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KNOWLEDGE AND PERCEPTION REGARDING ARTIFICIAL INTELLIGENCE IN NURSING AMONG STAFF NURSES

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ABSTRACT

Background: Artificial Intelligence (AI), is the ability of computers to perform tasks typically associated with human intelligence, can impact millions of patients by changing how medicine is practiced. Integrating AI into nursing practice could significantly streamline workflows, reduce errors, and improve care efficiency by automating routine tasks and providing real-time decision support. **Aim and Objective:** To assess the knowledge and perception regarding AI in nursing among staff nurses. **Methodology:** A quantitative approach and descriptive design was chosen for this study among 204 staff nurses in Panimalar Medical College Hospital and Research Institute (PMCH&RI). A Convenient sampling technique was used to select samples who fulfilled the inclusion criteria. The structured knowledge questionnaire, 3 point likert scale were used to assess the level of knowledge and perception. **Results:** The study findings revealed that 64.21% and 51.96% of samples had inadequate knowledge and low perception level. The calculated r-value r=0.29 for knowledge and perception showed a very high statistical significant at p=0.001, it's indicate a positive correlation between knowledge and perception. **Conclusion:** The study results depicted that the staff nurses' knowledge of AI in nursing increases, their perceptions toward it are likely to improve. The study suggests that to ensure the effective adoption of AI in nursing, it is crucial to invest in education, training, and institutional support, empowering nurses to embrace these technologies and improve patient care.

INTRODUCTION

Artificial Intelligence (AI) is a rapidly evolving field of computer science that aims to create machines capable of performing tasks that typically require human intelligence. AI includes various techniques such as machine learning (ML), deep learning (DL), and natural language

processing (NLP). Large Language Models (LLMs) are a type of AI algorithm that utilizes deep learning techniques and massive datasets to comprehend, summarize, generate, and predict new text-based content.

It is widely recognized that AI technologies are designed to complement and enhance human work rather than replace physicians and other healthcare professionals. Across the healthcare ecosystem, AI is increasingly prepared to support staff by streamlining administrative workflows, improving clinical documentation, assisting with patient communication, and providing specialized decision-support tools.

Nursing faces increasing pressure due to changing demographics and a shortage of skilled workers. Artificial intelligence (AI) offers an opportunity to relieve nurses and reduce pressure. In clinical care, AI technologies—particularly AI-enabled robots—have a broad range of applications spanning the entire patient journey, from admission to discharge and even into home-based rehabilitation. In busy outpatient settings, mobile intelligent guidance robots help streamline clinic operations, enhance the patient experience, and alleviate the workload of nursing staff.

The purpose of the study on assess the knowledge and perception regarding AI in nursing among staff nurses at selected settings. Nurses face increasing pressure during patient care. Integrating AI into nursing practice could significantly streamline workflows, reduce errors, and improve care efficiency by automating routine tasks and providing real-time decision support.

Additionally, AI can enhance clinical decision-making, allowing quicker, data-driven responses to patient needs, ultimately leading to better patient outcomes. By alleviating the administrative burden and offering predictive analytics, AI can also support nurses in managing complex care situations more effectively, contributing to higher job satisfaction and improved overall healthcare delivery.

The study aims to assess nurses' current knowledge and perception toward AI, providing valuable insights into the barriers and opportunities for integrating AI into nursing practice. Besides, the research seeks to create awareness about AI & its impact among staff nurses. Ultimately, the study contributes to the existing literature about AI.

STATEMENT OF THE PROBLEM

A descriptive study to assess the knowledge and perception regarding AI in nursing among staff nurses at selected setting.

OBJECTIVES:

1. To assess the level of knowledge and perception regarding Artificial Intelligence in nursing among staff nurses.

2. To correlate the knowledge and perception regarding Artificial Intelligence in nursing among staff nurses.

MATERIAL AND METHODS

Study design and setting

This research employed a descriptive study design, conducted within a selected hospital in Chennai.

Participants and Procedures

The objectives and methodology of the study were comprehensively explained to all participants, following which informed consent was obtained. A convenience sampling technique was utilized to select a total of 204 staff nurses who met the predefined inclusion criteria for the study. This sampling method was chosen based on its practicality and feasibility in accessing participants who were readily available during the data collection period. Prior to initiating the study, the researcher approached the potential participants and provided a detailed self-introduction to establish rapport and build trust.

A comprehensive explanation regarding the purpose, significance, and objectives of the study was clearly communicated to all the staff nurses. The participants were informed that their participation was entirely voluntary and that they could withdraw from the study at any stage without any adverse consequences. To ensure ethical compliance, both verbal and written informed consent were obtained from each participant before the commencement of data collection.

