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Original Article

Knowledge, Attitude, and Practice Towards Artificial Intelligence Among Postgraduate Medical Students in Tamil Nadu: A Cross-Sectional Study

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ABSTRACT

Background: Artificial Intelligence (AI) is revolutionizing medical education and clinical decision-making. Despite its growing importance, structured training among postgraduate (PG) medical students remains limited1. This study aims to assess the knowledge, attitude, and practice (KAP) towards AI among postgraduate medical students in Tamil Nadu3.
Methods: A descriptive cross-sectional online survey was conducted among 74 postgraduate medical students using a validated Google Form. The questionnaire assessed awareness, perception, and practical exposure toward AI in medicine2. Data were analyzed using descriptive statistics and displayed as charts for better visualization4.
Results: Among respondents, 91.9% were aware of AI and 58.1% knew its medical applications. However, only 29.7% had formal training. While 87% supported AI integration into the curriculum, 59% expressed concern about ethical issues and data security. A positive attitude was observed in over 80% of participants toward AI's role in improving diagnostics and accessibility.
Conclusion: Postgraduate students exhibit high enthusiasm for AI integration, though knowledge gaps persist. Incorporation of structured AI training and ethical sensitization within medical curricula is crucial for future-ready healthcare professionals.

Keywords: *Artificial intelligence, (KAP), healthcare technology, ethics.*

INTRODUCTION

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think and learn. Its applications in healthcare include diagnostic imaging, drug discovery, predictive analytics, and personalized treatment plans[5]. However, the understanding of AI among medical trainees is still evolving. Studies from developed nations such as France and the UK show that while enthusiasm toward AI is high, actual competency remains low[7]. In India, there is a scarcity of data on AI-related knowledge among postgraduate medical students, which prompted this study[6].

OBJECTIVE

To assess Knowledge of Artificial intelligence among Postgraduate medical students at a tertiary care institute
To assess Attitude of Artificial intelligence among Postgraduate medical students at a tertiary care institute
To assess Practice of Artificial intelligence among Postgraduate medical students at a tertiary care institute

