IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Study To Assess The Perception Of Ai Chatbots As A Health Education Tool Among Nursing Students In Hosur, Tamil Nadu.

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ABSTRACT

AI chatbots are being used more and more in the fields of education and healthcare since they enable self-directed learning and offer 24/7 access to health information. The purpose of this study was to evaluate how nursing students viewed AI chatbots as a tool for health education.

Objectives of the study

1. To assess the perception of nursing students regarding the use of AI chatbots for health education.
2. To determine the association between perception levels and selected demographic variables.

Methodology

A descriptive cross-sectional study was conducted among 100 B.Sc. Nursing students (1st and 4th year) at St. Peter's Nursing College and Research Institute, Hosur. A structured questionnaire comprising demographic data and a 20-item Likert scale was used to assess perceptions. Convenience sampling was adopted. Data were analyzed using descriptive and inferential statistics, including Chi-square tests.

Results

Out of 100 students, 64% had a positive perception, 35% had a neutral perception, and 1% had a negative perception of AI chatbots in health education. A significant association was found between access to technology ($p < 0.05$) and the use of AI chatbots for educational purposes ($p < 0.05$), as well as perception levels. No significant association was found with other demographic variables.

Conclusion

The findings suggest that AI chatbots are generally well accepted as effective educational tools among nursing students. With appropriate integration into the curriculum and training on digital literacy, AI chatbots can enhance nursing education.

***Index Terms*-Assess, Perception, Artificial Intelligence, Chatbot, Health Education, Nursing Students, Structured questionnaire.**

I. INTRODUCTION

Background of the study

In recent years, Artificial Intelligence (AI) has emerged as a transformative force in healthcare and education. One of the most widely used AI applications is the chatbot, a virtual assistant that simulates human conversation to provide real-time responses, information, and support. AI chatbots such as ChatGPT, Ada, and Florence are increasingly used to assist in health communication, patient education, and self-learning.

In nursing education, there is a growing demand for innovative, flexible, and technology-driven learning tools to enhance student engagement and knowledge retention. AI chatbots offer a potential solution by providing 24/7 access to health information, enabling self-directed learning, and supporting interactive education in a user-friendly manner.

However, despite their increasing availability, the acceptance and perception of AI chatbots among nursing students remain unclear. Nursing students must be equipped with both technological competence and critical thinking skills to effectively use such tools. Their attitudes toward chatbot-based learning, whether positive or negative, can influence how successfully these tools are integrated into the curriculum.

Understanding the perception of nursing students toward AI chatbots is essential to evaluate their effectiveness, relevance, and usability in nursing education. This study seeks to explore these perceptions, identify barriers to adoption, and offer insights into how chatbot technology can be optimized to support nursing students in their academic journey.

Need for the Study

The rapid advancement of digital health technologies has fundamentally transformed the landscape of healthcare delivery and education. Among these innovations, Artificial Intelligence (AI) has emerged as a powerful tool capable of enhancing communication, decision-making, and knowledge dissemination. AI-driven chatbots offer real-time, interactive, and personalized responses that mimic human conversation. These capabilities hold tremendous potential for nursing education, especially in environments striving for greater accessibility, engagement, and learner autonomy.

In the context of nursing education, traditional pedagogical methods often struggle to keep pace with the diverse learning needs of students and the growing volume of clinical knowledge. AI chatbots can complement conventional approaches by providing round-the-clock support, reinforcing theoretical concepts, and encouraging self-directed learning. For nursing students who are digital natives, these tools may serve as relatable and convenient platforms for academic support. However, the effectiveness of these tools largely depends on students' perception, acceptance, and willingness to incorporate them into their study routines.

Despite the visible surge in AI integration within the healthcare and education sectors, limited empirical research has explored how nursing students perceive and interact with AI chatbots as educational tools. A clear understanding of students' attitudes, perceived benefits, challenges, and ethical concerns is essential to guide the successful implementation of such technologies. Without this insight, efforts to integrate AI tools into the nursing curriculum may be met with resistance or fail to achieve their intended educational outcomes.

