



Algorithmic Paternalism: Autonomy Versus Automation

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Commentary

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Abstract

The integration of Artificial Intelligence (AI) into healthcare represents a significant technological advancement with the potential to revolutionize clinical practices. The tension between autonomy and automation will become increasingly apparent as AI tools become more prevalent in decision-making. While AI can offer substantial benefits in terms of efficiency and accuracy, it also raises concerns about the potential loss of autonomy for both patients and physicians. Patients are commonly encouraged to play an active role in their healthcare decisions, and their sense of autonomy is crucial for maintaining motivation and adherence to treatment. Similarly, physicians rely on their autonomy for satisfaction, skill retention and a sense of meaning and respect in their professional lives. As AI models take on more decision-making roles, there is a risk of shifting the healthcare dynamic towards an "algorithmic paternalism" model, where AI may be perceived as infallible. This shift necessitates careful consideration of how to balance the use of AI with the preservation of human agency. AI literacy for both patients and clinicians will be an important pillar for safe human-machine interaction, while further research into the emotional and psychological impacts of AI in healthcare is needed. As society moves towards this new era of AI-assisted medicine, guidance and ethical frameworks are essential to ensure that technology safely enhances healthcare, while maintaining a healthy patient-doctor relationship..

Keywords: Human-Machine Interaction; Human-Computer Interaction; Doctor-Patient Relationship; Artificial Intelligence; Breast Cancer

Introduction

The Theory of Self-Determination by Deci and Ryan emphasizes the importance of autonomy in patients' decision-making processes regarding their healthcare. According to this theory, studies have shown that patients need to perceive a sense of autonomy to maintain their

motivation for improving their well-being [1]. The theory suggests that active participation in decision-making is crucial for enhancing adherence to treatment and overall patient satisfaction.

Artificial Intelligence (AI) is poised to become a technological revolution. In healthcare, AI offers significant

advantages such as increased efficiency and accuracy, presenting itself as a valuable tool for clinicians. However, the emotional and human aspects of AI remain largely unexplored. The new environment presented by AI tools in healthcare will rely heavily on automation, shifting the decision-making process to complex neural networks that can effortlessly inform patients and physicians about the optimal decision in each clinical moment.

It becomes clear that these two concepts are on a collision course. While self-determination and autonomy foster motivation and proactive participation in patient well-being, new AI models offer automation and decision-making devoid of human emotion. Challenges for application of AI in healthcare are immense, including subjects such as explainability, lack of trust, job loss, skill loss, disturbing the doctor-patient relationship, proof of efficacy and more [2]. These difficulties extend to the field of plastic surgery [3]. In the ethical sphere, there are many considerations [4]. Concerns have been raised in regarding bias [5], as well as a long list of ethical considerations, ranging from data security, liability, transparency, validation, and regulation [6]. Barriers and enablers must be identified and discussed with different stakeholders to make the best decisions regarding AI [7].

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In plastic surgery, our research team has used AI to evaluate breast cancer patients who have undergone surgical reconstruction with promising results [8,9]. The emotional and psychological effects of breast cancer reconstruction are well-known to be key factors in the quality of life for breast cancer survivors [10-12]. As AI becomes more prevalent in clinical practice, facilitating automation, Large Language Models (LLMs) are becoming increasingly more sophisticated and are now capable of communicating medical issues with patients. The future integration of AI into medicine is a natural progression where new technologies intersect with healthcare. AI models will have access to patients with their communicational and decision-making skills and will consequently affect the emotional well-being of these patients.

Breast cancer patients place their trust in the hands of surgeons for reconstruction when they undergo surgery. As surgeons increasingly rely on AI tools to enhance healthcare, it is crucial to consider how patients might respond to these innovations. By the nature of the doctor-patient relationship, there is a certain loss of agency, as patients must rely on the recommendations of their doctors. In surgery, patients who undergo general anesthesia further relinquish control over their consciousness during the intervention. Although modern medicine has moved away from the paternalistic

approach in recent decades, the advent of AI as a decision-making tool could potentially shift this dynamic back to the paternalistic approach, with AI presenting itself as an infallible all-knowing machine that should not be doubted. Of course, AI models will need to be validated for accuracy and improved over time, but as their quality rise, it can be predicted that agency will be transferred to them.

As physicians and patients come to rely more on validated AI tools, the power of decision-making will gradually be transferred to algorithms and neural networks. AI literacy will be a critical factor. Both patients and clinicians will need to understand what AI is, how it works, and the role it will play in healthcare.

AI models will soon be able to predict standard of care or recommend surgical intervention for certain breast surgery patients. Navigating this new era will be challenging for surgeons and patients alike. Who should the patient trust? What happens when AI and physicians disagree? Will patients trust AI more than doctors? While currently the decision is ultimately in the hands of the surgeon and the patients, there will come a time when AI models are so accurate, that they can become more successful and more reliable than trained physicians. As a society, we must prepare for this scenario.

Conclusion

Automation of healthcare with AI models carries the risk of loss of autonomy, among patients and physicians. The AI era might bring a period of "algorithmic paternalism," in which AI models are perceived as infallible, accepting their decisions as definite realities. Both patients and caregivers need to feel they have agency and are relevant for decision-making. For patients, autonomy can help actively promoting their well-being by taking a leading role in their care. For physicians, autonomy is needed for motivation, avoiding burnout, loss of skill and jobs, and maintaining a healthy doctor-patient relationship. Society, healthcare and patients need guidance for the upcoming era of AI. Research is needed in the field of the emotional response to AI in healthcare while AI literacy is needed for both patients and physicians.

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