Data were collected using a structured questionnaire distributed through Google Forms**,** allowing participants to conveniently complete the survey at their own pace. The use of a digital platform facilitated efficient data gathering and ensured confidentiality of the responses. The researcher provided clear instructions to guide the participants in filling out the form accurately and completely.

Study instruments:

Data collection was carried out using a structured questionnaire comprising two sections: one for demographic and background information and another for assessing attitude levels using a 3-point Likert scale. A pilot study was conducted to evaluate the clarity, relevance, and reliability of the tool. Based on the feedback received, minor revisions were made to refine the questionnaire. The finalized version was then used for the main

study, ensuring the validity and accuracy of the collected data.

Results

Table 1: Frequency, percentage distribution of background variables

Demographic variables	Frequency (N)	Percentage (%)
Age		
20 – 25	71	34.80
26 – 30	93	45.58
31 – 35	29	14.24
>36	11	5.39
Gender		
Male	36	17.64
Female	167	81.86
Others	0	00.00
Educational status		
ANM	18	08.82
GNM	36	17.64
P.B Sc	16	07.84
B Sc	131	64.21
M Sc	3	01.47
Working place		
OPD	49	24.01
Ward	114	55.88
OT	24	11.76
ICU	17	08.33
Years of experience		
<1	147	72.05
1 – 3	23	11.27
3 – 6	31	15.19
>6	3	01.47

Table 1--- implies the frequency and percentage distribution of demographic variables among the staff nurses in the Group. Regarding age, the majority of the staff nurses belong to the age group of 26 – 30 (45.58%) years. Regarding gender, the female staff nurses was higher at 167 (81.86%). With respect to education 131 (64.21%) were under graduates. Regarding the workplace, the majority of staff nurses114 (84%) are assigned to the ward setup, and 147 (72.05%) nurses had >1yr of experience in the group.

Table 2. Frequency, percentage distribution of knowledge

Knowledge	Frequency (N)	Percentage (%)
Inadequate	131	64.21
Moderate	62	30.39
Adequate	11	05.39

Table 2 presents the frequency and percentage distribution of knowledge levels, with the majority demonstrating inadequate knowledge 131 (64.21%), while a smaller portion exhibited moderate knowledge, 62 (30.39%) and few had adequate knowledge 11(5.39%) about AI. This indicates a significant lack of awareness about the AI in nursing among staff nurses.

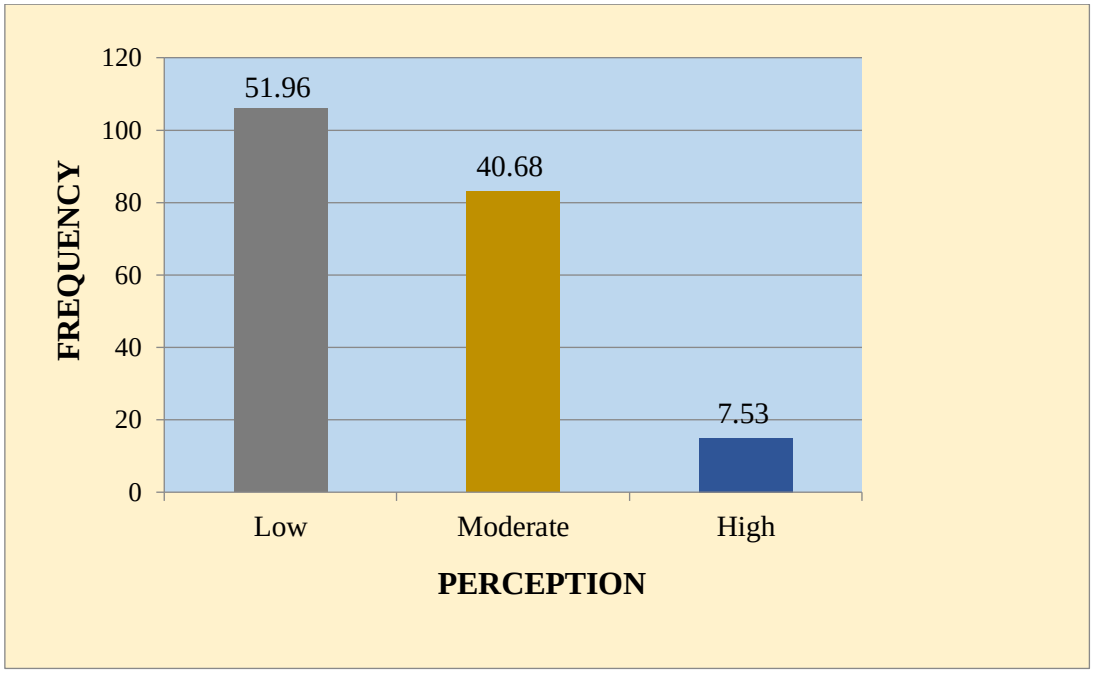

Figure 1 Distribution of Perception among the staff nurses

Figure 1 reveals the frequency and percentage distribution of Perception, that the majority, 106 (51.96%), exhibit a low level of perception, indicating that staff nurses have a poor understanding of AI and would benefit from further education on the topic.

