes 18 questions designed to evaluate self-efficacy across various contexts [12].

The Attitudes Toward Research Scale, developed by Papanastasiou in 2023, comprises 13 questions. This scale has demonstrated strong reliability, with Cronbach's alpha and McDonald's omega coefficients at 0.876 and 0.880, respectively[13].

Each question modified in these scales is rated on a 5-point Likert scale, with scores ranging from 1 (Very Poor) to 5 (Very Good). The total score is calculated by summing the individual item scores, with interpretations as follows: 4.21 – 5.00 indicates "Very Good," 3.41 – 4.20 is "Good," 2.61 – 3.40 represents "Moderate," 1.81 – 2.60 is considered "Poor," and 1.00 – 1.80 is classified as "Very Poor."

All questionnaires were translated into Vietnamese using a forward and backward translation process, and permission was obtained from the original authors. Following translation, a pilot test was conducted to ensure clarity and cultural relevance. The reliability of the translated instruments was reassessed using Cronbach's alpha, with scores of 0.944 for the Research Competency Scale, 0.898 for the Attitudes Toward Research Scale, and 0.849 for the Self-Efficacy Questionnaire.

Data analysis: The study utilized Jamovi software for statistical analysis. Quantitative variables were analyzed using descriptive and inferential statistical methods. (a) Descriptive statistics were employed to summarize the three primary variables: Research Competency, Self-Efficacy, and Attitudes Toward Research. (b) A correlation matrix was generated to examine the relationships among Research Self-Efficacy, Research Competency, and Attitudes Toward Research among nursing students. (c) Path analysis was conducted to explore the relationships among Attitudes Toward Research, Self-Efficacy, and Research Competency in nursing students.

Ethics considerations: The study is conducted based on ensuring ethical principles, including: The study has received approval from the Faculty of Nursing, Nguyen Tat Thanh University; Eligible students participate in the study voluntarily, Without affecting their educational benefits, and the information collected is used solely for research purposes to ensure confidentiality.

RESULTS

The study included a total of 220 participants: third- and fourth-year nursing students, along with students from bridging programs who had completed the scientific research course in nursing practice.

Table 1. Research self-efficacy reported bystudied nursing students

Item	Mean ± SD	Descriptive Interpretation
Perception and research issues	3.44 ± 0.71	Good
Literature survey	3.54 ± 1.43	Good
Research design and methodology	3.35 ± 0.71	Good
Data analysis and reporting	3.4 ± 0.68	Good
Research writing	3.4 ± 0.73	Good
Overall mean	**3.43 ± 0.84**	**Good**

Note: 4.21 – 5.00: Very good; 3.41 – 4.20: Good; 2.61 – 3.40: Moderate; 1.81 – 2.60: Poor; 1.00 – 1.80: Very Poor

Table 1, showed that all dimensions of research self-efficacy among nursing students were rated as "Good," with the following mean scores: Perception and Research Issues, 3.44 ± 0.71; Literature Survey, 3.54 ± 1.43; Research Design and Methodology, 3.35 ± 0.71; Data Analysis and Reporting, 3.40 ± 0.68; and Research Writing, 3.40 ± 0.73. The overall mean score was 3.43 ± 0.84, reflecting a "Good" level of self-efficacy.

Table 2. Research competency reported by studied nursing students

Item	Mean ± SD	Descriptive Interpretation
Basic steps of research	3.18 ± 0.70	Moderate
Literature review	3.13 ± 0.68	Moderate
Ethics and research design	3.17 ± 0.67	Moderate
Population and sample	3.12 ± 0.72	Moderate
Data collection and analysis	3.13 ± 0.68	Moderate
Writing and evaluating the research paper	3.06 ± 0.75	Moderate
Evidence-based practice	3.28 ± 0.68	Good
Overall mean	**3.15 ± 0.7**	**Moderate**

Note: 4.21 – 5.00: Very good; 3.41 – 4.20: Good; 2.61 – 3.40: Moderate; 1.81 – 2.60: Poor; 1.00 – 1.80: Very Poor

In table 2, most assessed factors were rated as "Moderate," with the following mean scores: Basic Steps of Research, 3.18 ± 0.70; Literature Review, 3.13 ± 0.68; Ethics and Research Design, 3.17 ± 0.67; Population and Sample, 3.12 ± 0.72, Data Collection and Analysis, 3.13 ± 0.68, and Writing and Evaluating the Research Paper, 3.06 ± 0.75. In contrast, Evidence-Based Practice was rated as "Good," with a mean score of 3.28 ± 0.68. The overall mean score for research competency was 3.15 ± 0.70, indicating a "Moderate" level of competency.

