

Attitude towards artificial intelligence and its relationship with technology readiness among health profession educators

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Introduction

Artificial Intelligence (AI) encompasses computer systems that perform tasks typically requiring human intelligence, such as reasoning and decision-making. Although introduced in the 1950s, AI's role in health education surged post-COVID-19. 77% of companies use or explore AI; 83% prioritize it strategically; 52% foresee productivity gains; 88% of non-users remain uncertain which is shown in fig:1. (1). In Indian scenario, the adoption rate of AI by the health care is only 30% among all the Industries and IT department is leading. (2) Although the adoption rate is less by the health care, the pharmaceutical sectors adopted AI at a rate of 52%. (2)

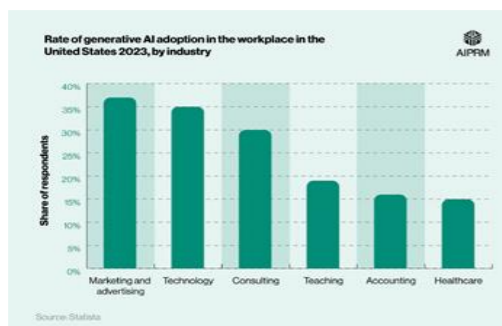


Fig: 1 AI adoption in workplace in US 2023.(1)

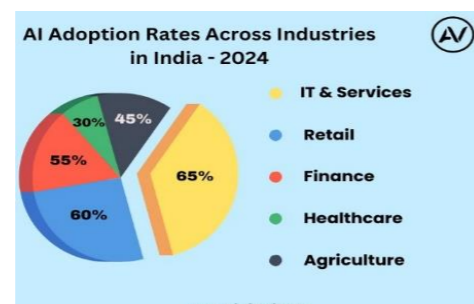


Fig: 2 AI adoption rate across Industries in India(2)

India's adoption of AI is still in its infancy when compared to other markets like the US. India's over 50% skill deficit. The nation already employs roughly 4.2 lakh AI specialists, but six lakh more are required. (2). Artificial intelligence is transforming healthcare, from diagnosis and treatment to patient management.

However, are the educators who train future healthcare professionals ready to embrace this change? With rapid advancements in technology, healthcare education is evolving to incorporate AI tools. These tools promise to enhance learning experiences but require educators to be technologically prepared. Educator readiness for AI adoption is essential, as unprepared educators may struggle to leverage these tools effectively, potentially impacting the quality of healthcare training. Despite AI's growing prominence, little research has explored healthcare educators' attitudes toward AI and their readiness to integrate such technologies in their teaching practices

Aim:

To assess the attitudes of health profession educators towards artificial intelligence and examine how these attitudes relate to their level of technology readiness within a multidisciplinary university setting.

Objectives:

- To determine attitude toward artificial intelligence.
- To assess the technology readiness using Technology Readiness Index (TRI)
- To find out the relationship between technology readiness and attitude on artificial intelligence.

Methodology

Material and Methods:

Study Design: This was a cross-sectional study designed to evaluate the attitudes of healthcare professional educators toward artificial intelligence (AI) and assess the relationship with technology readiness.

Setting and Population: The study was conducted at Era University in Lucknow, India, from June 2024 to August 2024. Faculty members from the departments of Allied Health, Liberal Arts, Nursing, Pharmacy, and Science were invited to participate.

Sample Size and Sampling Technique: The single population proportion formula was used for the study.

$$n = \frac{Z^2 \cdot P \cdot (1 - P)}{d^2}$$

The following presumptions guided the sample size calculation: Due to the lack of comparable studies, the 95% level of CI produces $Z_{\alpha/2} = 1.96$, a 5% margin of error, and an estimated proportion (P) of 50% to obtain the largest sample size. The sample size has turned out to be 108.

A total of 79 responses were collected through a Google Forms survey and the response rate was 73.15 %.

A convenience sampling method was employed, where faculty who were willing to participate were included in the study. Faculty members from the specified departments at Era University who were willing to participate were included in the study and faculty from the BCA program were excluded to narrow the study's focus on healthcare and allied health professionals.

Data Collection: Ethical clearance for the study was obtained from the Institutional Ethical Committee with registration number: ECR/717/Inst./UP/2015/RR-21.

The current study used tool 1 (GAAIS) which consists of 20 items, 5-point Likert scale and the scoring were assigned as -strongly agree -5, agree-4, neutral-3, disagree-2 and strongly disagree -1.

Out of 20 items, item no 3, item no 6, item no 8, item no 9, item no 10, item no 15, item 19 and item no 20 were assigned reverse score as strongly disagree-5, disagree-4, neutral -3, agree-2 and strongly agree -1.

We recorded favorable attitude for those which score 50 and above and unfavorable for those score below 50.

For Second tool

We used technology readiness index (TRI) which consist of 14-item scale and scoring were assigned as -strongly agree -5, agree-4, neutral-3, disagree-2 and strongly disagree -1. Out of 14 items, item no 1 and item no 2 is optimism base statement, item no 3, item no 4 and item no 5 are innovativeness based statement, item no 6 and 7 are discomfort based statement, item no 8, 9 and item no 10 are insecurity based statements.

We checked the internal consistency of the tools (GAAIS and TRI) by using Cronbach alpha and the values are 0.774 and 0.755 which suggests that the scales are reliable for measuring their respective constructs.