Moreover, nursing students of today are the healthcare providers of tomorrow. Their comfort and competence in using AI technologies for learning will likely influence how they educate patients and interact with future health technologies in clinical practice. Assessing their perception not only serves an academic purpose but also has broader implications for patient education, health literacy, and digital health adoption in clinical settings.

Therefore, this study is timely and significant. It aims to fill the existing knowledge gap by evaluating nursing students' perceptions of AI chatbots as a health education tool. The findings will offer valuable insights for nurse educators, curriculum planners, and technology developers to create targeted, evidence-based interventions. It will also help foster a digitally competent nursing workforce capable of navigating and leveraging emerging technologies for better health outcomes.

II. MATERIAL AND METHODOLOGY

Research Approach: Non-experimental descriptive research design

Research design: Descriptive, cross-sectional survey-based study.

Setting of the study: St. Peter's Nursing College and Research Institute, Hosur.

Study Sample: Nursing students who are studying at B.Sc (N) I and IV year in St. Peter's Nursing College and Research Institute, Hosur.

Sample size: 100 Nursing college students

Sampling technique: Convenience sampling (students who are available and willing to participate).

CRITERIA FOR SAMPLE COLLECTION

1. Inclusion Criteria:

- Nursing students B.Sc. Nursing I and IV-year students.
- Students who are willing to participate in the study.
- Students who have access to a smartphone or computer (as they may have used or encountered AI chatbots).
- Students were present at the time of data collection.

2. Exclusion Criteria:

- Students were absent during the data collection period.
- Students who have not heard of or never used any AI tools or chatbots (as their perception cannot be assessed).
- Students who are not willing to give informed consent.

DEVELOPMENT AND DESCRIPTION OF THE TOOL

The study was carried out by employing a structured **Perception Assessment (Likert Scale).** It was created with the assistance of a broad review of literature, books, journals, and consulting specialists within the field of Nursing Education and Research Technology. Validity and reliability of the instrument were obtained from experts.

The questionnaire for the present study was classified into section-A and section-B

SECTION A: Demographic Details

1. Age in years
2. Gender
3. Year of Study
4. Residence
5. Religion
6. Family and Income
7. Access to technology
8. Frequency of internet use
9. Prior Exposure to AI tools or chatbots
10. Have you used an AI chatbot for educational purposes

SECTION B: Perception Assessment (Likert Scale)

It consists of 20 items to assess nursing students' perceptions regarding AI chatbots as a health education tool. Each item is scored from 1 to 5 Likert scale, which includes Strongly Agree – 5, Agree – 4, Neutral – 3, Disagree – 2, Strongly Disagree – 1

- Higher scores indicate a more positive perception of AI chatbots**.**

SCORE INTERPRETATION FOR SECTION: B

Table:1

SCORE	INFERENCE
76–100%	Positive perception
51–75%	Neutral perception
≤50%	Negative perception

CONTENT VALIDITY

Content validity is defined as the degree to which the items in an instrument adequately represent the universe of the content being measured. The tool was submitted to 5 experts in the field of nursing education and research. The tool was modified based on the suggestions given by the experts, and the final draft was prepared and incorporated in a pilot study.

RELIABILITY OF THE TOOL

Reliability of the instrument is characterized as the degree to which an experiment, test, or measuring procedure yields the same outcome on repeated tests. It is concerned with steadiness, inner consistency, and homogeneity. The Cronbach's alpha reliability method was used to establish the reliability. The tool was administered to 10 members studying at St. Peter's College of Nursing, Hosur. A reliability coefficient score was r 0.96 is considered acceptable for internal consistency.

PILOT STUDY:

The pilot study is a small form of a trait run done in preparation for major studies; formal consent was obtained from the college authority. A pilot study was conducted on 10 college students in St. Peter's College of Nursing, Hosur, who satisfied the inclusion criteria and were chosen and obtained consent from them by building up a good rapport.

PROCEDURE FOR DATA COLLECTION:

The research study was conducted with college students studying at St. Peter's Nursing College and Research Institute, Hosur. The researcher initially establishes rapport with the study samples, and then the questionnaire was administered to collect data from nursing college students. The time duration of 30 minutes was taken by the researcher for each sample. The researcher-maintained confidentiality and had no difficulty in collecting the data.

