A Beyond Diagnosis Approach: Fostering Trust in AI's Supportive Role in Healthcare

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Abstract
This study examines the potential of Artificial Intelligence (AI) to gain trust and improve outcomes in healthcare by serving as a supportive tool rather than replacing human judgment. Despite AI's advancements in diagnosis and treatment, scepticism among individuals persists due to concerns over AI's lack of empathy and the importance of human expertise. By focusing on AI's role as an augmentative rather than substitutive technology, we aim to identify strategies for integrating AI in a manner that complements human skills, thereby enhancing acceptance and trust in AI and improving care for patients.

Keywords
Trust in AI, Healthcare Integration and Augmentative AI Applications

1. Introduction

As Artificial Intelligence (AI) continues to advance, its role has significantly shifted from performing routine, repetitive tasks to making complex decisions that traditionally required expert human judgment. This transformation is particularly evident in critical sectors such as government and healthcare, where AI is now instrumental in assisting with decisions once solely made by judges, doctors and other trained professionals. AI's invasion into these sectors parallels human expertise and, in some instances, even surpasses it in terms of efficiency and accuracy. Applications in healthcare include, for example, AI for image recognition in radiology [1], the use of AI for complex diagnoses [2] and personalised treatment plans [3]. Despite AI's demonstrated accuracy in these critical tasks, there are considerable challenges in healthcare, particularly scepticism among people about relying on AI's decisions.

Delving deeper into this scepticism, the trust of medical professionals in AI, as explored in the literature, reveals a multifaceted landscape. Longoni et al. [4] emphasise the concerns over AI's ability to navigate complex, individual patient scenarios and maintain the human elements of empathy and understanding in healthcare. Complementing this, research from Juravle et al. [5], Promberger and Baron [6] and Seitz et al. [7] highlight a clear preference for human decision-making over AI among both patients and healthcare providers, rooted in human expertise and emotional empathy connections - areas where AI currently falls short. Furthermore, the importance of explainability in AI systems, as emphasised in studies by Tucci et al. [8], Schwartz et al. [9], Naiseh et al. [10] and Alam and Mueller [11], is critical, arguing that making AI decisions understandable is vital for fostering trust among medical professionals and patients.

However, it is essential to note that the majority of tasks AI has been assigned in these studies focus on diagnosis, often sparking debate regarding its role and effectiveness. Despite these challenges, research by Verma et al. [12], Tahtali et al. [13] and Longoni et al. [4] suggests a potential area for AI to gain trust among medical professionals and possibly among patients as well, when it supports rather than replaces the final decision-making process. For instance, by automating triage and operational tasks, such as predicting bed availability and summarizing patient consultations, AI significantly expands healthcare capabilities [13]. This automation enhances patient care and underlines AI's transformative impact on the sector. Highlighting AI's ability to extend beyond its current diagnostic roles, the findings support a more widely accepted model where AI serves as a supportive tool rather than a replacement. Such a paradigm shift could improve trust in AI applications within healthcare.

Our study aims to explore and identify more effective and acceptable ways of integrating AI into a broader range of healthcare tasks. By focusing on AI applications that complement and augment human expertise rather than replacing it, we seek to foster wider acceptance and trust in AI among patients. Consequently, the central research question we propose is: *How can AI applications in healthcare, extending beyond direct diagnosis, gain the trust of patients and contribute to enhancing overall patient care?*

2. Research design

Our (ongoing) study explores patients' trust in an AI smart camera, currently operated as a supportive tool for monitoring individuals post-intensive care. The traditional method involves daily manual patient assessments, such as vital signs. Yet, introducing this AI tool aims to augment the existing process, potentially transforming it into a more continuous, AI-driven monitoring system. However, patients' acceptance and trust in AI's (video based monitoring) capabilities remain uncertain. Through a qualitative research approach, this paper aims to uncover the nuances of acceptability surrounding the AI support tool, emphasizing the camera's role as a complement to, rather than a replacement for, human expertise in healthcare practices.

Employing semi-structured interviews, we engage patients to determine their perspectives on and receptiveness to AI technology. We focus on various topics, such as the camera's usability, trust in the signals it provides and the nurse-patient relationship. This methodological choice facilitates a deeper understanding of their expectations and apprehensions, thereby informing the development of AI technologies that foster trust and meet the healthcare sector's needs. Our research is about gauging readiness and envisioning AI's integration into healthcare workflows in ways that align with professional standards and patient comfort. This research seeks to illuminate paths forward that ensure AI's role in healthcare maximizes benefits while maintaining the irreplaceable value of human clinical insight.

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