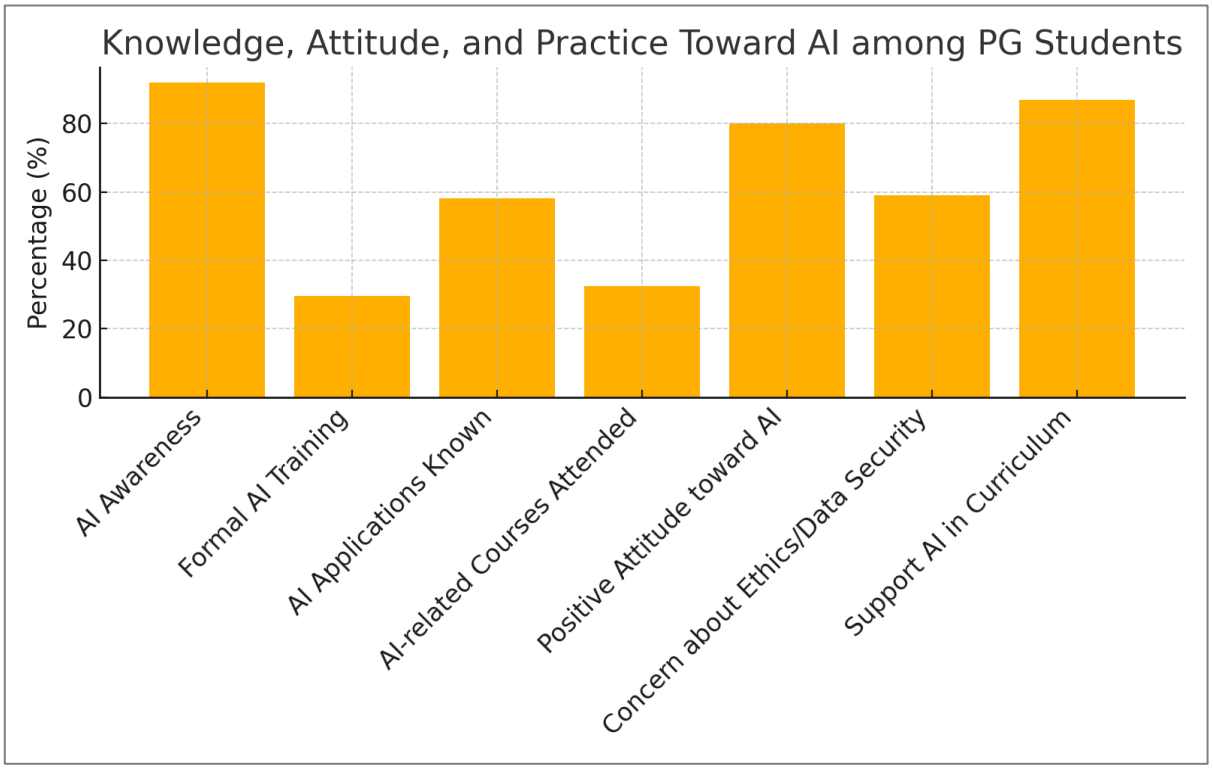
MATERIALS AND METHODS

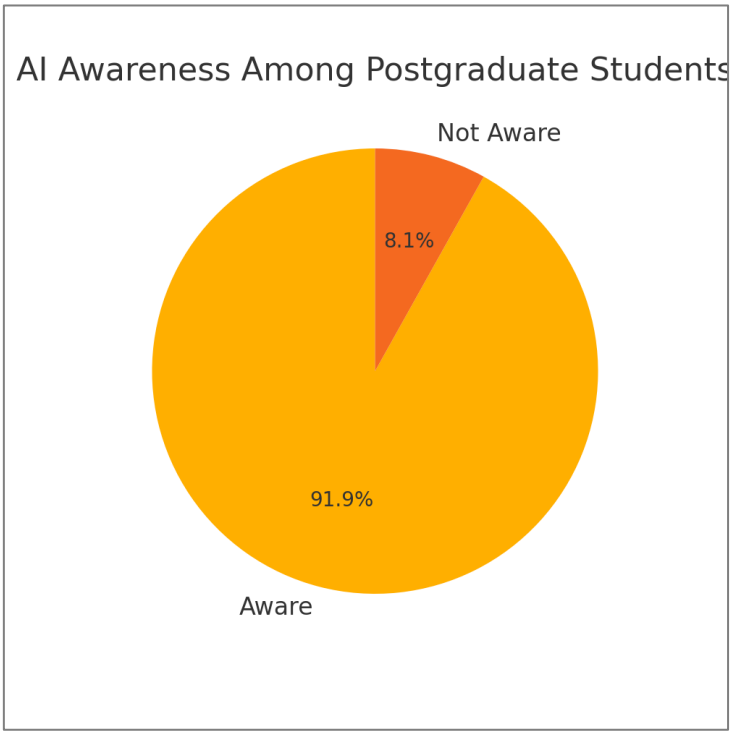
Study Design: A descriptive cross-sectional study was conducted between October 2024 to January 2025 among postgraduate medical students in Tamil Nadu. An online Google Form questionnaire based on validated international tools was used to assess knowledge, attitude, and practice toward AI.
Inclusion Criteria: Postgraduate medical students in Melmaruvathur Adhiparasakthi Medical college.

Exclusion Criteria: Students unwilling to participate or incomplete responses.
Data Analysis: Collected data were entered into Microsoft Excel SPSS 22.0 and analyzed using descriptive statistics. Results were expressed as frequency and percentage. Graphical representation (bar charts, pie charts, and anthropometric-style diagrams) were generated to visualize KAP trends.

RESULTS

Out of 74 participants, 91.9% were aware of AI, while only 40.5% had strong foundational knowledge. About 58.1% identified medical applications of AI, whereas formal teaching exposure was only 29.7%. AI-related course participation was limited (32.4%), and ethical awareness remained moderate (59%). However, a positive attitude toward AI's role in clinical improvement was seen in over 80% of respondents.





DISCUSSION

The study demonstrates that postgraduate students possess strong awareness but limited formal education on AI. This reflects a global pattern where enthusiasm precedes structured training[10]. The findings are comparable to those of Perrier et al. (2022), who reported that only 5% of young pediatricians had received AI training[1] Barriers such as lack of curriculum integration, insufficient faculty training, and absence of interdisciplinary exposure contribute to this gap[12].