The Google Form was distributed electronically to faculty members in eligible departments via email. Participation was voluntary, and consent was implied by completing the survey. The survey remained open for responses from June to August 2024. The data collection form, the questionnaire used is available at <https://forms.gle/PXUsGnYUsE5zv749>



or QR Code After receiving the consent form, participants filled the form anonymously using mobile phone or laptop. We maintained confidentiality throughout the study.

Results

Statistical analysis: The Statistical Package for Social Sciences (SPSS version 22) was used for the analysis. Out of 90 participants, 11 were ignored due to incomplete information, 79 participants information has been recorded. The majority 26 (32.9%) were between the age group of 30 years and below whereas only 2 (2.53%) of them were 51 years and above. The majority 54 (68.4%) female had participated in the study and only 25 (31.6%) were male. Most of the participants, 30 (37.97 %) had working experience between 1 year and 5 years and only 5 (6.32%) freshers had participated in the study and the details is explained in fig 4.

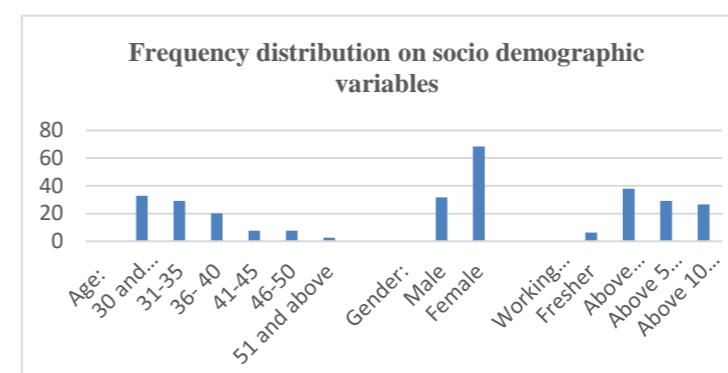


Fig 3: Frequency distribution of socio-demographic variables

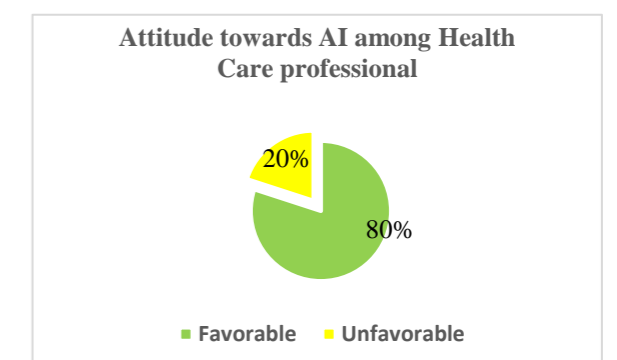


Fig 4: Assessment score on the General Attitudes towards Artificial Intelligence Scale (GAAIS)

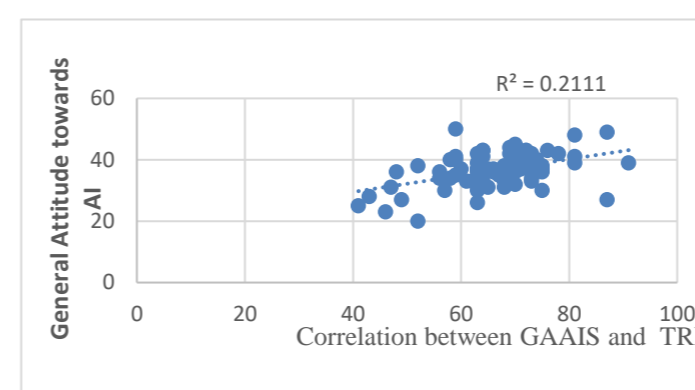


Fig 5 Correlation between GAAIS and TRI

The data of the technology readiness index (TRI) shows that, the participants are optimism on technology as it gives them more freedom to move between places easily and also able to do more things in their personal lives. In this study majority of the participants were found less innovative.

Most of the participants in the current study were found discomfort on the technology as they don't understand the word use and the participants also feel that the technology is not easy to use by ordinary people.

The majority of the participants feel insecure as many people become dependent on technology to do things for them, also technology distracts people so much that it can be harmful. They also feel insecure that technology lowers the quality of relationships by reducing personal interaction.

The Pearson correlation coefficient (0.2111) indicates a **positive but weak relationship** between GAAIS and TRI. Since the value is close to zero, it suggests that as GAAIS increases, TRI tends to increase slightly as well, but the association is weak.

Conclusion

Majority of the health professional educator surveyed had favorable attitude and few had unfavorable attitude. The Technology Readiness Index (TRI) data reveals that participants are optimistic about technology, appreciating the freedom and personal benefits it provides. However, they show low levels of innovation and discomfort due to difficulties in understanding and using technology, feeling it's not user-friendly for ordinary people. Many participants express insecurity, concerned that dependence on technology may reduce personal interaction and relationship quality. The Pearson correlation coefficient (0.2111) indicates a weak positive relationship between GAAIS and TRI, suggesting that as GAAIS increases, TRI increases slightly, but the association is weak.

Research implication:

The favorable attitudes of health professional educators towards technology suggest an opportunity to enhance their training programs. Educational institutions could focus on integrating advanced technology training that addresses the identified concerns about user-friendliness and innovation. By doing so, educators may feel more confident in using technology effectively in their teaching practices.

Limitations: Less participants so generation is difficult. Similar study can be conducted in larger population.

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