

■ *Basic Research*

Metacognition as a predictor of Decision-Making Abilities and Core Competencies among Academic Nursing Staff

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Abstract

Background: Metacognitive plays a decisive role in developing the thinking activities and crucial element contributing to academic success which maximize the abilities to think, to make decisions effectively and to have the core competencies of performance. **Aim:** This study seeks to investigate whether metacognition can serve as a predictor for decision-making capabilities and core competencies among the academic nursing staff involved in the research. **Methods:** An exploratory descriptive correlational design was employed to achieve this objective. The research took place at the Faculty of Nursing affiliated with Helwan University in Cairo Governorate, Egypt. A convenience sample of 50 academic nursing staff members was selected from a total of 150 available personnel across all academic departments within the faculty. **Data collection tools:** Data were gathered using three instruments: the Metacognitive Awareness Inventory questionnaire, a decision-making abilities scale, and a core competencies observation checklist. **Results:** Findings revealed that the nursing staff demonstrated a high level of metacognitive awareness (82%), strong decision-making abilities (88.5%), and a high level of core competencies (93%). Moreover, there was a statistically significant positive correlation among overall metacognition, decision-making skills, and core competencies ($p \leq 0.000$). **Conclusion:** The study concluded that metacognition is a significant predictor of enhanced decision-making abilities and core competencies essential for job performance among academic nursing staff. **Recommendations:** Based on these results, it is recommended to further explore the impact of targeted metacognitive training programs across various nursing education settings to support professional development and improve clinical decision-making outcomes.

Keywords: Academic Nursing Staff, Core Competencies, Decision Making Abilities and Metacognitive Awareness.

Introduction:

In recent times, metacognition has attracted considerable interest as an essential aspect of cognitive functioning because it supports effective learning, problem-solving, and professional growth across disciplines such as education and healthcare (*Rivas et al., 2022*). It involves the process of reflecting on, evaluating, and understanding one's own thought processes. As nursing education continues to evolve, understanding the metacognitive abilities and practices of academic nursing staff is essential for promoting high-quality learning, research, and clinical practice (*Wang et al., 2024*).

Metacognition, often described as “thinking about thinking,” is widely regarded as a fundamental element in enhancing decision-making capabilities (*Church & Carroll, 2023*). *Schraw and Dennison (1994)* define metacognition as consisting of two primary domains: knowledge of cognition and regulation of cognition. The knowledge domain includes declarative knowledge (facts), procedural knowledge (how to do things), and conditional knowledge (when and why to apply procedures). The regulation domain involves activities such as planning, managing information strategies, monitoring progress, troubleshooting, and evaluating outcomes (*Asadzandi et al., 2022*).

Metacognition refers to an individual's awareness of their own thought processes and their capacity to regulate learning strategies effectively. When academic nursing staff intentionally integrates metacognitive techniques into their teaching and curriculum design, it can enhance students' comprehension of their active role in learning. This method helps close the gap between fostering critical thinking skills and empowering students to make well-informed decisions; ultimately improving their decision-making abilities (*Abdelhamed et al., 2023*; *Stanton et al., 2021*).

The importance of metacognition in decision-making is especially evident in clinical reasoning, a key focus within nursing education and research. Clinical reasoning involves adjusting cognitive strategies based on ongoing monitoring and evaluation, which contributes to progressively better decisions (*Penney et al., 2022*). Previous research also highlights that individual differences among learners necessitate targeted interventions like metacognitive strategies, which have been shown to enhance both the quality and effectiveness of decision-making outcomes (*Wang et al., 2024*).

Effective decision-making is a vital element of the professional activity of academic nursing staff, profoundly influencing the quality of education, research, and patient care. This process entails selecting a choice from various alternatives to achieve a desired outcome. Understanding the decision-making capabilities of academic nursing staff is essential for promoting effective leadership, collaboration, and problem-solving in both nursing education and practice (*Savioni et al., 2023*). Key elements of these decision-making skills include fostering a supportive decision-making environment, creating prospective alternatives, weighing those options, selecting the most appropriate choice, reviewing the decision, and effectively communicating and implementing the selected decision (*Mousavi Shabestari et al., 2024*).

Academic nursing educators have a vital role in modeling the next generation of nursing professionals, so they must possess a range of core competencies that enable them to effectively facilitate learning, lead change, and advance the nursing profession (*Duffy, 2022*). Academic nursing educators to be qualified to connect theoretical to practical knowledge, create connections between life, practice, and the classroom, engage students in the teaching

process, and conduct theoretical, in-depth, and critical analysis of the subject matter that enables them to design the context, policies, and teaching processes that create the best conditions for students' academic development as well as their moral and personal growth, academic nursing educators must possess a complex combination of academic knowledge and practice (*Alonso et al., 2023*).