Students expressed ethical and data security concerns, aligning with the global need for robust AI governance[11]. Nevertheless, the willingness to adopt AI-based tools and the demand for formal training reflect readiness among medical trainees for digital transformation in healthcare[13].

Above is a representative diagram showing proportional distribution of Knowledge, Attitude, and Practice levels (Anthropometric-style visualization).

CONCLUSION

The study concludes that while postgraduate medical students in Tamil Nadu are aware of AI and its potential, there exists a significant gap in structured learning[8]. Introducing AI modules in medical curriculum, along with faculty sensitization and hands-on workshops, is vital. A multidisciplinary approach integrating medicine, data science, and ethics can bridge this educational divide[9].

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Knowledge, Attitude, and Practice Summary Table

This table summarizes the responses from postgraduate medical students in Tamil Nadu regarding their knowledge, attitude, and practices toward Artificial Intelligence (AI) in medicine.

Question	AGREE	DISAGREE	NO	YES
1. Do you know what Artificial Intelligence Is?	0 (0.0%)	0 (0.0%)	6 (8.1%)	68 (91.9%)
2. Do you have a solid knowledge of the basics of AI?	0 (0.0%)	0 (0.0%)	44 (59.5%)	30 (40.5%)
3. Do you know about any application of Artificial Intelligence in the Medical Field ?	0 (0.0%)	0 (0.0%)	31 (41.9%)	43 (58.1%)
4. Have you ever been taught about Artificial Intelligence in Medical School?	0 (0.0%)	0 (0.0%)	52 (70.3%)	22 (29.7%)
5. Have you attended any Previous online/offline	0 (0.0%)	0 (0.0%)	50 (67.6%)	24 (32.4%)

courses regarding Artificial Intelligence?				
6. Do you understand the barriers of applying Artificial Intelligence in Medicine?	0 (0.0%)	0 (0.0%)	43 (58.1%)	31 (41.9%)
7. Do You Know about Machine Learning and deep learning (sub types of AI)	0 (0.0%)	0 (0.0%)	58 (78.4%)	16 (21.6%)
8. Do you think that AI will help for Practitioners in early diagnosis and assessment of the severity of Disease?	62 (83.8%)	12 (16.2%)	0 (0.0%)	0 (0.0%)
9.Do you think clinical AI will be more accurate than physicians?	14 (18.9%)	60 (81.1%)	0 (0.0%)	0 (0.0%)
10. Do you believe some specialties are more prone to be replaced by AI than others?	41 (55.4%)	33 (44.6%)	0 (0.0%)	0 (0.0%)
11.Do you believe that AI replace physicians in the Future?	19 (25.7%)	55 (74.3%)	0 (0.0%)	0 (0.0%)
12.Do you believe AI is essential in the Field of Pharmacology?	53 (71.6%)	21 (28.4%)	0 (0.0%)	0 (0.0%)
13. . Do you believe AI would be a burden for practitioner ?	33 (44.6%)	41 (55.4%)	0 (0.0%)	0 (0.0%)
14.Do you believe AI would increase the percentage of errors in diagnosis?	40 (54.1%)	34 (45.9%)	0 (0.0%)	0 (0.0%)
15. Have you ever heard about Specific training in Artificial Intelligence in Medical Field ?	0 (0.0%)	0 (0.0%)	43 (58.1%)	31 (41.9%)
16. Have you ever encountered AI tools in Your Medical Practice ?	0 (0.0%)	0 (0.0%)	55 (74.3%)	19 (25.7%)
17.Do you think AI will help analyze patient Medical Data to come up with Potential diagnoses?	0 (0.0%)	0 (0.0%)	14 (18.9%)	60 (81.1%)
18.Will AI make your task easy?	0 (0.0%)	0 (0.0%)	4 (5.4%)	70 (94.6%)
19.Would you like to use AI in Medical Field in Future?	0 (0.0%)	0 (0.0%)	9 (12.9%)	61 (87.1%)
20.Do you think Doctors Should receive Specific training on the use of AI tools in the health care?	0 (0.0%)	0 (0.0%)	5 (7.0%)	66 (93.0%)
21.Do you think AI will revolutionize Medicine?	0 (0.0%)	0 (0.0%)	6 (8.5%)	65 (91.5%)