

## ASSESS THE KNOWLEDGE, ATTITUDE AND PERCEPTION TOWARDS UTILIZATION OF ARTIFICIAL INTELLIGENCE AMONG STUDENT NURSES”

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### ABSTRACT

This study aimed to assess the knowledge, attitude, and perception towards the utilization of Artificial Intelligence (AI) among student nurses in selected nursing colleges of Bathinda, Punjab. A quantitative cross-sectional descriptive design was adopted, and 130 student nurses were selected through a non-probability convenient sampling technique. Data were collected using a structured, self-administered questionnaire assessing demographic variables, knowledge, attitude, and perception, and were analyzed using descriptive and inferential statistics. The findings revealed that most participants had a moderate level of knowledge (43.1%), while a considerable proportion demonstrated a positive attitude (48.5%) and good perception (64.6%) towards AI. Significant associations were observed between knowledge and AI training, as well as between attitude and familiarity with AI. The study concludes that although student nurses show positive acceptance and perception towards AI, there is a need to enhance their knowledge through curriculum integration and structured training programs to ensure effective utilization of AI in nursing practice.

**Keywords:** Artificial Intelligence, demographic variables, medical errors.

### INTRODUCTION

Artificial Intelligence (AI) is one of the most significant technological advancements of the 21st century, bringing a paradigm shift in the field of healthcare. AI involves the use of computer systems and algorithms to perform tasks that typically require human intelligence, such as decision-making, problem-solving, learning, and pattern recognition. In healthcare, AI is being utilized in areas like early disease detection, medical imaging analysis, virtual health assistants, predictive analytics, and personalized treatment planning. These advancements have contributed to improved patient outcomes, reduced medical errors, and enhanced efficiency in healthcare delivery systems. The integration of AI into healthcare is reshaping the roles and responsibilities of healthcare professionals, including nurses. Nursing practice is no longer limited to traditional bedside care but now includes the use of advanced technologies to support clinical decisions and patient management. AI-powered tools such as electronic health records with decision support systems, smart monitoring devices, and robotic assistants are increasingly being used in hospitals and community settings. Therefore, it is essential for nurses to develop adequate knowledge and skills related to AI to ensure safe and effective patient care. Student nurses, who represent the future workforce of the healthcare system, must be equipped with competencies that align with

modern technological trends. Their knowledge about AI determines their understanding of its functions, applications, and limitations. Attitude refers to their feelings, beliefs, and willingness to accept AI in healthcare practice, while perception involves how they interpret the impact of AI on patient care, professional roles, and ethical considerations. A positive attitude and clear perception can enhance the adoption of AI, whereas fear of job displacement, lack of technical skills, and ethical concerns may act as barriers. Despite the growing significance of AI, there is evidence that many nursing students have limited exposure to AI concepts during their academic training. Traditional nursing curricula often do not adequately cover emerging technologies, leading to a knowledge gap among students. This lack of awareness may result in hesitation, anxiety, or resistance towards the use of AI in clinical settings. Furthermore, misconceptions about AI replacing human roles can negatively influence students' attitudes and perceptions. In the Indian context, the adoption of AI in healthcare is gradually increasing, supported by government initiatives and advancements in digital health infrastructure. However, the readiness of healthcare professionals, especially nursing students, remains a critical concern. Bathinda, Punjab, hosts several nursing institutions that contribute to the preparation of future nurses. Assessing the knowledge, attitude, and perception of student nurses in this region

will provide valuable insights into their preparedness for AI integration in healthcare. This cross-sectional study is therefore undertaken to evaluate the level of knowledge, attitude, and perception regarding the utilization of artificial intelligence among student nurses studying in selected nursing colleges of Bathinda, Punjab. The findings of the study will help in identifying existing gaps and challenges, and may contribute to the development of appropriate educational strategies, training programs, and curriculum enhancements.

### **MATERIALS AND METHODS**

This study used a quantitative cross-sectional descriptive design to assess the knowledge, attitude, and perception regarding artificial intelligence among student nurses in selected nursing colleges of Bathinda, Punjab. A non-probability convenient sampling technique was used to select participants who met the inclusion criteria and consented to participate.

Data were collected using a structured self-administered questionnaire consisting of demographic details and sections on knowledge, attitude (Likert scale), and perception of AI. The tool was validated by experts and tested for reliability through a pilot study.

Prior permission was obtained from concerned authorities, and informed consent was taken from participants. Data were analyzed using descriptive and inferential statistics. Ethical principles such as confidentiality, anonymity, and voluntary participation were maintained throughout the study.

#### **Sample Size:**

The study was conducted among 130 student nurses from selected nursing colleges of Bathinda, Punjab, who fulfilled the inclusion criteria and were selected for the study.

