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TURKISH SOCIETY
OF CARDIOLOGY

Official journal of the
TURKISH
SOCIETY OF
CARDIOLOGY

# Reply to Letter to the Editor: Artificial Intelligence in Cardiac Rehabilitation: Evaluating ChatGPT's Knowledge Level and Responses to Clinical Scenarios

## Editöre Mektup Yanıtı: Kardiyak Rehabilitasyonda Yapay Zeka – ChatGPT'nin Bilgi Düzeyi ve Klinik Senaryolara Yanıtlarının Değerlendirilmesi

**LETTER TO THE EDITOR REPLY**
EDİTÖRE MEKTUP YANITI

To the Editor,

We have read with great interest the valuable commentary[1] on our article entitled "Artificial Intelligence in Cardiac Rehabilitation: Evaluation of ChatGPT's Knowledge Level and Responses to Clinical Scenarios.[2] We are grateful for these constructive contributions regarding the evolving role of artificial intelligence (AI) in cardiovascular medicine. On this occasion, as researchers in AI and cardiology, we would like to further clarify our perspective and elaborate on several key points in greater depth.

First and foremost, we would like to highlight a noteworthy finding of our study. Although ChatGPT is a general-purpose conversational agent that was not specifically designed to address the complex and specialized requirements of healthcare, it demonstrated remarkable accuracy within a highly specific subspecialty of cardiology, such as cardiac rehabilitation. Importantly, we did not observe any overt misinformation in its responses: the limitations we identified were primarily related to a lack of detailed elaboration on highly specialized topics, rather than to incorrect or misleading guidance. The ability of a general AI model to perform at this level in a domain requiring up-to-date, expert knowledge based on current guidelines, in our view, strongly underscores the significant—yet still largely unrealized—potential of such technologies to support healthcare delivery. Indeed, one of the central aims of our study was to shed light on this important and emerging capacity of artificial intelligence.

Secondly, we believe that the comparative benchmarks used to evaluate AI tools in medical research should be carefully considered. There is a tendency to assess AI performance against an absolute and comprehensive standard of knowledge. However, we argue that a more pragmatic and clinically meaningful benchmark is often the performance of human experts. Indeed, numerous studies have demonstrated that AI can achieve high levels of accuracy when compared to human specialists.[3] In our study, the 40 questions we posed (20 based on general principles, 20 on clinical scenarios), were specifically designed to reflect the core principles of cardiac rehabilitation. Notably, ChatGPT-4o demonstrated a high degree of concordance with current clinical guidelines. To place this in context, in many academic and professional settings where human expertise is assessed, a correct response rate of approximately 60–70% on comparable questions is generally regarded as the threshold for competence. Of course, this metric alone is not an absolute criterion for clinical proficiency, but it is widely recognized as an important indicator in the evaluation of clinical knowledge and practical skills. From this perspective, the performance exhibited by current AI models suggests significant potential to serve as supportive and empowering tools for clinicians, rather than outright replacements in clinical decision-making processes. Thus, the integration of AI-based systems into healthcare represents a substantial opportunity to enhance the quality of clinical practice and optimize patient care, through increased collaboration between humans and technology.

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**Cite this article as:** Geneş M. Reply to Letter to the Editor: Artificial Intelligence in Cardiac Rehabilitation: Evaluating ChatGPT's Knowledge Level and Responses to Clinical Scenarios. *Turk Kardiyol Dern Ars.* 2025;53(6):000–000.

DOI: 10.5543/tkda.2025.77137

While artificial intelligence (AI) applications in medicine hold great promise, they also raise significant ethical, technical and legal concerns. Foremost among these is the issue of systematic bias embedded within the datasets used to train AI models, which often reflect underlying societal inequalities. Such biases carry the risk of producing outcomes that disadvantage certain demographic groups, thereby exacerbating existing health disparities.[4] Additionally, the "black box" nature of many deep learning models frequently limits the ability of clinicians to fully understand the rationale behind AI-generated diagnoses or treatment recommendations.[5] This underscores the need for greater algorithmic transparency. Key unresolved issues also include the allocation of legal and ethical responsibility in the case of erroneous AI outputs (whether this liability lies with the developer, institution or clinician), the safeguarding of patient data privacy and the risk that clinicians may become overly reliant on AI systems, potentially diminishing their own clinical skills.[6] In this context, the safe and equitable integration of AI into clinical practice requires not only technological advancements, but also rigorous validation procedures, transparency and the establishment of robust, human-centered regulatory frameworks.[7]

We concur that the integration of AI into routine clinical care remains an ongoing process that brings with it numerous questions, requiring further investigation. Areas such as the impact of AI on patient satisfaction, its effectiveness across patient groups with diverse socio-cultural and economic backgrounds and strategies for optimal integration into existing clinical workflows, should be prioritized in future research. The outcomes of such studies will provide a foundation for more equitable, effective and patient-centered applications of AI in healthcare.

In conclusion, while acknowledging the current limitations of AI models, it is essential to emphasize the need for continuous development, robust regulatory frameworks and rigorous ethical oversight. Advanced AI systems such as ChatGPT-4o offer clinicians valuable supportive tools in complex clinical domains like cardiac rehabilitation, by providing information aligned with clinical guidelines and facilitating multidisciplinary decision-making processes. Our ultimate goal is to enhance the quality of healthcare services and optimize patient care.

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