III. DATA ANALYSIS

The research study findings were analyzed based on the objectives with the help of descriptive and inferential statistics.

DESCRIPTIVE STATISTICS:

- Frequency and percentage distribution were used to assess socio-demographic variables among nursing college students.
- Percentage, mean distribution, and standard deviation were used to estimate the level of perception of nursing students regarding AI chatbots.

INFERENTIAL STATISTICS:

A chi-square test was used to identify the association between the perception regarding the use of AI chatbots for health education and their selected socio-demographic variables among nursing college students.

IV. FINDINGS OF THE STUDY

Frequency and percentage distribution of samples based on socio-demographic variables

Table-2 **n=100**

S.NO	SOCIO-DEMOGRAPHIC VARIABLE	FREQUENCY	PERCENTAGE (%)
1	**Age in years**		
	a) 20	42	42%
	b) > 20	58	58%
2	**Gender**		
	a) Male	24	24%
	b) Female	76	76%
3	**Course of Study**		
	a)B.Sc. (N) I year	50	50%
	b) B. Sc (N) IV year	50	50%
4	**Residence**		
	a)Urban	53	53%
	b) Semi-urban	26	26%
	c)Rural	20	20%
5	**Religion**		
	a) Hindu	53	53%
	b) Muslim	4	4%
	c)Christian	43	43%
	d) Others	0	0
6	**Family monthly Income**		
	a) Below Rs. 10000	18	18%
	b)10,000 to 25000	39	39%
	c)25000 to 50000	31	31%
	d)Above 50000	12	12%
7	**Access to technology**		
	a) Smartphone	100	100%
	b) laptop	0	0
	c)Tablet	0	0
	d)None	0	0
8	**Frequency of internet use**		
	a) Rarely	9	9%
	b) Occasionally	3	3%
	c)Daily	76	76%
	d)More than 4 hours/ day	12	12%
9	**Prior Exposure to AI tools or chatbots**		
	a) Yes	86	86%
	b) No	14	14%
10	**Have you used an AI chatbot for educational purposes?**		
	a) Yes	97	97%

	b) No	3	3%

The above table depicts the **frequency and percentage distribution** of the study participants based on

The demographic data collected from 100 nursing students provides insight into a diverse participant group, with the majority (58%) being older than 20 years, suggesting a range of academic levels and experiences. A strong female majority (76%) aligns with typical gender trends in the nursing field. Participants were evenly split between first-year and final-year B.Sc. Nursing students, allowing for a balanced comparison of perspectives based on educational stage. The students predominantly came from urban areas (53%), which may influence their familiarity with technology due to greater digital exposure in urban settings.

Socioeconomic and cultural backgrounds also played a significant role in shaping access and exposure to AI tools. Most students came from low to middle-income families, with 70% earning between Rs. 10,000 and Rs. 50,000 per month. Religiously, the group was primarily Hindu (53%), followed by Christians (43%) and a small percentage of Muslims (4%), offering a culturally varied yet religion-specific cohort. Despite economic limitations, all students reported access to smartphones, the primary device used for learning, while none used laptops or tablets. This highlights the widespread reliance on mobile technology for academic purposes.

Students' engagement with the internet and AI tools was notably high, reinforcing their readiness for technology-enhanced learning. A majority used the internet daily (76%), with a smaller group (12%) spending more than four hours online each day. Most students (86%) had prior experience with AI tools or chatbots, and an impressive 97% reported using them specifically for educational purposes. This strong exposure and frequent use indicate that AI chatbots are well-integrated into the students' learning routines, suggesting both a familiarity and willingness to adopt innovative tools in nursing education.