The core competencies of academic nurse educators encompass supporting student learning and development, employing effective assessment and evaluation methods, contributing to curriculum design and related initiatives, acting as leaders and agents of change, striving for ongoing quality improvement in their educator roles, engaging in scholarly activities, and actively participating within the educational setting. This summary reflects the framework outlined by the *American Association of Colleges of Nursing (2022)*.

Significance of the study

Metacognition plays a critical role for academic nursing educators in promoting critical thinking, evidence-based practice, and effective teaching methods. It enables staff to adapt their behaviors flexibly while developing both professional knowledge and practical skills. Training in metacognition supports staff in understanding decision-making processes, critically evaluating their own choices, and enhancing their knowledge and abilities. Furthermore, core competencies contribute to strengthening metacognitive learning strategies, which in turn encourage habits of lifelong learning (*Alonso et al., 2023; Soltanian et al., 2023*). Therefore, this study aims to explore the potential of metacognition as a predictor of decision-making skills and core competencies among the academic nursing staff involved in the research.

Aim of the Study

This study seeks to investigate whether metacognition can serve as a predictor for decision-making capabilities and core competencies among the academic nursing staff involved in the research.

Research Questions

The study is guided by the following questions:

1. How would the metacognitive level of the academic nursing staff be characterized?
2. What is the extent of decision-making abilities demonstrated by the academic nursing staff?
3. What level of core competencies do the academic nursing staff exhibit?
4. Does metacognition be considered a significant predictor of decision-making skills and core competencies?

Subjects & Methods:

Research design:

This study utilized an exploratory descriptive correlational design to fulfill its objectives. This approach is suitable for examining relationships among variables while providing a detailed description of the phenomena under investigation.

Research Setting:

The research was carried out at the Faculty of Nursing affiliated with Helwan University in Cairo Governorate, Egypt. The faculty comprises six departments: Adult Health Nursing, Maternity and Newborn Health Nursing, Pediatric Health Nursing, Nursing Administration, Psychiatric and Mental Health Nursing, and Community Health Nursing. The college is overseen by the dean along with vice deans responsible for education and student affairs,

graduate studies and scientific research, and community and environmental services. Each department is led by a department head and staffed by academic nursing personnel.

Subjects:

Sample Type: Study subjects included a convenience sample from available clinical instructors and assistant lecturers of academic nursing staff who have full-time work. Participants were recruited from the aforementioned study setting and included in the study upon providing their informed consent at the time of data collection. Inclusion criteria: Hired academic clinical instructors and assistant lecturers who were assigned to teach clinical content to the students and worked as academic nursing staff for at least more than one year in the aforementioned study setting. Exclusion criteria: clinical instructors and assistant lecturers who have worked as academic nursing staff for less than one year in the aforementioned study setting.

Sample Size: The total number of the study sample was (n=50) out off (n=150).

Methods:**Data collection tools:**

Three instruments were utilized to collect data, described as follows:

The first tool: Metacognitive Awareness Inventory

This tool consisted of two sections:

Part I: Personal and Job Characteristics of the Academic Nursing Staff

This section aimed to gather information related to the personal and professional attributes of the academic nursing staff. It included variables such as age, gender, marital status, highest academic qualification or job title, years of experience within the faculty of nursing, and participation in training programs related to teaching and learning, metacognition, decision-making, and core competencies

Part II: Metacognitive Awareness Inventory Questionnaire:

This section was created to evaluate the level of metacognitive awareness among academic nursing staff. The tool was originally developed by *Schraw and Dennison (1994)*, later adapted by *Venkatesh et al. (2003)* and *Hassan et al. (2022)*, and further modified by the researchers based on relevant literature (*Yost, 2017; Ata & Abdelwahid, 2019*). It consists of two main domains with a total of 55 items. The knowledge of the cognition domain comprises 17 items, which are categorized into three types: declarative knowledge (8 items), procedural knowledge (4 items), and conditional knowledge (5 items). The regulation of the cognition domain contains 38 items, subdivided into planning (8 items), information management strategies (11 items), monitoring (8 items), debugging strategies (5 items), and evaluation (6 items). Participants rated each statement on a 3-point Likert scale from 1 (never) to 3 (always). Scores for each domain were summed and converted into percentages, with total scores ranging from 55 to 165; higher scores reflect greater metacognitive awareness. The overall metacognition level was classified as high (124–165, $\geq 75\%$), moderate (99–123, 60–74%), or low (55–98, $<60\%$). The instrument demonstrated high reliability, with a Cronbach's alpha of 0.95.