Table 3. Attitudes toward Research reported by studied nursing students

Item	Mean ± SD	Descriptive Interpretation
Confidence and ability	2.98 ± 0.88	Moderate
Support and interaction	2.74 ± 0.92	Good
Attitude and engagement	2.81 ± 0.94	Moderate
Perception and expectations	2.72 ± 0.89	Good
Overall Mean	2.81 ± 0.91	Good

Note: 4.21 – 5.00: Very good; 3.41 – 4.20: Good; 2.61 – 3.40: Moderate; 1.81 – 2.60: Poor; 1.00 – 1.80: Very Poor

The results presented in Table 3 show that the overall mean score for attitudes toward research among nursing students was 2.81 ± 0.91, indicating a "Good" level of attitude. Both Support and Interaction (2.74 ± 0.92) and Perception and Expectations (2.72 ± 0.89) were rated as "Good." In contrast, Confidence and Ability (2.98 ± 0.88) and Attitude and Engagement (2.81 ± 0.94) were rated as "Moderate".

Table 4. Selected correlations between research competency and attitudes toward research

		Confidence and ability	Support and interaction	Attitude and engagement	Perception and expectations
Writing and evaluating the research paper	Pearson's r	0.086	0.227	0.196	0.291
	p-value	0.204	< 0.001	0.003	< 0.001
	Correlation	No/Negligible Correlation	Weak Correlation	Weak Correlation	Moderate Correlation
Data collection and analysis	Pearson's r	0.084	0.221	0.231	0.279
	p-value	0.213	< 0.001	< 0.001	< 0.001
	Correlation	No/Negligible Correlation	Weak Correlation	Weak Correlation	Moderate Correlation

		Confidence and ability	Support and interaction	Attitude and engagement	Perception and expectations
Population and sample	Pearson's r	0.026	0.161	0.204	0.259
	p-value	0.704	0.017	0.002	< 0.001
	Correlation	No/Negligible Correlation	Weak Correlation	Weak Correlation	Moderate Correlation
Ethics and research design	Pearson's r	0.049	0.216	0.191	0.259
	p-value	0.470	0.001	0.004	< 0.001
	Correlation	No/Negligible Correlation	Weak Correlation	Weak Correlation	Moderate Correlation

*Note: ***p < .001; **p < .01; Interpretation based on Cohen (1988): |r| ≥ 0.30 = moderate; 0.20–0.29 = weak*

The correlation matrix (Table 4) illustrates the relationships among nursing students' research self-efficacy, competency, and attitudes toward research. Most correlations were negligible ($r < 0.20$), indicating weak or no meaningful association between several variables.A few notable exceptions were observed: The 'Writing and Evaluating the Research Paper' subscale showed moderate correlations with 'Attitude and Engagement' ($r = 0.291$, $p < 0.001$) and 'Perception and Expectations' ($r = 0.291$, $p < 0.001$), suggesting that students who are more confident in research writing tend to show greater engagement and more favorable expectations toward research. Similarly, 'Data Collection and Analysis' and 'Population and Sample' both demonstrated moderate correlations with aspects of research attitudes, particularly 'Perception and Expectations' ($r = 0.279$ and $r = 0.259$ respectively, $p < 0.001$). Overall, while most relationships among variables were weak, the moderate correlations in writing, data analysis, and sampling skills suggest that strengthening these competencies may positively influence students' attitudes toward research. These insights highlight key target areas for curriculum enhancement in nursing education.

