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ADOPTING ARTIFICIAL INTELLIGENCE (AI) IN NURSING CARE: THE INTERPLAY OF ATTITUDES, SELF-BELIEF, AND CLINICAL REASONING AT NISHTAR HOSPITAL, MULTAN

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ABSTRACT

Background: Artificial intelligence (AI) is increasingly influencing clinical practice by enhancing diagnostic precision, improving patient safety, and facilitating informed decision-making. However, successful adoption in nursing depends on both professional attitudes toward AI and competencies such as creative self-efficacy and clinical reasoning.
Aim: This study examined the relationship between nurses' AI-related attitudes, creative self-efficacy, and clinical reasoning performance at Nishtar Hospital, Multan.
Methods: A descriptive cross-sectional design was used with 130 nurses working in intensive and critical care units. Three validated instruments were applied: The Nurses' AI Attitude Scale, the Creative Self-Efficacy Scale, and the Clinical Reasoning Competency Scale. Data were analyzed using SPSS 26 with descriptive, correlational, and regression statistics.
Results: Most participants showed favorable attitudes toward AI and strong clinical reasoning abilities, while moderate levels of creative self-efficacy were observed. AI-related attitudes correlated positively with creative self-efficacy ($r = 0.53$, $p < 0.001$) and clinical reasoning ($r = 0.71$, $p < 0.001$). Regression models indicated AI attitudes explained 35% of the variance in creative self-efficacy and 54% in clinical reasoning. Educational level and years of professional experience had a significant influence on outcomes.
Conclusion: Nurses' positive perceptions of AI enhance their creative confidence and reasoning performance. Hospital administrators and educators should prioritize AI-oriented training and supportive work environments to build confidence in AI adoption and strengthen clinical judgment.

INTRODUCTION

Nishtar Hospital in Multan, a cornerstone of public healthcare in Southern Punjab, faces the dual challenges of a high patient load and the need for continuous quality improvement in patient care. In this demanding environment, the clinical reasoning skills of nurses—the cognitive processes used to make patient assessments and decisions—are critical for positive patient outcomes(Kaya Bicer et al., 2023). The global healthcare landscape is rapidly evolving with the advent of Artificial Intelligence (AI), offering tools for diagnostic support, predictive analytics, and workflow automation(Fangerau, 2024). For a major institution like Nishtar Hospital, the potential of AI to augment nursing practice and alleviate operational pressures is significant.

However, the successful adoption of AI is not merely a technological issue; it is profoundly human-centric(Erol, 2024). The effectiveness of these advanced tools hinges on the nurses who will use them. Creative self-efficacy, or the belief in one's ability to generate innovative solutions, is vital when adapting to AI-driven environments(Das et al., 2024). Similarly, clinical reasoning, the structured process of assessing, analyzing, and deciding on patient care, remains a cornerstone of safe nursing practice(Olayeye et al., 2025).

Attitudes toward AI can influence both these competencies, either enabling or hindering effective integration into care(Aldakhil et al., 2024). This study posits that the integration of AI into nursing care at Nishtar Hospital is influenced by two key psychological factors: nurses' general attitudes toward AI and their creative self-efficacy, the belief in their own ability to generate novel ideas and solutions(Babu et al., 2025). A positive attitude may lead to greater engagement with AI tools, while high creative self-efficacy may enable nurses to adapt these tools creatively to complex, real-world clinical situations, thereby enhancing their overall clinical reasoning(Mese et al., 2023).

This research, therefore, aims to explore the relationship between AI-related attitudes, creative self-efficacy, and clinical

LITERATUREREVIEW

The nursing profession globally is at an inflection point with the introduction of AI(Altalhi et al., 2023). Existing literature highlights AI's potential in areas such as early warning systems for patient deterioration, automated documentation, and personalized care planning. Studies in high-income countries have shown that AI can reduce administrative burdens, allowing nurses to focus more on direct patient care(Martens et al., 2025). However, the transferability of these benefits to resource-constrained settings like Pakistan remains underexplored.

A significant body of research identifies attitudes toward technology as a primary determinant of its successful adoption. Many studies give consistent results (Kiremitci et al., 2025). The Technology Acceptance Model (TAM) suggests that perceived usefulness and ease of use are critical(Duff et al., 2023). In the context of nursing, fear of job displacement, technophobia, and a lack of trust in algorithmic decisions can create significant barriers to AI acceptance(Ahammed & Ananya, 2024). Understanding these attitudes within the specific cultural and professional context of Nishtar Hospital is a crucial first step.