The second tool: Decision-Making Abilities Scale

This self-administered questionnaire was used to evaluate decision-making abilities among the participating academic nursing staff. It was initially designed by *Jenkins (1985)*, modified by *Abd El Ghaffar (2018)* based on the Clinical Decision Making in Nursing Scale (*Thompson et al., 2013*), and subsequently refined by the researchers in light of the relevant literature. The scale contains 43 items distributed across six subscales: establishing a positive decision-making environment (8 items), generating potential alternatives (7 items), evaluating alternatives (7 items), choosing alternatives (8 items), checking the decision (8

items), and communicating and implementing the decision (5 items). Participants rated each statement on a 3-point Likert scale: (1) never, (2) sometimes, and (3) always. The scores for each subscale were summed and converted to percentage scores. The total score ranged from 43 to 129, with higher scores indicating stronger decision-making abilities. Decision-making ability levels were categorized as high (97-129, $\geq 75\%$), moderate (78-96, $60\% < 75\%$), or low (43-77, $< 60\%$). The reliability of this instrument, determined by Cronbach's alpha, was 0.83.

The third tool, the Core Competencies Observation Checklist:

This served to assess the essential competencies of the academic nursing staff involved in the study. First established by *Higgins (2012)*, later adapted from *Ahmed et al. (2023)*, and further modified by the current researchers, this checklist was grounded in the relevant literature. It comprised 71 items distributed across eight domains: Facilitating Learners (10 items), Supporting Learner Development and Socialization (15 items), Implementing Assessment and Evaluation Methods (8 items), Contributing to Curriculum Design and Related Activities (8 items), Acting as a Change Agent and Leader (13 items), Promoting Continuous Quality Improvement in the Nurse Educator Role (6 items), Engaging in Scholarship (5 items), and Functioning within the Educational Environment (6 items). Participants responded to each item using a three-point Likert scale: 2 (done), 1 (partially done), and 0 (not done). Scores for each domain were totaled and converted to percentage scores, with the mean score calculated by dividing the total by the number of items. Competency was deemed acceptable if the percentage score was 60% or higher, while scores below 60% were classified as low. The reliability of the checklist, as determined by Cronbach's alpha, was 0.97.

Operational Design:

The study was prolonged through early May to late July 2024. During this period, the researcher reviewed past, current, and recent national and international literature related to the topic, utilizing articles, journals, and magazines. This process contributed to the validity and reliability of the tools. Also, during this phase, the researchers explored the selected units to become familiar with the participants and the study settings. The tools were overseen by supervisors, and feedback from experts was incorporated into the development process.

Pilot Study:

Data collection commenced in June and continued until the end of July 2024, following approval. Researchers met with department heads and potential participants to explain the study's objectives. Those who agreed were given data collection forms, with researchers available to answer questions and ensure anonymous completion. After confirming that all information was complete, the researchers expressed their appreciation to the participants for their cooperation. The questionnaire and observational checklist required approximately 30 to 45 minutes to complete, with data collected from academic nursing staff during their working hours on Sundays. An average of 15 to 16 forms was completed each day.

Ethical considerations:

Ethical approval for this study was obtained from the Scientific Research Ethics Committee of the Faculty of Nursing at Helwan University before data collection began. Verbal consent was secured from each participant who agreed to participate in the research prior to data gathering. Participants implicitly provided consent by submitting the completed questionnaire. They were informed about the study's objectives and expected outcomes and assured that participation was voluntary and posed no risk. Participants had the right to withdraw from the study at any time without needing to justify their decision. Confidentiality, anonymity, privacy, and security were guaranteed for all participants; collected data were

used exclusively for research purposes, and no personal identifiers were collected. The study upheld respect for participants' ethics, values, culture, and beliefs.

Statistical Design:

Data entry and analysis for the sample were performed using SPSS version 26.0. Descriptive statistics were used to summarize the data, including frequencies and percentages for categorical variables and means with standard deviations for continuous variables. Pearson correlation was applied to examine the relationships between total scale scores. Linear regression analyses, a fundamental predictive method, were conducted to explore the associations between dependent and independent variables. A two-tailed p-value of ≤ 0.05 was considered statistically significant, while $p \leq 0.001$ indicated high statistical significance. P-values > 0.05 were regarded as not significant. Additionally, the analysis provided scientific computations for forecasting future outcomes. The reliability of the instruments was assessed using Cronbach's alpha coefficient to measure internal consistency.