Table 5. Path analysis of attitudes, self-efficacy, and research competency

	$\chi^2 = 16.32$, $p < 0.001$			95% Confidence Intervals				
Variable 1	**Variable 2**	**Estimate**	**SE**	**Lower**	**Upper**	**β**	**z**	**p**
Attitudes toward research	Research self-efficacy	-0.17	0.07	-0.3	-0.03	-0.22	-2.4	0.016
Attitudes toward research	Research competency scale for nursing students	0.22	0.05	0.11	0.32	0.37	4.06	<0.001
Research self-efficacy	Research competency	123.1	0.00	123.1	123.1	0.710		
R^2: 0.07, CI (0.02, 0.15)								

The model fit results for the path analysis are as follows: the χ^2 statistic for the baseline model is 16.32, with 2 degrees of freedom (df) and a p-value of less than 0.001. The R^2 results indicate that the model explains approximately 7% of the variance in attitudes toward research. The 95% confidence interval for this estimate ranges from 2% to 15%, suggesting that while the model provides some insight into the factors influencing attitudes, there is still a considerable amount of unexplained variance.

The attitudes toward research have a negative association with research self-efficacy, represented by an estimate of -0.17 and a standardized coefficient (β) of -0.22, with a p-value of 0.016, indicating statistical significance. In contrast, attitudes toward research positively correlate with the Research Competency Scale for Nursing Students, with an estimate of 0.22 and a β of 0.37, and a highly significant p-value of less than 0.001. Additionally, there is a strong relationship between research self-efficacy and research competency, with an estimate of 123.1 and a standardized coefficient of 0.710, suggesting a robust positive association.

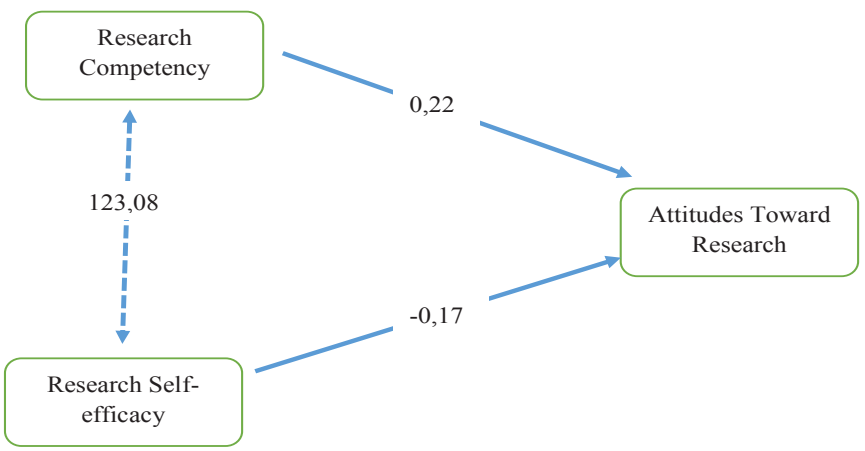

Figure 1. Path analysis of research attitudes, self-efficacy, and competency in nursing students

Figure 1 illustrates the relationships among research competency, self-efficacy, and attitudes toward research in nursing students. Research competency positively correlated with attitudes toward research (estimate = 0.22), suggesting that stronger skills align with more favorable attitudes. Self-efficacy was strongly associated with research competency (estimate = 123.08), indicating that greater confidence supports higher competency. Unexpectedly, self-efficacy showed a negative association with attitudes toward research (estimate = −0.17), a finding that warrants further exploration. These results highlight the complex interplay among the three variables and the need for educational interventions that build both confidence and positive attitudes.

DISCUSSION

Research self-efficacy among nursing students: The findings indicate that nursing students exhibit overall "Good" levels of research self-efficacy, with a mean score of 3.43 ± 0.84. This suggests that students feel confident in their research abilities and maintain a positive outlook on the importance of research in their future careers. In contrast, many studies have reported

that research self-efficacy among nursing students is generally rated as Moderate, indicating that while some students feel capable, a significant portion may struggle with confidence in their research skills. These high self-efficacy levels suggest that the educational interventions and curricula at Nguyen Tat Thanh University may effectively foster a supportive environment for developing research skills, which is crucial for enhancing motivation and engagement in research activities [7, 8].

Level of research competency: Gaps and educational needs: Despite the strong self-efficacy reported, students demonstrated only a "Moderate" level of research competency, with a mean score of 3.15 ± 0.70. This gap may arise from limited hands-on research opportunities or insufficient skill-building exercises in methodology, data analysis, and academic writing. This finding aligns with the study by Rizal Angelo N. Grande, which noted that most nursing students are familiar with the nursing research process [12]. However, familiarity does not necessarily translate into competence, highlighting the need for targeted interventions, such as project-based assignments, supervised research experiences, and student research groups, to enhance practical research skills.