Table 3: Assess the Knowledge and Perception Regarding AI in nursing

Variables	Mean	SD
Knowledge	1.41	0.59
Perception	1.55	0.62

Table 3 illustrates the assessment of knowledge and Perception Regarding AI in nursingin nursing among the staff nurses. The mean knowledge score of 1.41 with a standard deviation (SD) of 0.59 highlights a lack of knowledge. Similarly, the mean attitude score of 1.55 with an SD of 0.62 indicates a low level of perception. Therefore, enhancing staff nurses' knowledge through education or conferences could potentially improve and strengthen their perception of AI.

Table 4: Correlation of Knowledge and Perception Regarding AI in nursing

Variables	*r* – value	*p*-value
Knowledge and Perception	0.29	**0.001***

Table 4 Shows the correlation between knowledge and Perception Regarding AI in nursing among the staff nurses in the group. The r-value of 0.29 and the p-value of 0.001 indicate a positive correlation, suggesting a statistically significant relationship between knowledge and perception. Since knowledge regarding the AI was inadequate, it contributed to the poor attitude toward the AI application.

DISCUSSION

The purpose of this study was to assess the knowledge and perception regarding AI in nursing among staff nurses at selected settings. The results will help

focus initiatives and increase knowledge among healthcare providers.

The demographic variables of staff nurses, in the table 4.1 denote that, the majority of the staff nurses belong to the age group of 26 – 30 (45.58%) years. Regarding gender, the female staff nurses was higher at 167 (81.86%). With respect to education 131 (64.21%) were under graduates. Regarding the workplace, the majority of staff nurses114 (84%) are assigned to the ward setup, and 147 (72.05%) nurses had >1yr of experience in the group.

These findings were similar to the research findings reported by Al Omari O., Al shammari M., et al., (2024). A multicenter, cross-sectional survey was conducted across 10 Arab countries to explore the demographic factors, knowledge, attitude, and perception of nursing students regarding their intention to use Artificial Intelligence (AI) in nursing practice. The study found that knowledge and attitudes towards AI varied significantly by age, gender, and education level ($p < 0.05$). Older students had lower intentions to adopt AI, while those with higher education were more inclined to use it ($p < 0.05$). Male students were more likely to have a positive attitude toward AI than females ($p < 0.05$). Demographic factors such as age and education were key in shaping AI adoption intentions, while socioeconomic status had no significant impact ($p > 0.05$).

In this study, the significant lack of knowledge about the AI in nursing is evident, with 64.21% of staff nurse's inadequate understanding, while only 30.39% show moderate knowledge. Additionally, 51.96% of students exhibit a low level of perception toward AI in nursing, indicating a need for improvement in their perceptions to learn about AI. The mean knowledge score of 1.41 (SD = 0.59) and mean perception score of 1.55(SD = 0.62) both reflect poor levels of knowledge and perception. These findings suggest that improving staff nurses knowledge could potentially enhance their perception towards AI in nursing.

These study findings were consistent with the study performed by Alruwaili et al. (2024) examined nurses' awareness and attitudes toward artificial intelligence (AI) in nursing practice. The study found that while most nurses had a basic understanding of AI, only 55% felt confident using AI in clinical settings. Despite this, 85% expressed interest in AI's potential to enhance patient care and healthcare efficiency. The research identified key barriers to AI adoption, including a lack of adequate training and

concerns over job security. Many nurses reported limited exposure to AI tools during their education, which hindered their ability to integrate AI into practice. The authors concluded that improving AI knowledge and providing hands-on training should be prioritized in nursing education. This would better prepare nurses for the evolving healthcare landscape and help them effectively use AI to improve patient outcomes.

The study shows a significant positive correlation between knowledge and perception among staff nurses, with an r-value of 0.29 and a p-value of 0.001. This suggests a statistically significant relationship between the two factors. The inadequate knowledge about the AI contributed to the negative perception toward the AI in nursing.

The study findings were similar to the study done by Al Hadithy et al. (2023) conducted a study to assess the knowledge, attitudes, and perceptions of artificial intelligence (AI) in healthcare among medical students at Sultan Qaboos University. The overall mean scores for knowledge, attitude, and perception regarding AI were 68.4 (SD = 14.2), 72.3 (SD = 16.8), and 75.0 (SD = 12.9), respectively. More than 60% of the students recognized the potential benefits of AI in improving healthcare outcomes. The study also found a positive correlation between students' attitudes and their perceptions of AI in healthcare (β = .04, P = .012), suggesting that more favorable attitudes were linked to a better understanding of AI's role in healthcare. The authors concluded that increasing exposure to AI in medical curricula could enhance students' knowledge and positively influence their attitudes toward AI adoption in healthcare.