Results:

Table 1: illustrates the personal and job characteristics of the academic nursing staff included in the study. It shows that over three-quarters (76%) of the participants were aged between 25 and 30 years, with an average age of 27.32 ± 6.61 years. Approximately 74% were female, resulting in a male-to-female ratio of 0.4:1. Most participants (88%) were married. Regarding educational qualifications, more than two-thirds (68%) held a bachelor's degree and held the position of clinical instructors, while less than one-third (32%) had a master's degree and were designated as assistant lecturers. Additionally, nearly two-thirds (64%) had over three years of experience at the Faculty of Nursing, with an average of 3.82 ± 6.88 years.

Figure 1 indicates that the majority of the academic nursing staff (82.0%) demonstrated a high level of awareness concerning overall metacognition.

Figure 2 Demonstrated that the majority of the academic nursing staff (88.5%) exhibited high levels of decision-making ability overall.

Figure 3 showed that most of the academic nursing staff (93.0%) possessed a highly acceptable level of overall core competencies.

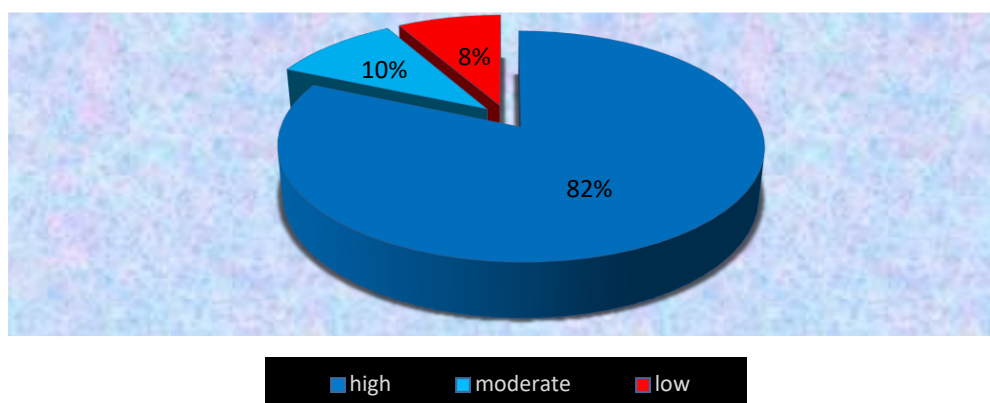
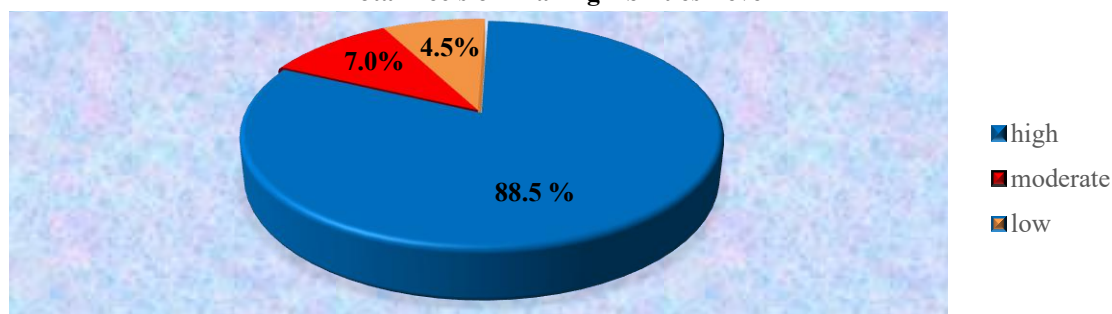
Table 2: Revealed a strong positive and statistically significant correlation reported by academic nursing staff between total metacognition scores and both total decision-making abilities and total core competencies ($r = 0.235$, $p \leq 0.000$ and $r = 0.567$, $p \leq 0.000$, respectively).

Tables 3, 4, and 5: Based on linear regression analysis, decision-making abilities can be predicted from the total metacognition score using the equation $\text{Decision-Making Abilities} = 42.816 + 0.535 \times (\text{Metacognition Score})$. Metacognition was found to be a highly significant predictor of decision-making abilities ($p < 0.001$), with $F = 38.652$, $R^2 = 0.095$, and adjusted $R^2 = 0.094$.