Attitudes toward research: Role in motivation and engagement: Students' attitudes toward research were rated "Good" overall, with a mean score of 2.81 ± 0.91, though they remain on the lower end of the scale. This section examines how students' perceptions of research-particularly their confidence and engagement—relate to their willingness to participate in research opportunities. The moderate correlations between attitudes and specific competencies, such as writing and evaluation (Pearson's $r = 0.291$, $p < 0.001$), suggest that improving skill mastery may foster more positive attitudes. This finding indicates that motivation plays a crucial role in encouraging students to actively engage in research.

Interrelationships among self-efficacy, competency, and attitudes: The results reveal a complex interplay among self-efficacy, research competency, and attitudes toward research. Notably, self-efficacy appears to mediate the relationship between attitudes and research competency, emphasizing its strategic role in enhancing student performance. The negative association between attitudes toward research and self-efficacy (estimate of -0.17, $\beta = -0.22$) suggests that while students may appreciate research, they often feel less confident in their abilities to conduct it. Conversely, the positive correlation between attitudes and the Research Competency Scale (estimate of 0.22, $\beta = 0.37$) indicates that favorable attitudes can enhance perceived competencies. These findings underscore the need for educational interventions that specifically target enhancing self-efficacy alongside cultivating positive attitudes.

STRENGTHS AND LIMITATIONS

The study employed a cross-sectional descriptive design with a sample of 220 nursing students who had completed the Scientific Research course, using validated and reliable instruments adapted from previous research. A notable strength of the methodology lies in the use of well-established measurement tools-the Research Competency Scale, Research Self-Efficacy Questionnaire, and Attitudes Toward Research Scale-all of which demonstrated high internal consistency after translation and adaptation. Additionally, the use of

G*Power for sample size calculation ensured sufficient statistical power, and the use of multiple statistical techniques enriched the depth of findings.

However, this study presents several methodological limitations. First, the use of convenience sampling may have introduced selection bias, thereby limiting the generalizability of the results beyond the specific student population. Second, the reliance on self-reported questionnaires raises the possibility of response bias, as participants might have overestimated their competencies or attitudes due to social desirability. Lastly, the cross-sectional design prevents the establishment of causal relationships among the examined variables. Future research could address these limitations by adopting longitudinal or mixed-method approaches to capture changes over time and integrate qualitative perspectives for a more comprehensive understanding.

CONCLUSIONS

This study revealed that third- and fourth-year nursing students at Nguyen Tat Thanh University exhibited a good level of research self-efficacy (Mean = 3.43 ± 0.84) and positive attitudes toward research (Mean = 2.81 ± 0.91) while their actual research competency remained moderate (Mean = 3.15 ± 0.70), indicating a gap between confidence and practical capability. Moderate correlations were found between key competencies (e.g., writing and evaluating research papers, $r = 0.291$, $p < 0.001$) and students' attitudes, suggesting that specific skill development influences engagement and perception. Path analysis further confirmed that self-efficacy significantly mediates the relationship between attitudes and competency ($\beta = 0.710$, $p < 0.001$), emphasizing its central role in fostering research readiness. These findings highlight the need for integrative educational strategies that simultaneously strengthen attitudes, skills, and confidence.

Based on the conclusions, following suggestions are recommed bridge the gap between confidence and competence, ultimately preparing nursing students to contribute meaningfully to evidence-informed care: (i) Integrating skill-based research training through writing workshops, project-based assignments, and faculty-mentored research; (ii) Establishing peer or faculty mentoring programs to enhance research self-efficacy and motivation; (iii) Embedding research components across nursing courses to normalize research engagement as part of clinical practice; (iv) Organizing research-focused events (e.g., student conferences, journal clubs) to cultivate a research-supportive culture; and (v) Reviewing and enhancing the research curriculum, with emphasis on hands-on experience and evidence-based practice integration.

ACKNOWLEDGMENT

This research is funded by Nguyen Tat Thanh University, Ho Chi Minh City, Vietnam. We would like to express our gratitude to the Faculty of Nursing and the nursing students of Nguyen Tat Thanh University for their support in conducting this study. Thank you for your invaluable contributions.

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