



Comment on “AI in Healthcare: A Revolutionary Ally or an Ethical Dilemma?”

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We read Korkmaz's¹ editorial with interest. The author eloquently presents a major dilemma concerning the advantages and disadvantages of artificial intelligence (AI) in medicine. It is emphasized that while AI has the potential to reshape the future of everyday clinical practice, addressing numerous ethical complexities is essential for both the technology and the healthcare system to collaboratively strive toward achieving optimal patient-centered care. We appreciate the author's perspective and approach and would like to contribute our experiences concerning the knowledge, attitudes, and perspectives of fourth-year medical students at the University of Thessaly, Greece, regarding AI.

In October 2022, an anonymous survey was conducted during the first anaesthesiology core curriculum class at the Faculty of Medicine, University of Thessaly, Greece. Demographic information of participants, including age and gender, was gathered. The primary section of the survey comprised 19 questions regarding AI, assessed using a 5-point Likert scale (strongly agree, agree, undecided, disagree, and strongly disagree). Descriptive statistics and frequencies were employed, and the data were summarized using means (SD). The data were presented as numbers and percentages. Statistical analysis was conducted using SPSS (version 27.0; IBM, Armonk, NY, USA) and GraphPad Prism vs 9.4.1.

Overall, 64 students completed the questionnaire, yielding a response rate of 74%, and were consecutively included in our study. Most participants (59.4%, n = 38) were male, with a mean age of 21.6 years. The Cronbach's alpha of the questionnaire was 0.75, indicating a high degree of internal consistency for our scale within this sample. No statistically significant difference was found between age and gender. While nearly half of the students (45.3%) claimed to possess “sufficient knowledge of AI,” the majority either disagreed (51.6%) or were undecided (29.7%) regarding “pursuing new technologies.” Interestingly, 90.7% of students disagreed or strongly disagreed

that “AI offers useful applications in the field of medicine,” while 70.4% also disagreed or strongly disagreed that “AI will lead to drastic changes in every field of medicine.” Conversely, half (50%) of our students agreed with the statement that “AI's ability to make a diagnosis may outweigh clinical doctors' clinical experience. However, a notable proportion (45.3%) remains undecided regarding their future reliance on AI for making medical decisions (Figure 1).

Our survey findings indicate that nearly half of future doctors are uncertain about integrating AI into their daily clinical practice. Moreover, they express uncertainty regarding AI's potential to usher in significant changes across all medical domains. This uncertainty persists despite their belief in possessing adequate knowledge of AI and their acknowledgment of AI's potential to diagnose diseases or clinical problems more effectively than doctors. Similarly, Chen et al.² showed that both physicians and medical students held a positive yet cautious attitude, adopting a more conservative approach toward AI. Additionally, they were concerned about the possibility of unpredictable or incorrect outcomes.

Of note, Koçak et al.³ emphasized that AI's performance is often unrealistically compared to that of physicians, and the impact of AI on physician's productivity remains uncertain. Furthermore, according to the study by McLennan et al.,⁴ physicians highlight the ethical dilemmas associated with AI, such as confidentiality and data security.¹ However, it appears that both physicians and medical students remain open to acquiring knowledge about AI applications in medicine. Offering short courses could effectively facilitate their transition toward adopting an AI-powered healthcare system.⁵

In summary, further research is required to determine the optimal balance between the advantages of AI and the ethical considerations it raises. Education also appears to be imperative in mitigating fears associated with change and the introduction of new technologies.



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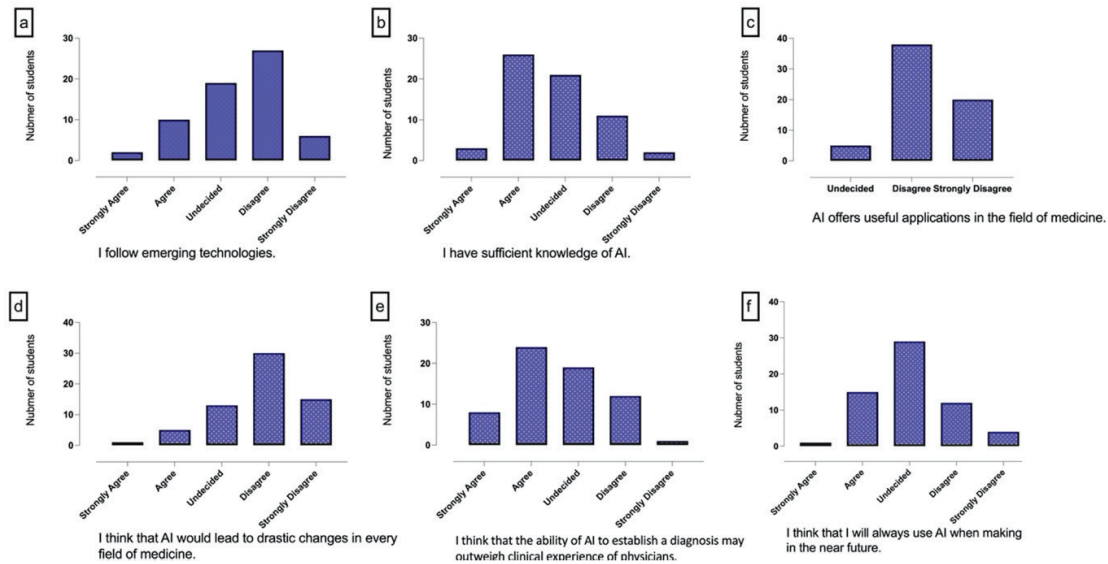


FIG. 1. (a-f) I follow emerging technologies (a). I have sufficient knowledge of AI (b). AI offers useful applications in the field of medicine (c). I think that AI would lead to drastic changes in every field of medicine (d). I think that the ability of AI to establish a diagnosis may outweigh clinical experience of physicians (e). I think that I will always use AI when making in the near future (f). AI, artificial intelligence.

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REFERENCES

1. Korkmaz S. Artificial Intelligence in Healthcare: A Revolutionary Ally or an Ethical Dilemma? *Balkan Med J.* 2024;41:87-88. [\[CrossRef\]](#)
2. Chen M, Zhang B, Cai Z, et al. Acceptance of clinical artificial intelligence among physicians and medical students: A systematic review with cross-sectional survey. *Front Med (Lausanne).* 2022;9:990604. [\[CrossRef\]](#)
3. Koçak B, Cuocolo R, dos Santos DP, Stanzione A, Ugga L. Must-have Qualities of Clinical Research on Artificial Intelligence and Machine Learning. *Balkan Med J.* 2023;40:3-12. [\[CrossRef\]](#)
4. McLennan S, Meyer A, Schreyer K, Buyx A. German medical students' views regarding artificial intelligence in medicine: A cross-sectional survey. *PLOS Digit Health.* 2022;1:e0000114. [\[CrossRef\]](#)
5. AlZaabi A, AlMaskari S, AalAbdulsalam A. Are physicians and medical students ready for artificial intelligence applications in healthcare? *Digit Health.* 2023;9:20552076231152167. [\[CrossRef\]](#)