FREQUENCY, MEAN, MEAN PERCENTAGE, AND STANDARD DEVIATION

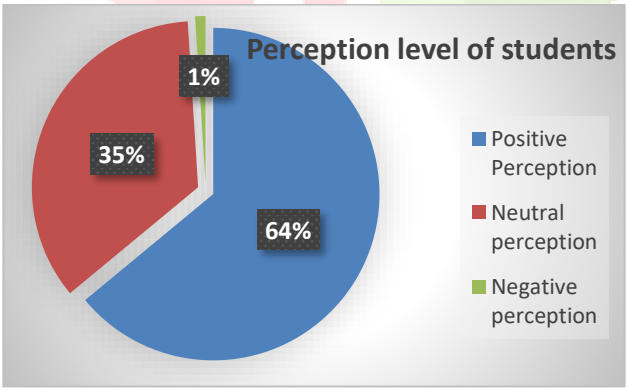
Table-3

FREQUENCY	MEAN	MEAN PERCENTAGE	S.D
100	**34.45**	34.45%	**30.82**

The above table depicts that the mean value of this research study was 34.45, the mean percentage was 34.45% and the standard deviation was 30.82.

Frequency and percentage distribution of the level of perception of AI chatbots as a Health Education Tool among nursing students.

Figure-1 n=100



This pie chart shows the perception levels of students toward AI chatbots. It illustrates that:

- 64% of students have a positive perception
- 35% have a neutral perception
- Only 1% have a negative perception

The chart highlights that the majority of students view AI chatbots favorably, while only a small number are undecided or hold negative views. This suggests that AI chatbots are generally well accepted as a health education tool among students.

Association between the level of perception of samples and their selected demographic variables

Table-4

S.no	Demographical variables	Chi square $\chi 2$	Df	P Value
1	Age in years	4.782	Df=2	5.991 (NS)
2	Gender	1.313	Df=2	5.991 (NS)
3	Course of study	1.254	Df=2	5.991 (NS)
4	Residence	1.648	Df=4	9.488 (NS)
5	Religion	1.71	Df=4	9.488 (NS)
6	Income	4.462	Df=6	12.592 (NS)
7	Access to technology	15.45	Df=2	5.991 (**S***)
8	Frequency of internet use	1.153	Df=6	12.592 (NS)
9	Prior exposure to AI tools or a Chatbot	0.57	Df=2	5.991 (NS)
10	Have you used an AI chatbot for educational purposes	7.77	Df=2	5.991 (**S***)

Note: * = Significant at 0.05 level.

NS = Not Significant

The Chi-square analysis was performed to determine the association between the level of perception of nursing students toward AI chatbots and their selected demographic variables. Among the ten variables tested, access to technology and use of AI chatbots for educational purposes showed statistically significant associations at the 0.05 level. This indicates that students who had consistent access to digital devices, particularly smartphones, and those who had experience using AI chatbots specifically for educational purposes were more likely to exhibit a positive perception of these tools as effective aids in health education.

In contrast, no significant association was observed between perception levels and other demographic variables such as age, gender, year of study, place of residence, religion, family income, frequency of internet use, and prior general exposure to AI tools. This suggests that these socio-demographic factors do not substantially influence students' attitudes or acceptance of AI chatbots in the context of nursing education. The perception appears to be more influenced by actual usage experience and functional access to technology rather than background characteristics.

Overall, the findings underscore the importance of promoting practical exposure and digital accessibility to enhance students' perception and acceptance of AI-based tools. While most students in this study already had access to smartphones and frequently used the internet, structured guidance on using AI chatbots for academic purposes could further improve their effectiveness in nursing education. Integrating chatbot tools into learning environments and encouraging their educational use can help bridge the digital competency gap and prepare students for a technology-driven healthcare future.

DISCUSSION

The present study was conducted to assess nursing students' perceptions of the use of AI chatbots as a health education tool. The findings revealed that a significant majority of the students (64%) exhibited a positive perception, while 35% had a neutral perception, and only 1% reported a negative perception. These results indicate an overall favorable attitude toward AI chatbot technology among nursing students, suggesting growing acceptance of digital tools in nursing education. This aligns with global trends that show increasing integration of artificial intelligence in higher education and healthcare training, especially in enhancing accessibility, engagement, and self-directed learning.

The high rate of positive perception may be attributed to the fact that 97% of the participants had already used AI chatbots for educational purposes, and 100% had access to smartphones. This widespread exposure to technology, coupled with the convenience and instant feedback provided by AI tools like ChatGPT, likely contributed to the positive response. Additionally, the students' digital nativity, having grown up in the digital

era, may make them more adaptable and open to incorporating AI tools into their learning process. However, the 35% of students who showed only a neutral perception could reflect uncertainty regarding the accuracy, reliability, or ethical implications of chatbot-generated content, which should be addressed through digital literacy training and structured academic guidance.

