

"A Descriptive Study To Assess The Knowledge And Practice Of Student Nurses Regarding The Use Of Artificial Intelligence In Healthcare From Selected Colleges Of Pune City."

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ABSTRACT

Title

A descriptive study to assess the knowledge and practice of student Nurses regarding the use of artificial intelligence in healthcare from selected colleges of Pune city.

Purpose of the study

The study aims to assess the knowledge and practice level of student nurses regarding the use of AI.

Background

In recent years AI has become the most transformative technologies in various sectors which include business, education, defense and healthcare. The integration of AI in healthcare has the potential to increase patient care, enhance diagnostic accuracy, optimize clinical decision making, support medical education and quality of life.

Material and method

A quantitative research approach with descriptive study design was adopted. The study was conducted in selected colleges of Pune city on 200 student nurses from BSc and GNM were taken as sample for this study. Non-probability purposive sampling technique was used for the sample selection. The data was collected using demographic variables, self-structured questionnaire and self-structured scale. The collected data were analysed using descriptive and inferential statistics.

Result

The result shows that 45.5% were having good knowledge, 57% were having adequate practice. Majority of participants course was GNM (51%). A strong correlation was established between knowledge and course of study, which practice levels were significantly associated with year of study.

Conclusion

The study reveals that only 45.5% had good knowledge about AI and only small proportion shows excellent knowledge towards AI. Most of the students are practising AI still many of them are not practising AI in daily life. The study concludes that nursing students need more training and practise exposure in AI based learning to improve AI based skills and simulations in nursing education.

Key words: Descriptive study, knowledge, practice, student nurses and Artificial Intelligence.

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INTRODUCTION

Artificial Intelligence (AI) is the capability of computational systems to perform tasks that normally require human intelligence, such as decision making, reasoning, problem solving, learning, and perception. The integration of AI in healthcare has the potential to improve patient care, increase diagnostic accuracy, optimize clinical decision making, support medical education, and enhance quality of life. AI has become an important tool in modern healthcare systems.

As healthcare continues to adopt digital innovations, it has become essential for future nurses to gain knowledge and develop skills related to AI. Artificial intelligence is rapidly growing and has become part of everyday life. As technology advances, the demand for AI also continues to increase. Implementing AI in healthcare makes work easier, faster, and more efficient. AI has growing importance in clinical practice, nursing education, and patient management.[3]

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AI is widely used in nursing education, where ChatGPT is one of the most common examples of generative AI. It helps create simulated learning environments and hospital scenarios for nursing students, improving their learning abilities and clinical understanding. AI also provides real time feedback, supports rapid access to information, and improves time management skills. These features help students learn more effectively and prepare for real clinical situations.

The future of AI in healthcare is promising. It can support better decision making, improve healthcare delivery, reduce workload, and enhance patient outcomes. With proper knowledge and responsible use, AI can become a valuable support system for nurses and healthcare professionals in the future.[1]

By understanding artificial intelligence and using it ethically, nurses can improve communication, maintain accurate patient records, provide faster interventions, and support safer healthcare practices. AI cannot replace human compassion and critical thinking, but it can assist healthcare professionals in delivering efficient, patient centered, and evidence-based care in hospitals and community settings across the world.[2]

NEED OF THE STUDY

Artificial Intelligence (AI) is playing a dominant role in modern healthcare and has become an essential component in transforming healthcare delivery systems. AI technologies improve the quality, safety, accuracy, and efficiency of patient care by assisting healthcare professionals in clinical decision-making, diagnosis, patient monitoring, and management of healthcare data. The integration of AI into healthcare settings has the potential to improve patient outcomes, reduce medical errors, and make healthcare services more accessible and cost-effective.[1]

Healthcare systems worldwide face multiple challenges such as increased patient load, shortage of healthcare professionals, limited resources, and growing demand for quality care. AI-based technologies can help address these challenges through integrated decision-making systems, automation of routine tasks, and reduction of human errors. Nurses, being the largest group of healthcare providers and directly involved in patient care, are expected to adapt to these technological advancements to provide evidence-based and efficient healthcare services.[1]