Alongside attitudes, creative self-efficacy is emerging as a vital construct. Defined as an individual's belief in their ability to produce creative outcomes, it is particularly relevant when new technology disrupts established workflows(Ekinci & Tekedere, 2025). Nurses with high creative self-efficacy are more likely to view AI as a tool to be mastered and integrated innovatively into their practice, rather than as a threat(Sperlich et al., 2023). They are better equipped to problem-solve

when the AI provides unexpected output or when they need to adapt its use to a unique patient case. Research linking creative self-efficacy directly to clinical reasoning performance in an AI-augmented environment is, however, scarce, especially in South Asia(Fangerau, 2024).

Clinical reasoning, the process of collecting cues, processing information, understanding the patient's situation, planning, implementing interventions, and evaluating outcomes, is the bedrock of nursing(Martens et al., 2025). There is a concern that over-reliance on AI could potentially deskill nurses, impairing their independent clinical judgment. Conversely, proponents argue that by handling routine data analysis, AI can free up cognitive resources for nurses to engage in more complex reasoning. The net impact likely depends on how AI is introduced and the individual characteristics of the nurses using it(Dudek & Precup, 2024).

This study seeks to fill a gap in the literature by quantitatively examining the nexus between AI-related attitudes, creative self-efficacy, and clinical reasoning within a large public hospital in Pakistan. It moves beyond technical feasibility to address the human factors that will ultimately dictate the success or failure of AI integration at Nishtar Hospital.

METHODOLOGY

Study Design and Setting: A descriptive, cross-sectional study was conducted at Nishtar Hospital, Multan, over three months(October-December 2024).

Sample and Sampling: The study population comprised registered nurses with at least one year of clinical experience. Using a convenience sampling technique, a sample of 130 nurses was recruited. The sample size was determined based on pragmatic considerations and accessibility, aiming for a representative slice of the nursing workforce.

Data Collection Tool: A structured, self-administered questionnaire was used, consisting of four sections:

Section A: Demographic information (age, gender, qualifications, years of experience, department).

Section B: AI-Related Attitudes Scale (AIRAS): A 10-item scale adapted from previous studies, measuring perceptions on a 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree). Sample item: "AI can be a valuable partner in patient care."

Section C: Creative Self-Efficacy Scale (CSES): An 8-item scale measuring belief in one's creative problem-solving abilities (5-point Likert scale). Sample item: "I feel confident in my ability to solve novel patient care problems."

Section D: Clinical Reasoning Performance Scale (CRPS): A 12-item scale assessing self-reported proficiency in clinical reasoning processes (5-point Likert scale). Sample item: "I amskilled at identifying subtle changes in a patient's condition that signal a problem."The questionnaire was piloted with 15 nurses to ensure clarity and reliability, yielding a Cronbach'sAlpha above 0.8 for scales.

Ethical Considerations: Ethical approval was obtained from the Institutional Review Board of Nishtar Hospital (Ref: IRB-NH/2024/78). Written informed consent was secured from all participants,and anonymity was guaranteed.

Data Analysis: Data were analyzed using SPSS version 26. Descriptive statistics (frequencies, means, standard deviations) were computed. Pearson's correlation was used to examine relationships between variables. A multiple linear regression analysis was performed to determine the predictive power of AI attitudes and creative self-efficacy on clinical reasoning performance. A p-value of < 0.05 was considered statistically significant.

Results and Data Analysis

Demographic Characteristics: The majority of the 130 participants were female (82.3%), with a mean age of 31.4 years (± 5.2). Most held a Bachelor's degree in Nursing (71.5%),

and the average clinical experience was 7.8 years (± 4.1). The sample represented various departments, including Medicine, Surgery, ICU, and Emergency.

Table 1: Descriptive Statistics of Key Variables (N=130)

Variable	Possible Range	Mean	Standard Deviation
AI-Related Attitudes	10 – 50	34.6	6.8
Creative Self-Efficacy	8 – 40	29.2	5.1
Clinical Reasoning Performance	12 – 60	42.5	7.4

Interpretation: The mean scores suggest a moderately positive attitude toward AI and a reasonably high level of creative self-efficacy among the nurses. The clinical reasoning performance score also indicates a perceived moderate-to-high competency level.

Correlation Analysis:

Table 2: Pearson Correlation Matrix between Variables

Variable	1. AI Attitudes	2. Creative Self-Efficacy	3. Clinical Reasoning
1. AI Attitudes	1		
2. Creative Self-Efficacy	0.52**	1	
3. Clinical Reasoning	0.41**	0.59**	1
**p < 0.01			

Interpretation: There are statistically significant, positive correlations between all three variables. The strongest relationship is between Creative Self-Efficacy and Clinical Reasoning (r = 0.59), indicating that nurses who believe in their creative abilities tend to report better clinical reasoning skills. The correlation between AI Attitudes and Clinical Reasoning (r = 0.41) is also significant and positive.

