Public perceptions of health information generated by AI: A research study

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Abstract

Artificial Intelligence (AI) integration in clinical practice has intensified in the last few years, from systems analysing and interpreting existing data to generative AI systems capable of creating new information and offering new possibilities for patient communication.[1] However, the public's perception of AI-generated health information remains largely unexplored. This study aimed to assess public trust in AI-generated health information, identifying influencing factors on their trust and evaluating the accuracy of AI-produced content. A mixed-method approach was employed, involving a survey distributed via social media to individuals with recent access to health information. Results revealed that while the public knew AI systems' capabilities, their trust in AI-generated content was moderate. Key concerns included: the accuracy of the information, potential biases in AI algorithms, and ethical issues related to privacy. Results showed that transparency, healthcare professional endorsements, and clear evidence of accuracy are critical in building trust in AI-generated health information. Addressing these concerns is essential for successfully integrating AI into patient communication, to enable the reliability and use of AI as an ethical tool in healthcare.

Background

Artificial Intelligence (AI)'s previous use in healthcare was initially focused on data analysis and interpretation. Generative AI can now create de novo documents and "new" information. Though AI has proven its benefits in patient education[2] and diagnostics, public doubt and trust in this technology remain. AI's capability to generate de novo health information raises concerns about the information's accuracy, transparency, and the risk of AI hallucinations (where incorrect or fabricated data can be generated). Meeting these concerns is essential for AI developers to continue developing better versions of the tools for use in healthcare and decision-making.[3] The gap between developer knowledge and public concerns formed the basis for the research featured in this article, which was aimed at exploring public trust and concerns regarding AI-generated health information and identifying any influencing factors.

Evolution of AI in healthcare

Communication with patients has taken on new dimensions throughout the evolving medical writing landscape, particularly with the advent of AI. AI's integration into clinical practice has been transformative, specifically in generating health information. Tools such as ChatGPT, Google's Bard, and Microsoft's Copilot represent the beginning of what generative AI can offer in developing new, context-specific health information in real-time. These advancements can potentially revolutionise patients' access to medical information, as this gives them quick and personalised insights without healthcare professionals. However, the integration of AI-generated content into healthcare communication does come with challenges. It is important to note the increasing questions about its accuracy, public trust in the information produced, and the ethical implications of its use.[4] Trust is a cornerstone of efficient communication within healthcare. Trust erosion results in poor patient outcomes due to disengagement from healthcare services.[5] This article, derived from a dissertation submitted to King's College, London, explores the public perception of AI-generated health information, discussing public trust, their concerns, and the influencing factors shaping this evolving relationship.

Examining these aspects of AI-generated health information should help medical writers to effectively communicate and understand the nuances of the complex topic of AI-generated health information, contributing to the academic discourse on AI in healthcare. Furthermore, this work offers evidence-based insights into public perceptions, with practical recommendations for improving patient communications and ensuring the ethical use of AI in accordance with the guidelines in place.[6]

Study methodology

A mixed-methods approach was employed, using quantitative and qualitative methods to gather data. An online survey was disseminated from May–June 2024 via Instagram and shared through friends and family. Instagram was chosen due to its widespread use, specifically among the younger populations who are more engaged with AI tools. Furthermore, the survey was shared through personal networks to prevent the limitation of younger populations and to increase the response rate. A sampling strategy approach targeted individuals aged 18 and above with recent access to health information (within the past 3 months[3]) to aid in the accuracy of participant responses. The survey included Likert-scale questions to measure public trust in AI-generated content and open-ended responses to capture public concerns and suggestions. In a related project, the accuracy of AI-generated health information was also assessed through cross-verification of the information with trusted medical sources. The study responses were gathered anonymously and the information was secured per King's College London's data protection policies.

The survey received 75 responses, of which 60 responses were included in the final analysis. The remaining participants either did not meet the inclusion criteria or did not complete the survey. Most respondents (65%) were 18–24 years old; 15% were 25–54 years old; 11.7% were 55–64; and 8.3% were 65 years or older. The survey was open to global participation, but the social networks used for recruitment were in

Kuwait and the UK. Gender data were not collected.

What was the public perception of information generated by AI?

The public perception of AI presented a complex mix of optimism and scepticism. While most respondents (68.5%) demonstrated a willingness to engage with AI-produced content, there were significant concerns about the accuracy, biases, and ethical implications of the information generated. Most participants had a moderate understanding of how AI produces health information. The study highlighted varying levels of awareness, trust, and knowledge of AI-generated health data. Survey results indicated that while 27.8% of respondents would be willing to read AI-produced health information without hesitation, the majority were open to its use but were concerned about fully trusting the information. Another prominent concern voiced by participants (83.3%) was the accuracy of this health information. Respondents were worried that AI systems might provide inaccurate information, resulting in poor health decisions. This concern was compounded by "AI hallucinations" (AI tools adding information to fill in gaps in some cases). Many respondents were unaware of this, highlighting the need for greater transparency in AI systems. This was voiced particularly by a respondent as quoted: *"AI hallucinations being a big issue at the moment possibly misleading the public about healthcare but also the key difference of using the right prompt to extract much more accurate healthcare information that most people aren't aware of."*

This lack of exposure to AI technologies can affect public perception, limiting their trust and acceptance of such technologies. Privacy was another critical issue for respondents, as there is an increasing apprehension surrounding data security, specifically with the potential of unauthorised access to health information. Ethical concerns were raised around the transparency of AI systems' decision-making processes, reflecting a broader unease with the adaption of AI in healthcare without robust safeguards.[7]

Why were people searching for health information?