Nursing students, as future healthcare professionals, should possess adequate knowledge and practical exposure regarding AI in healthcare. Understanding AI applications can improve their professional competence, confidence, critical thinking, and technological adaptability. However, previous studies have shown that nursing students have limited knowledge and exposure regarding the use of AI in healthcare settings.[1]

A study conducted by Ravi S. Parpani, Nilam Dhende, Nainital Gawade, Priyanka Mahapure, Sourabh Patil,

and Vicky Patole among nursing students reported varying levels of knowledge and attitudes regarding Artificial Intelligence in healthcare, emphasizing the importance of improving awareness and education related to AI among nursing students.[1] Therefore, the present study is necessary to assess the knowledge and practices regarding Artificial Intelligence among nursing students and to promote AI-enabled, competent, and quality nursing care.

AIM OF THE STUDY

This study aims to assess the knowledge and practices of student nurses regarding the use of artificial intelligence in healthcare from selected colleges of Pune city. The study further aims to associate the findings with selected demographic variables.

RESEARCH METHODOLOGY:

The research approach adopted for this study was a quantitative research approach. The research design used was a non-experimental descriptive design. The samples for the study were B.Sc. Nursing and GNM nursing students. The total sample size was 200 nursing students. A simple random sampling (probability sampling) technique was used to select the samples.

The tool used to assess the knowledge and practice of student nurses regarding the use of AI in health care consisted of two sections. Section I included demographic variables such as age, gender, course, and year of study. Section II consisted of a self-structured questionnaire for assessing knowledge and a self-structured practice scale. Both sections contained 18 questions each.

Reliability testing was conducted after validity assessment. The reliability of the tool was established using the test-retest method with a sample size of 20 students. The reliability coefficient for the knowledge questionnaire was $r = 0.94$, and for the practice scale it was $r = 0.87$, indicating that the tool was highly reliable.

A pilot study was conducted after the reliability testing with 20 samples to assess the feasibility of the study. The findings of the pilot study showed that the study was feasible and practicable.

RESULT

Section I - Demographic Data Distribution

Table no 1: Demographic Data Distribution

N=200

Demographic Variables	Frequenc y (f)	Percentag e (%)
1) AGE:		
a) 18-19 years	123	61.5
b) 20-21 years	53	26.5
c) 22-23 years	24	12

2) COURSE :		
a) BSc	98	49
b) GNM	102	51
3) YEAR OF STUDY:		
a) 1st year	146	73
b) 2nd year	22	11
c) 3rd year	9	4.5
d) 4th year	23	11.5
4) GENDER:		
a) Male	52	26
b) Female	148	74

The table no. 1 indicates that the majority of the participants were aged between 18 and 19 years, indicating that most of the respondents were younger nursing students. More than half of the participants belonged to the GNM course. A large proportion of the respondents were first-year students, which shows greater participation from beginners in nursing education. In terms of gender, female students constituted the majority of the study participants.

Section II: Level Of Knowledge And Practice Of Student Nurses Regarding The Use Of AI In Healthcare

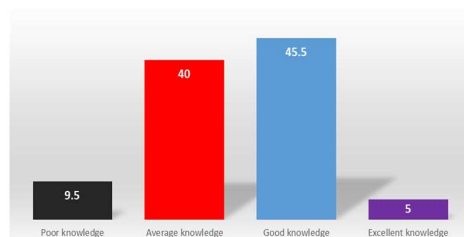


Figure no. 1: Level of knowledge of student nurses regarding the use of AI in health care

The figure no. 1 shows that a large proportion of the respondents had good knowledge regarding the use of AI in health care. A considerable number of students also demonstrated average knowledge. Only a small percentage of the respondents had poor knowledge, while very few students exhibited excellent knowledge. This indicates that most of the nursing students possessed a moderate to good level of knowledge regarding the use of AI in health care.