Therefore, there is positive relationship between the level of knowledge and the perception towards the AI in nursing among staff nurses. Hence, H_1, H_2 is not accepted.

CONCLUSION

The study findings revealed a statistically significant lack of understanding and a poor perception regarding AI in nursing among the nurses. These results suggest that as staff nurses' knowledge of AI in nursing increases, their perceptions toward it are likely to improve. To address this gap, it is essential to implement continuous nursing education, targeted training sessions, increased exposure to AI technologies, and awareness programs. Additionally, providing adequate resources and institutional support for staff nurses is critical. These measures will help enhance nurses' knowledge of AI and foster more positive perceptions, ultimately leading to greater acceptance and

integration of AI technologies in nursing practice.

REFERENCES

1. Abdelkareem, S. A., Bakri, M. H., & Ahmed, N. A. (2024). Perception and Attitudes of Critical Care Nurses Regarding Artificial Intelligence at Intensive Care Unit. Assiut Scientific Nursing Journal, 12(43), 163-171.
2. Abdullah, R., &Fakieh, B. (2020). Health care employees' perceptions of the use of artificial intelligence applications: survey study. Journal of medical Internet research, 22(5), e17620
3. Al Hadithy, Z. A., Al Lawati, A., Al-Zadjali, R., & Al Sinawi, H. (2023). Knowledge, Attitudes, and Perceptions of Artificial Intelligence in Healthcare Among Medical Students at Sultan Qaboos University. Cureus, 15(9),e44887. https://doi.org/10.7759/cureus.44887
4. Al Omari, O., Alshammari, M., Al Jabri, W., Al Yahyaei, A., Aljohani, K. A., Sanad, H. M., Al-Jubouri, M. B., Bashayreh, I., Fawaz, M., ALBashtawy, M., Alkhawaldeh, A., Qaddumi, J., Shalaby, S. A., Abdallah, H. M., AbuSharour, L., Al Qadire, M., & Aljezawi, M. (2024). Demographic factors, knowledge, attitude and perception and their association with nursing students' intention to use artificial intelligence (AI): a multicentre survey across 10 Arab countries. BMC medical education, 24(1), 1456. https://doi.org/10.1186/s12909-024-06452-
5. Alowais, S. A., Alghamdi, S. S., Alsuhebany, N., Alqahtani, T., Alshaya, A. I., Almohareb, S. N., ... & Albekairy, A. M. (2023). Revolutionizing healthcare: the role of artificial intelligence in clinical practice. *BMC medical education*, *23*(1), 689.—1
6. Alruwaili, M. M., Abuadas, F. H., Alsadi, M., Alruwaili, A. N., Elsayed Ramadan, O. M., Shaban, M., Al Thobaity, A., Alkahtani, S. M., & El Arab, R. A. (2024). Exploring nurses' awareness and attitudes toward artificial intelligence: Implications for nursing practice. Digital health, 10, 20552076241271803. https://doi.org/10.1177/20552076241271803
7. Bohr, A., & Memarzadeh, K. (2020). The rise of artificial intelligence in healthcare applications. In *Artificial Intelligence in healthcare* (pp. 25-60). Academic Press.—2

8. Castagno, S., & Khalifa, M.(2020). Perceptions of artificial intelligence among healthcare staff: a qualitative survey study. Frontiers in artificial intelligence, 3, 578983.
9. Elsayed, W. A., &Sleem, W. F. (2021). Nurse Managers' perception and Attitudes toward Using Artificial Intelligence Technology in Health Settings. Assiut Scientific Nursing Journal, 9(24.0), 182-192.
10. Rong, G., Mendez, A., Assi, E. B., Zhao, B., &Sawan, M. (2020). Artificial intelligence in healthcare: review and prediction case studies. Engineering, 6(3), 291-301.
11. Sunarti, S., Rahman, F. F., Naufal, M., Risky, M., Febriyanto, K., &Masnina, R. (2021). Artificial intelligence in healthcare: opportunities and risk for future. Gaceta sanitaria, 35, S67-S70.
12. Wang, X., Fei, F., Wei, J., Huang, M., Xiang, F., Tu, J & Gan, J. (2024). Knowledge and attitudes toward artificial intelligence in nursing among various categories of professionals in China: a cross-sectional study. *Frontiers in public health*, *12*, 1433252. 3
13. Patel, R., & Kumar, S. (2022). Nurses' perceptions of the challenges faced without AI in acute care settings. *Journal of Critical Care Nursing*, *30*(4), 245-253. https://doi.org/10.1016/j.jccn.2022.04.003. I-14