Tables 6, 7, and 8: Similarly, core competencies can be predicted from the total metacognition score with the equation $\text{Core Competencies} = 17.375 + 0.251 \times (\text{Metacognition Score})$. Metacognition was also a highly significant predictor of core competencies ($p < 0.001$), with $F = 22.100$, $R^2 = 0.054$, and adjusted $R^2 = 0.051$.

Table (1): Frequency distribution of personal and job characteristics among the studied academic nursing staff (n= 50).

Items		No.	%
Age (years)	▪ ≤25 years old	8	16.0
	▪ >25<30 years old	38	76.0
	▪ ≥ 30 years old	4	8.0
	▪ Mean± SD	27.32 ± 6.61	
Gender	▪ Male	13	26.0
	▪ Female	37	74.0
	▪ Male to female ratio	0.4:1	
Marital status	▪ Unmarried	6	12.0
	▪ Married	44	88.0
The highest earned degree /job title	▪ Bachelor /Clinical Instructor	34	68.0
	▪ Master/Assistant Lecturer	16	32.0
Years of experience at Faculty of Nursing	▪ ≤ 3	10	20.0
	▪ ≥ 3 < 5	32	64.0
	▪ ≥ 5	8	16.0
	▪ Mean± SD	3.82 ± 6.88	

Total Metacognition Awareness Level**Figure (1): Total Metacognition Awareness Level among the studied academic nursing staff (n=50).****Total Decision Making Abilities Level****Figure (2): Total Decision Making Abilities Level among the studied academic nursing staff (n=50).**

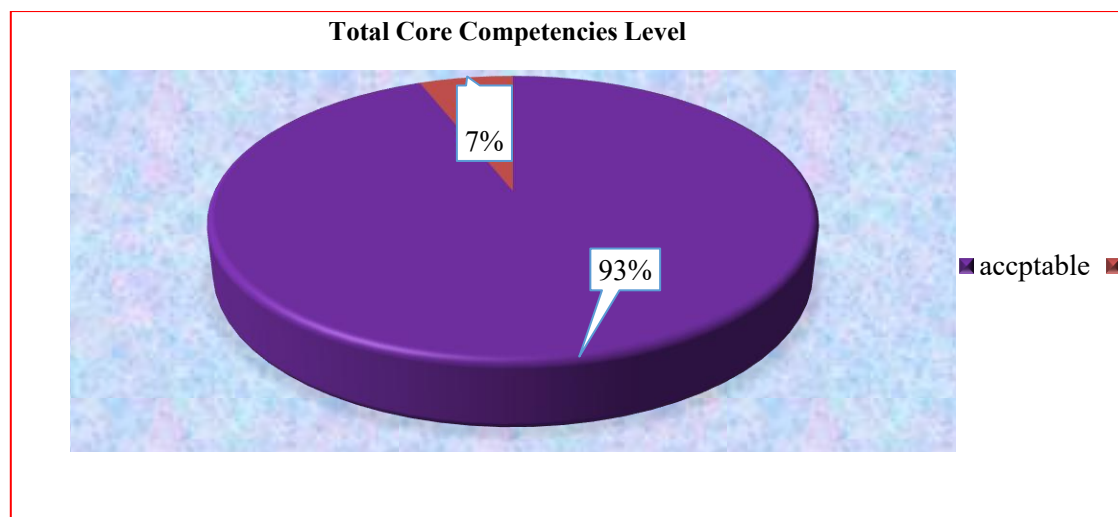


Figure (3): Total Core Competencies Level among the studied academic nursing staff (n=50).

Table (2): Correlation matrix showing the relationships between total metacognition level, total decision-making abilities, and total core competencies as reported by the studied academic nursing staff (n = 50).

Variables	Total Decision Making Abilities		Total Core Competencies	
	<i>r</i>	P- value	<i>r</i>	P- value
Total Metacognition	0.235	0.000**	0.567	0.000**

*Note: r = Pearson correlation coefficient **p < 0.001, indicating a highly significant correlation*

Table (3): Standardized and unstandardized regression coefficients for the prediction of decision-making abilities by metacognition (n = 50).

Variables	Unstandardized Coefficients		Standardized Coefficients	T	P-value
	<i>B</i>	Std. Error	<i>B</i>		
(Constant)	42.816	3.412		11.949	0.000
Total Metacognition	0.535	0.078	0.235	5.180	0.000

****highly significant at P<0.001**

T: t-test value

1. Dependent Variable: Decision Making Abilities. 2. Predictors: (constant): Metacognition.

Table (4): Model summary of R square and adjusted R square test (n=50).