Figure no 2: Level of practice of student nurses regarding the use of AI in healthcare

The figure no.2 indicates that the majority of student nurses demonstrated adequate practice regarding the use of Artificial Intelligence (AI) in health care. However, a considerable proportion of the students showed inadequate practice. This indicates that although many nursing students are able to apply AI in health care practices, there is still a need to improve practical exposure and usage among some students.

Section III: Associate Knowledge Of Findings With The Selected Demographic Variables

The association between knowledge levels and selected demographic variables was analyzed using the chi-square test. The results showed that course of study had a significant association with knowledge levels ($\chi^2 = 8.989$, $p = 0.04$), indicating that students from different courses differed in their knowledge scores. However, age ($p = 0.62$), year of study ($p = 0.473$), and gender ($p = 0.785$) did not show any significant association with knowledge levels, suggesting that these factors do not influence the knowledge of participants regarding the topic.

Associate Practice Of Findings With The Selected Demographic Variables

The association between practice levels and selected demographic variables was assessed using the chi-square test.

The results showed that **year of study** had a **significant association** with practice levels ($\chi^2 = 14.991$, $p = 0.002$), indicating that students practice varies according to their academic year. However, **age** ($p = 0.54$), **course** ($p = 0.57$), and **gender** ($p = 0.054$) did **not** show any significant association with practice levels, suggesting that these factors do not influence the practice patterns of the participant.

DISCUSSION

The findings of the present study revealed that most student nurses possessed average (40%) to good knowledge (45.5%) regarding Artificial Intelligence (AI) in healthcare. More than half of the participants demonstrated adequate practice (57%) regarding the use of AI in healthcare settings. These findings indicate that nursing students are gradually becoming aware of AI technologies and their application in healthcare practice through increased exposure

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to digital learning methods and technological advancements.

The findings of the present study are supported by a similar study conducted by [Parpani RS, Dhende N, Gawade N, Mahapure P, Patil S, Patole V] (2025) among 120 nursing students regarding knowledge of Artificial Intelligence in healthcare.[1] The study reported that 60.83% of participants had good knowledge, 38.33% had moderate knowledge, and only one participant had poor knowledge regarding AI. The findings are similar to the current study as both studies indicate that nursing students possess satisfactory knowledge regarding AI in healthcare. However, the previous study focused only on knowledge and included a smaller sample size compared to the present study, which assessed both knowledge and practice among 200 nursing students.

Another similar study conducted by [Author Name] (2022) investigated knowledge, attitude, and practice regarding AI among 1494 participants.[2] The study findings showed that 1055 participants had knowledge about AI, while 452 participants had no knowledge regarding AI. Some respondents also reported that they did not use AI in their professional practice. In comparison, the present study showed better practice levels among student nurses, with 57% demonstrating adequate practice regarding AI. This may be due to increased awareness, online education, and greater use of digital technologies in recent years. Overall, both studies support the growing importance of AI education in nursing and healthcare practice.

CONCLUSION

The study findings revealed that most student nurses had average to good knowledge regarding the use of artificial intelligence in healthcare, while more than half demonstrated appropriate practice in applying AI related skills. The study also identified a significant association between knowledge and course of study, whereas practice levels were significantly associated with the year of study. However, demographic variables such as age, gender, and course in relation to practice showed no significant association with knowledge or practice levels among the participants.

Overall, the findings indicate that student nurses possess moderate understanding and satisfactory practice regarding artificial intelligence in healthcare settings. Academic factors such as course and year of study play an important role in influencing their level of knowledge and practice. The results further highlight the growing importance of integrating artificial intelligence education into nursing

curriculum to improve awareness, practical skills, and preparedness among future nurses. Enhancing AI related education and training can help nursing students adapt to modern healthcare technologies and provide effective patient care. Therefore, the study concludes that improving knowledge and practice regarding artificial intelligence among nursing students is essential for better healthcare delivery in the future and for meeting the demands of advancing medical technologies.

CONFLICT OF INTEREST

We researchers declares that there is no conflict of interest related to this study. The research was conducted independently without any financial or personal influence. All procedures are carried out objectively and ethically.

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There is no funding source for this study.

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