The motivation of individuals seeking health information plays a critical role in understanding how and why they engage with AI-generated content. The survey revealed that most people searched for health information through general curiosity, the desire to manage personal or family health, or seeking health information after recommendations from healthcare professionals. This motivation often drove individuals to explore symptoms, treatment, and preventative measures. Motivations to manage personal or family health stem from patient empowerment and self-care, seeking to actively manage their health conditions and the importance of sharing health information with others.

Is there a link between various age groups and trust in AI-generated health information?

The relationship between age and trust in AI-generated health information is critical in understanding how various age groups engage with healthcare technologies. The study revealed significant correlations between age and trust levels. A t-test analysis revealed that younger age groups were more trusting and familiar with AI-generated health information than older groups (t=2.14[58]; p=.036). Younger participants, mainly those aged 18–24, exhibited the highest levels of trust in AI-generated health information. This age group had more exposure to AI technologies such as chatbots and digital health platforms. Respondents in this age group (75%) were aware of AI capabilities in generating health information, and a significant portion were open to using AI for health-related inquiries. Despite this overall trust, some participants still expressed concerns about the accuracy of the

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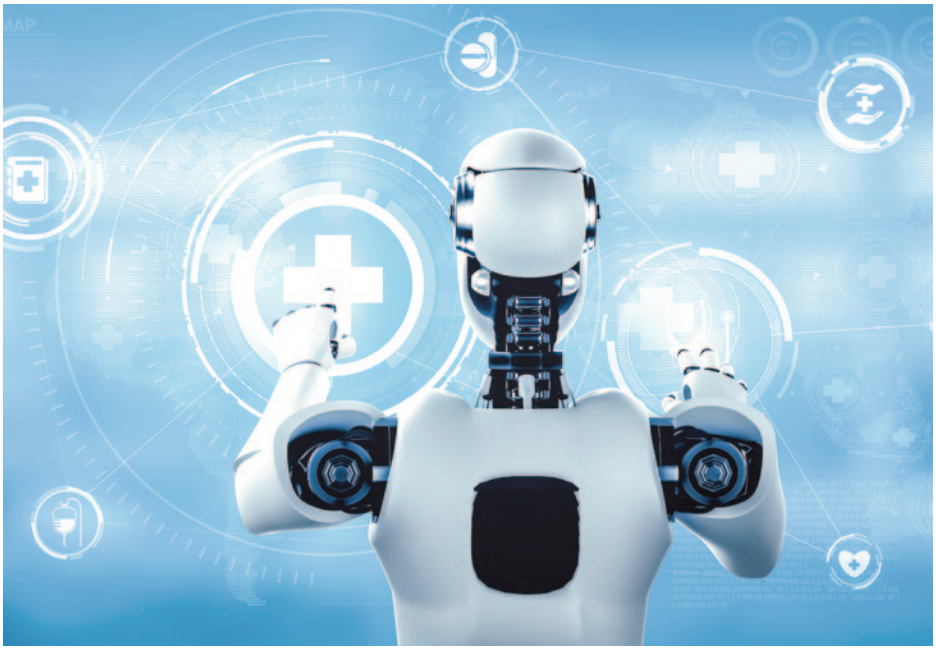

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information provided by AI systems.

Examination of trust among older adults revealed a lower level of awareness of AI capabilities. Many expressed their scepticism about the accuracy of AI systems and were more inclined to trust advice from healthcare professionals instead. Several factors contributed to this mistrust, including lower digital literacy levels, limited exposure to AI technologies, and data privacy concerns.

What are the main benefits of health information generated by AI?

AI-generated health information presents various benefits with the potential to revolutionise how healthcare providers and patients access and utilise health data. Respondents identified the primary benefits of AI-generated health information as efficient and rapid access to information, reduced workload for healthcare professionals, provision of personalised health advice, and the ability to deliver up-to-date health information. Overall, it was observed that most participants were optimistic about the potential use of AI in improving healthcare in the future. A respondent emphasised this: *"I am very critical about technology but in terms of AI being implemented in healthcare, I look forward to that day as it would make it easier for me to enquire about my health online."*

What factors Influenced public perception of AI-generated health information?