Model	R		R Square (R2)	Adjusted R Square	Std. The error of the Estimate
1	0.2335a		0.095	0.094	8.66455
		a. Predictors: (Constant): Total Metacognition Level			
		b. Dependent Variable: Total Decision Making Abilities Level			

Table (5): Regression and ANOVA test (n=50).

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	250.172	1	2370.172	38.652	0.000b
	Residual	22594.673	353	51.173		
	Total	25084.040	354			
a. Predictors: (Constant): Total Metacognition Level						
b. Dependent Variable: Total Decision Making Abilities Level						

**highly significant at P<0.01

DF: degree of freedom

F: ANOVA

Table (6): Standardized and unstandardized simple regression coefficients of Metacognition predicting Core Competencies Level (n=50).

Variables	Unstandardized Coefficients		Standardized Coefficients	T	P-value
	B	Std. Error	B		
(Constant)	17.375	2.196		6.262	0.000
Total Metacognition	0.251	0.059	0.567	4.502	0.000

**highly significant at P<0.001

T: t-test value

a. Dependent Variable: Core Competencies

b. Predictor: (constant): Metacognition

Table (7): Model summary of R square and adjusted R square test (no=50).

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	567.616	1	569.616	22.100	0.000 b
	Residual	9842.267	353	26.198		
	Total	11622.803	356			
a. Predictor: (Constant): Total Metacognition Level						
b. Dependent Variable: Total Core Competencies Level						

Table (8): Regression and ANOVA test (no=50)

Model	R	R Square (R2)	Adjusted R Square	Std. The error of the Estimate
1	0.567a	0.054	0.051	5.21228
a. Predictors: (Constant): Total Metacognition Level				
b. Dependent Variable: Total Core Competencies Level				

F: ANOVA

**highly significant at P<0.001

DF: degree of freedom

Discussion:

Academic nursing educators are essential in training the forthcoming generation of nurses who will significantly contribute to the advancement of the nursing profession. One important component of this teaching process is metacognition. It is definitely believed that teachers' metacognitive awareness significantly affects their instructional strategies and the learning outcomes of their students. Metacognition, which involves understanding and comprehension of a person's cognitive activities, is vital for making decisions and developing essential skills among nursing educators (*Hashmi et al., 2019*).

Metacognition and core competencies are crucial abilities that help academic nursing educators manage uncertainty in their decision-making processes. This enables them to

modify and refine their choices even in the absence of immediate external feedback. When nursing educators accurately evaluate their knowledge, oversee and adjust their cognitive approaches, and implement necessary changes, they are better equipped to make decisions that support their educational goals and foster the advancement of healthcare institutions (*Qiu et al., 2018*). Assessing the level of core competencies among academic nursing educators serves as an effective method to identify weaknesses and challenges, allowing targeted efforts to improve performance, which ultimately benefits both students and the broader organization (*Nabizadeh-Gharghozar et al., 2021*).

This study explores the role of metacognition as a potential predictor of decision-making abilities and core competencies among academic nursing staff. It aims to assess the levels of metacognition, decision-making skills, and core competencies within this group and to determine how metacognition influences decision-making and core competencies.

Regarding the personal and professional characteristics of the academic nursing staff studied, it shows that approximately three-quarters of them are female, resulting in a male-to-female ratio of 0.4:1. Their ages range from just above 25 to just under 30, with an average age of 27.32 ± 6.61 . Most of the staff members are married. Over two-thirds hold bachelor's degrees and work as clinical instructors. Additionally, less than one-third have master's degrees and serve as assistant lecturers. Furthermore, almost 66% of the individuals possess more than three years of experience at the Faculty of Nursing, with an average tenure of 3.82 ± 6.88 years.

Regarding the level of metacognition among the studied academic nursing staff, this research displayed that the majority of academic nursing staff exhibit high levels of total metacognitive awareness. This finding could be attributable to various factors. Their education emphasizes critical thinking and self-reflection, while professional experience in complex clinical settings fosters ongoing reflection, increasing self-awareness. The focus on reflective practice in nursing programs further enhances this development. Collaborative learning environments allow for idea exchange, promoting insights into thought processes.