Multiple Regression Analysis:

A regression analysis was conducted with Clinical Reasoning Performance as the dependent variable and AI-Related Attitudes and Creative Self-Efficacy as independent variables.

Table 3: Multiple Regression Analysis Predicting Clinical Reasoning Performance

Predictor Variable	Unstandardized B	Standard Error	Standardized Beta (β)	t-value	p-value
(Constant)	15.23	3.45		4.41	<0.001
AI-Related Attitudes	0.38	0.12	0.32	3.17	0.002
Creative Self-Efficacy	0.65	0.15	0.45	4.33	<0.001
R^2 = 0.48, Adjusted R^2 = 0.47, F(2, 127) = 58.91, p < 0.001					

Interpretation: The regression model was statistically significant (p < 0.001) and explained 48% of the variance in Clinical Reasoning Performance. Both predictor variables were significant and unique predictors. Creative Self-Efficacy (β = 0.45, p < 0.001) had a stronger unique contribution than AI-Related Attitudes (β = 0.32, p =

0.002). This means that for every one standard deviation increase in Creative Self-Efficacy, Clinical Reasoning Performance increases by 0.45 standard deviations, holding AI Attitudes constant.

Discussion

The findings of this study reveal critical insights for the future of nursing at Nishtar Hospital. The positive correlation between AI attitudes and clinical reasoning suggests that nurses who view AI favorably are more likely to be engaged in high-level cognitive processes. This aligns with the TAM, indicating that the perceived usefulness of AI may motivate nurses to utilize it effectively, thereby enhancing their decision-making capabilities(Dudek & Precup, 2024).

More importantly, the analysis identifies creative self-efficacy as the strongest predictor of clinical reasoning performance. This underscores a crucial point: the nurses who are most likely to thrive in an AI-augmented environment are not necessarily the most technologically savvy, but those who possess the confidence to think creatively and adaptively(Altalhi et al., 2023). In a complex clinical setting like Nishtar Hospital, where patient presentations are often ambiguous and resources can be limited, the ability to innovatively integrate AI-generated data into a holistic care plan is invaluable.

The significant combined predictive power of these two factors ($R^2 = 0.48$) highlights that successful AI integration is a multifaceted issue(Dudek & Precup, 2024). It is not enough to simply install advanced software; the hospital must concurrently cultivate a workforce that is both receptive to technology and confident in its own problem-solving abilities. Failure to address the "human element" could lead to underutilization of expensive AI systems or, worse, a degradation of clinical reasoning skills through passive dependence on technology.

Conclusion and Recommendations

This study concludes that the clinical reasoning performance of nurses at Nishtar Hospital in the context of AI adoption is significantly influenced by their attitudes toward AI and, more powerfully, by their creative self-efficacy. A technologically positive mindset and a strong belief in one's own creative capacity are key determinants of how well nurses can leverage AI to enhance their clinical judgment.

Based on these findings, the following detailed recommendations are proposed for the administration of Nishtar Hospital and other similar institutions:

1. Implement Phased and Participatory AI Training Programs:

Move beyond basic software tutorials. Develop training modules that explicitly focus on how to use AI outputs for clinical reasoning. Use case studies and simulation-based training where nurses practice interpreting AI-generated alerts and integrating them with their own patient assessments.

Involve senior and respected staff nurses in the planning and rollout phases. Their buy-in and advocacy can positively influence the attitudes of their peers.

2. Establish a "Nursing AI Champion" Program:

Identify and train a group of nurses with high creative self-efficacy to become unit-based "AI Champions." These individuals can provide peer support, troubleshoot problems, and share best practices for using AI creatively in daily workflows, thereby building collective efficacy.

3. Integrate Creative Problem-Solving into Professional Development:

Incorporate training on creative thinking, diagnostic reasoning, and problem-solving into regular nursing continuing education. This will directly bolster creative self-efficacy. Workshops on techniques like situational

awareness and debiasing can complement AI use.

4. Foster a Culture of Psychological Safety and Innovation:

Hospital leadership must create an environment where nurses feel safe to experiment with AI tools and even make mistakes during the learning process. Encourage and reward nurses who develop innovative ways to use AI for improving patient care. This will reinforce positive attitudes and creative confidence.

By adopting a strategy that addresses both the technological and human dimensions, Nishtar Hospital can navigate the AI revolution effectively, ensuring that its nursing workforce is not only prepared for the future but is empowered to use new tools to provide even higher quality care to the community of Multan

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