Technological, social, and ethical factors shaped public perception of AI-generated health information. The study identified several vital factors influencing respondents' perception of AI-produced health content, including a clear explanation of how health information was produced, evidence of data accuracy, endorsements from healthcare professionals, and the ability to provide feedback. This was particularly voiced by respondents as followed: *"Information may be biased based on the region and be personalised to a specific area."*

Another respondent quoted: *"I believe AI needs more endorsements from healthcare providers."*

How accurate is health information generated by AI vs. trusted medical sources?

A companion project involved cross-verifying the accuracy of AI-generated health information, with information from trusted medical sources (e.g. BNF, NICE, WHO). Prompts were entered into ChatGPT to request information on symptoms, treatments, and lifestyle advice for the common health conditions of hypertension, Type 2 diabetes, depression, and tuberculosis. The results of this analysis showed that AI-generated content generally aligned closely with information from medical sources. Although the information was not always fully detailed, it did not fail to provide accurate content. However, it is important to note that lack of detail in medical information can result in damage and misinterpretation, thus it is vital for this information to be verified clinically.

This was specifically emphasised by a respondent as followed: *"I find AI produced health information very convenient and I use it often for starting my research. However, I always double check with trusted sources like UK guidance. I'm sure that AI tech will keep getting better and making our lives easier by giving reliable health information quickly."*

Recommendations for the future

Based on the data gathered from the study, there are several recommendations for future research in enhancing the fields of AI-generated health information. This research should be specific to elderly age groups as this demographic varies in their trust and familiarity with AI. Developing user-friendly tools may help healthcare providers and patients understand AI-generated health information. Assessing the long-term effect of AI technologies, patient satisfaction, and healthcare costs would help AI developers enhance their AI systems.[8] Furthermore, mitigating potential biases in AI algorithms could ensure accurate and equitable healthcare recommendations.

Moreover, addressing AI hallucinations and limiting this issue could increase public trust and ensure patient safety. Finally, implementing educational programmes to increase patient literacy around AI tools could help patients to comprehend AI's capabilities and limitations. These enhancements can improve patient care and health outcomes globally.

Discussion and conclusion

This article explored the public's perception and trust regarding AI-generated health information. Key findings revealed general openness to using AI for health-related inquiries, but significant concerns remained about the accuracy and transparency of AI-generated content. Younger individuals exhibited higher trust levels due to their exposure to technology. The trust gap suggests that targeted educational campaigns or more user-friendly AI tools designed for elderly populations may be necessary to bridge this gap and increase confidence and comfort with AI use. Healthcare providers and AI developers must focus on transparency, accuracy and ethical considerations to address the trust gap between age groups.

The general interest in health information reflects a proactive approach and the public's willingness to become well-informed and take ownership of their healthcare decisions. It is

crucial to understand further the public's motives behind their access to health information, as this aids in developing efficient strategies to enhance how reliable the health information is.

Individuals can adhere better to treatment plans and healthier lifestyles if they have personalised health advice. Thus, AI can assist in rapidly disseminating the latest evidence-based information and ensuring that healthcare providers and the public are informed of the most recent developments in healthcare. Easy and rapid healthcare access is advantageous in situations where individuals seek immediate information about symptoms, treatment options or preventative care.[9] This convenience allows users to obtain relevant health information without the delays typically associated with clinical consultations. Moreover, as AI tools can automate administrative and informational duties, healthcare professionals can focus on more complex tasks, enhancing the efficiency of healthcare systems and improving patient outcomes.

On the other hand, users need to be aware of AI algorithms and data types (whether medical databases, peer-reviewed databases, etc.) as this transparency can help foster trust and acceptance of AI technologies. Cross-referencing AI output with trusted medical outlets could help enhance AI accuracy and user trust.[10] Incorporating feedback from healthcare providers could help refine AI applications by making users feel more engaged throughout. Through addressing these needs, the benefits of AI technologies can be ensured by stakeholders, guaranteeing public engagement with AI tools. Furthermore, rigorous validations and manual verification processes could be implemented to achieve reliable healthcare outcomes. Implementing robust data-cleaning techniques and quality control would avoid inconsistencies in AI algorithms,[11] and if implemented accurately, this could be one of the first steps in enhancing data quality. Although AI-generated health information has the potential to enhance healthcare delivery, addressing concerns around accuracy and ethical implications is essential in building public trust and ensuring the correct use of AI in healthcare.[12] Furthermore, increasing public awareness is crucial in limiting public scepticism of AI tools. This can be fulfilled through implementing educational programmes (teaching the foundation of AI tools in healthcare), collaborating with trusted media outlets to reach a broader audience, and involving healthcare providers in supporting these technologies. Implementation of AI systems in clinical settings can help them achieve their full potential, allowing members of the public to overcome their scepticism of AI tools.

Once public trust in AI tools is enhanced, patient engagement, which provides health insights that are reliable and accessible in increasing public engagement's decision-making in healthcare, could also be enhanced.

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Conflicts of interest and disclaimers

The author declares no conflicts of interest. The opinions expressed in this article are the author's own and are based on the survey results conducted for the research.

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