A dedication to lifelong learning encourages nursing professionals to continuously assess and refine their cognitive strategies. The results of this study correspond with the findings of *Leasa et al. (2024)*, in Indonesia, who investigated the "PBLRQA model for developing metacognitive awareness in pre-service teachers" and reported that most participants demonstrated a strong understanding of the specific purposes behind each strategy. Similarly, *Mendoza and Elepaño (2023)*, found that pre-service teachers in the Philippines exhibited high levels of metacognitive awareness in their study on "The metacognitive awareness levels of pre-service teachers." Furthermore, a mixed-methods study by *Toprak et al. (2020)* in Egypt, which explored "Teachers' Metacognitive Awareness and Metacognitive Instructional Practice," revealed that teachers generally possess elevated metacognitive awareness. Conversely, *Halamish (2018)* observed that both pre-service and in-service teachers showed lower metacognitive comprehension of effective learning processes when compared to university instructors.

Academic nursing staffs possess strong decision-making abilities. The potential explanation for this result could be that the studied academic nursing member's decision-making skills are influenced by several key aspects. Advanced academic preparation through master's or doctoral studies, emphasizes critical thinking, analysis, and commitment to evidence-based

practice, combined with hands-on clinical experience. In teaching and mentoring roles, they consider diverse viewpoints, which enhance their decision-making skills.

Furthermore, the research involvement allows them to evaluate data and make evidence-based choices. Additionally, collaboration with healthcare professionals also leads to better-informed decisions. They teach students decision-making skills through case-based learning and simulation training. However, challenges like complex patient cases, limited resources, and heavy workloads can hinder their effectiveness. To address these challenges, they utilize strategies such as teamwork, continuous development, self-care, and advocating for essential resources, which ultimately enhance their practices and improve student education.

The results of this study are in agreement with several earlier research efforts. For example, **Lin and Gao (2023)** carried out a study titled 'Exploring the Predictors of Teachers' Teaching Autonomy: A Three-Level International Study,' which revealed that experienced teachers exhibit strong decision-making skills, particularly in areas such as classroom management (making real-time adjustments), instructional strategies (adapting teaching methods), and assessment practices (data-informed choices). Similarly, **Abdelhamed et al. (2023)** conducted a study in Egypt. Their results showed a significant improvement in the decision-making abilities of the nurses following the post-training program. Additionally, research by **El-Guindy et al. (2022)** found that head nurses demonstrated high decision-making abilities. In contrast, **Kartoshkina (2016)** reported that participants in her study displayed only moderate decision-making abilities.

Linking the core competencies to the academic nursing staff studied, this research confirmed that they possess highly acceptable core competencies, highly due to their advanced education and specialized training. Their ongoing commitment to professional development through workshops and research further enhances their capabilities. Additionally, their intense combination of clinical and teaching experience allows them to effectively apply evidence-based practices bolstered by substantial institutional support that fosters continuous growth and excellence. The outcomes observed in this study align with those reported by **Ragab et al. (2024)**, who evaluated the core competencies and clinical performance of academic nursing educators at Damanhour University. Similarly, **Kaarlela et al. (2022)** investigated the competencies of clinical nurse educators working in university hospitals, finding comparable results. On the opposite side, **Wafqa et al. (2024)** noted that most nurse educators lacked adequate clinical teaching abilities during the pre-training program.

Regarding metacognition, it is a significant predictor of decision-making and core competencies. This research has demonstrated a significant positive relationship, emphasizing the crucial importance of metacognition in the learning process. Advancing the ability to observe and regulate one's thinking can improve clinical reasoning and problem-solving skills, leading to more informed, evidence-based decisions and reinforcing critical competencies such as clinical judgment.

The study's results were balanced with prior studies; for illustration,, a study by **Wanget al. (2024)** at using students showed significant improvements in their awareness of their thinking and the ability to make decisions over time, with metacognitive control being the best predictor of how good their decisions were. Likewise, a descriptive correlational study by **El-Guindy et al. (2022)** at Benha University Hospital demonstrated that higher metacognitive levels were associated with enhanced head nurses' capacity for making decisions.

This study emphasized the importance of both metacognition and mindfulness in ineffective leadership and clinical judgment in nursing. Furthermore, *Church & Carroll (2023)* discussed how metacognitive skills assist healthcare providers in monitoring and regulating their cognitive processes, leading to improved decision-making outcomes in clinical settings. Cooperatively, these findings underscore the crucial role of metacognitive skills in fostering professional competencies and effective decision-making among nursing educators and practitioners.