#### **DATA COLLECTION TOOL AND TECHNIQUES**

Data were collected using a structured, self-administered questionnaire developed by the researcher based on the objectives of the study. The tool consisted of four sections. Section I included demographic variables such as age, gender, year of study, and previous exposure to artificial intelligence. Section II comprised multiple-choice questions to assess the knowledge of student nurses regarding artificial intelligence and its applications in healthcare. Section III included a Likert

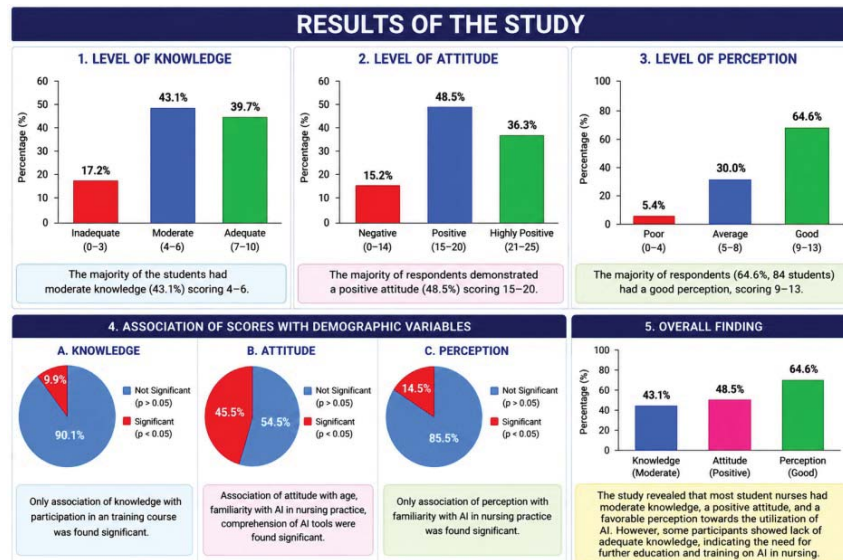
scale to measure the attitude of participants towards the use of AI, with responses ranging from strongly agree to strongly disagree. Section IV assessed the perception of student nurses regarding the benefits, challenges, and ethical aspects of AI in nursing practice. The content validity of the tool was established by a panel of experts in nursing and research, and necessary modifications were made based on their suggestions. Reliability of the tool was ensured through a pilot study conducted among a small group of student nurses, and the tool was found to be feasible and understandable. Data collection was carried out after obtaining formal permission from the authorities of selected nursing colleges and informed consent from the participants. The questionnaires were distributed in a classroom setting, and clear instructions were given to the participants. Adequate time was provided to complete the tool, and the researcher remained available to clarify any doubts. Confidentiality and anonymity were maintained throughout the process, and the completed questionnaires were collected for data analysis.

### **RESULTS**

The findings of the present study provide significant insight into the preparedness of student nurses regarding the utilization of Artificial Intelligence (AI) in healthcare. Based on the knowledge score criteria, the majority of respondents (43.1%) had a moderate level of knowledge, with scores ranging from 4–6. This finding shows that although students possess basic awareness about AI, they lack detailed understanding regarding its applications, functions, and limitations in clinical practice. Only a small proportion of participants demonstrated adequate knowledge, highlighting insufficient exposure to AI concepts within the nursing curriculum. Regarding attitude, nearly half of the respondents (48.5%) showed a positive attitude towards AI, with scores ranging between 15–20. This reflects that most student nurses are willing to accept AI technologies and recognize their role in improving patient care, reducing workload, and supporting clinical decision-making. Positive attitudes towards AI may facilitate the adoption of technological advancements in healthcare. However, some participants demonstrated neutral or negative attitudes due to concerns related to

lack of technical skills, fear of technology, and misconceptions regarding replacement of human roles by AI. In terms of perception, the majority of respondents (64.6%, 84 students) had a good perception of AI, with scores ranging between 9–13. Most students acknowledged the benefits of AI in enhancing efficiency, accuracy, and quality of healthcare services. They also recognized the future significance of AI in nursing practice. Despite these positive perceptions, certain concerns regarding ethical issues, inadequate training, and limited accessibility of AI tools were also identified. The study further examined the association between selected demographic variables and levels of knowledge, attitude, and perception. A statistically significant association was observed between knowledge and participation in AI training programs, indicating that trained students possessed better knowledge regarding AI. Similarly, attitude showed significant association

with variables such as age, familiarity with AI in nursing practice, and understanding of AI tools. Perception was significantly associated with familiarity with AI in nursing practice, emphasizing the role of awareness and practical exposure in developing favorable perceptions. Overall, the study concludes that student nurses possess moderate knowledge along with positive attitudes and favorable perceptions towards the utilization of Artificial Intelligence in healthcare. However, the existing knowledge gaps highlight the need for improvement through integration of AI-related content into nursing education, organization of workshops and training programs, and provision of practical exposure to AI technologies. These measures can help prepare future nurses to effectively utilize AI in professional practice and contribute to quality patient care in an evolving technological healthcare environment



**CONCLUSION**

The study concludes that most student nurses demonstrated a moderate level of knowledge, along with a positive attitude and favorable perception towards the utilization of artificial intelligence in healthcare. Although the participants showed readiness to accept AI and recognized its benefits in improving patient care and efficiency, a gap in comprehensive knowledge was evident among many students. The findings further revealed that prior exposure, training, and familiarity

with AI significantly influenced their knowledge, attitude, and perception, with better outcomes observed among those who had such experience. Therefore, while the overall response towards AI is encouraging, there is a clear need to strengthen educational strategies by incorporating AI-related content into the nursing curriculum and providing training programs to enhance knowledge and prepare student nurses for effective integration of AI into clinical practice.

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