The inferential analysis revealed significant associations between students' perception and two variables: access to technology and actual use of AI chatbots for educational purposes. These findings emphasize that the more access and experience students have with AI tools, the more positively they perceive them. In contrast, no significant association was found between perception and demographic variables such as age, gender, year of study, residence, or prior general exposure to AI. This suggests that perception is influenced more by functional and experiential factors than by personal or background characteristics. Overall, these findings underscore the importance of increasing exposure, integrating AI into the curriculum, and fostering a critical understanding of AI's role in education to improve learning outcomes and technological competence among future nursing professionals.

V. NURSING IMPLICATIONS

1. Nursing Practice

- AI chatbots can be integrated into nursing practice as a complementary tool for patient education, enabling nurses to provide consistent, on-demand information about health conditions, treatments, and lifestyle modifications.
- Nurses can use chatbots to support continuity of care, especially in remote or resource-limited settings, where direct interaction with healthcare professionals is limited.
- This study emphasizes the need for nurses to become digitally competent, enabling them to assess, recommend, and monitor the appropriate use of AI tools in patient care.

2. Nursing Education

- The positive perception of AI chatbots among nursing students suggests that educators can incorporate AI tools into the teaching-learning process to enhance engagement, understanding, and revision.
- Chatbots can serve as supplementary learning aids, supporting self-directed learning, particularly in complex subjects like pathophysiology, pharmacology, and clinical decision-making.
- Faculty should include digital health literacy and critical evaluation of AI-generated content in the curriculum to ensure safe and ethical usage.

3. Nursing Administration

- Nursing administrators can play a key role by implementing AI-enabled learning platforms in nursing institutions to promote innovation in teaching methodologies.
- They can also formulate policies to guide the ethical and effective use of AI tools by students and staff, ensuring that technology supports rather than replaces human judgment.
- Administrators should focus on capacity building and infrastructure development, ensuring equitable access to digital tools for all students, regardless of their socioeconomic background.

4. Nursing Research

- This study provides a foundation for further research on the effectiveness of AI chatbots in improving learning outcomes, clinical skills, and critical thinking among nursing students.
- Researchers can explore the long-term impact of AI integration in nursing education and patient care, and evaluate how chatbots influence communication, decision-making, and patient satisfaction.
- There is also a need to develop and validate nursing-specific AI chatbot models, tailored to educational and clinical content, ensuring accuracy, relevance, and cultural sensitivity.

VI.RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed:

1. **Integration into Curriculum**: Nursing institutions should consider integrating AI chatbots into the nursing curriculum as supplementary tools to enhance health education and promote self-directed learning.
2. **Digital Literacy Training**: Regular workshops and training sessions should be conducted to improve students' digital literacy and critical thinking skills, enabling them to assess the reliability and relevance of AI-generated content.
3. **Equitable Access to Technology**: Efforts must be made by administrators and policymakers to ensure all students have equitable access to technology and internet connectivity to utilize AI tools effectively.
4. **Faculty Development**: Faculty members should be trained to guide students in the appropriate and ethical use of AI tools in education and practice, encouraging the use of AI chatbots as supportive rather than primary learning sources.
5. **Further Research**: Additional studies with larger and more diverse populations are recommended to explore the impact of AI chatbot use on actual academic performance, clinical competence, and patient education outcomes.

VII.CONCLUSION

The study concludes that most nursing students view AI chatbots positively as effective tools for health education, with their widespread use and easy access appealing to tech-savvy learners. While factors like access to technology and actual usage influenced these perceptions, socio-demographic variables such as age, gender, and income showed no significant impact on acceptance. This suggests that with the right exposure and guidance, AI chatbots can be valuable learning aids across diverse student groups. The findings highlight the importance of integrating AI tools into the nursing curriculum, supported by digital literacy training, to prepare students for evolving roles in education and patient care within a technology-driven healthcare environment.

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