Conclusion:

The study found that most academic nursing staff reported high awareness of metacognition, strong decision-making abilities, and acceptable core competencies. A significant positive association was identified between individuals' metacognitive awareness and their decision-making abilities, as well as key core competencies. Additionally, metacognition was a key predictor of improvements in these areas. In conclusion, metacognitive skills are essential for enhancing decision-making and core competencies among nursing staff. Fostering metacognitive awareness in nursing education and professional development provides the necessary tools for effective clinical judgment and problem-solving. Strengthening metacognition ultimately improves patient care and outcomes while advancing nursing as a reflective, evidence-based discipline.

Recommendations:

The following applicable recommendations were proposed according to the outcomes of the existing study:

For Practice, to enhance decision-making abilities, academic nursing staff should adopt metacognitive strategies such as planning, monitoring progress, self-reflection, and seeking feedback. Supporting nursing students in decision-making by providing necessary resources is also essential. Additionally, offering ongoing training on metacognitive awareness and skills will improve staff performance and help achieve desired outcomes.

For education, preserving the metacognition concept in academic nursing staff curricula and nursing policies and equally focusing on its significance in several areas of the nursing career.

Future research should focus on evaluating targeted metacognitive training programs in diverse nursing education settings and cultural contexts. Longitudinal and multi-site studies can reveal how metacognitive skills develop over time and under different clinical conditions. Intervention studies should test educational strategies like scenario-based learning, reflective exercises, and simulations to enhance metacognitive regulation and clinical reasoning. Additionally, exploring the relationship between metacognition and individual differences—such as cognitive style and emotional intelligence—can help tailor educational approaches.

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الملخص العربي

التفكير ما وراء المعرفي كمؤشر لقدرات اتخاذ القرار والكفاءات الأساسية بين أعضاء هيئة التمريض الأكاديميين

الخلفية: يلعب التفكير ما وراء المعرفي دورًا حاسمًا في تطوير أنشطة التفكير والعنصر الحاسم الذي يساهم في النجاح الأكاديمي والذي يعمل على تعظيم القدرة على التفكير واتخاذ القرارات بشكل فعال والحصول على الكفاءات الأساسية للأداء.

أهداف الدراسة: دراسة إمكانية استخدام التفكير ما وراء المعرفي كمؤشر لقدرات اتخاذ القرار والكفاءات الأساسية كما وردت من قبل طاقم التمريض الأكاديمي. **التصميم البحث:** استخدم تصميم استكشافي ارتباطي وصفي.

مكان الدراسة: أجريت هذه الدراسة في كلية التمريض التابعة لجامعة حلوان، محافظة القاهرة، مصر. شملت الدراسة عينةً ملائمةً من إجمالي عدد أعضاء هيئة التدريس التمريضيين (ن=50) من أصل (ن=150) عضوًا، في جميع الأقسام الأكاديمية بكلية التمريض، جامعة حلوان.

ادوات البحث: تم استخدام ثلاث أدوات لجمع البيانات: استبيان التفكير ما وراء المعرفي، ومقياس قدرات اتخاذ القرار، وقائمة مراقبة الكفاءات الأساسية.

النتائج: وكشفت الدراسة أن التمريض الأكاديمي لديه وعي مرتفع فيما يتعلق بالقدرات المعرفية (82%)، ومستوى قدرات مرتفع فيما يتعلق باتخاذ القرار (88.5%)، ومستوى مرتفع فيما يتعلق بالكفاءات الأساسية (93%)، كما وجدت علاقة ارتباطية موجبة ذات دلالة إحصائية عالية بين إجمالي مستوى القدرات المعرفية، وإجمالي مستوى قدرات اتخاذ القرار، وإجمالي مستوى الكفاءات الأساسية عند مستوى دلالة إحصائية $P \leq 0.000$.

الاستنتاج: خلصت الدراسة إلى أن التفكير فوق المعرفي كان مؤثرًا بالغ الأهمية لتحسين قدرات اتخاذ القرار والكفاءات الأساسية اللازمة لأداء الوظائف، وذلك وفقًا لما أفاد به أعضاء هيئة التمريض الأكاديميون المشمولون بالدراسة.

التوصيات: أوصت الدراسة باستكشاف فعالية برامج التدريب على التفكير فوق المعرفي المستهدفة في مختلف بيئات تعليم التمريض والسياقات الثقافية للتحقق من صحة وتعميم الدور التنبئي للتفكير فوق المعرفي في اتخاذ القرار والكفاءات الأساسية.

مفاتيح البحث: التمريض الأكاديمي، الكفاءات الأساسية، قدرات اتخاذ القرار والوعي المعرفي.