

From Efficiency to Reassurance: A Patient-Centered Perspective on Artificial Intelligence in Virtual Consultations

Yuxi Vania Shi*

Sobey School of Business, Saint Mary's University, NS, Canada

***Corresponding author:** Yuxi Vania Shi, Sobey School of Business, Saint Mary's University, NS, Canada

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Introduction

Artificial intelligence (AI) is rapidly transforming healthcare delivery, particularly in virtual consultations where technologies such as clinical decision support systems, conversational agents, and large language models are increasingly integrated into patient care (Dangi, et al. [1-3]). These technologies have demonstrated considerable potential to improve diagnostic accuracy, streamline clinical workflows, enhance healthcare accessibility, and reduce operational costs (AA Kuwaiti, et al. [4,5]). Consequently, discussions surrounding AI in healthcare have largely emphasized its technical capabilities and operational benefits. At the same time, virtual consultations have become an increasingly important model of healthcare delivery, providing patients with convenient and timely access to medical services while reducing geographical and logistical barriers to care (Greenhalgh, et al. [6,7]). Despite these advantages, virtual consultations also present unique communication challenges. The absence of physical examination, reduced non-verbal interaction, and reliance on digital communication may leave patients uncertain about their health conditions, treatment decisions, and subsequent care (Danaher, et al. [8]). Such uncertainty can influence patients' trust in healthcare providers, satisfaction with care, treatment adherence, and willingness to continue using virtual consultation services (Brashers [9,10]). Although AI has become an important component of virtual consultations, relatively little attention has been paid to how it influences patients' psy-

chological experiences during virtual consultations. Existing research predominantly evaluates AI according to measures such as diagnostic performance, predictive accuracy, workflow efficiency, and healthcare utilization (Brun, et al. [3,11]). While these indicators are essential for assessing technological capability, they do not fully capture whether AI helps patients better understand their health conditions, feel more confident about medical decisions, or experience greater reassurance throughout the consultation process.

This article argues that the role of AI in virtual consultations should be viewed from a broader, patient-centered perspective. Beyond improving efficiency and clinical performance, AI should also be evaluated according to its ability to reassure patients by enhancing understanding, strengthening confidence, facilitating communication, and reducing uncertainty throughout the consultation process. By shifting attention from technology-centered outcomes to patient-centered experiences, AI has the potential to improve not only the effectiveness of virtual consultations but also the quality of the overall healthcare experience. This opinion article discusses why patient uncertainty deserves greater recognition as an important outcome of AI-assisted virtual consultations, examines how AI can contribute to more reassuring patient experiences, and highlights key challenges and future directions for developing patient-centered AI applications in virtual consultations.

Patient Uncertainty: The Missing Dimension of AI Evaluation

Uncertainty has long been recognized as an inherent component of healthcare. Patients seek medical care because they are uncertain about the causes of their symptoms, the accuracy of diagnoses, the effectiveness of treatment options, and the potential outcomes of their illness. Mishel's Uncertainty in Illness Theory defines uncertainty as the inability to assign meaning to illness-related events when information is insufficient, ambiguous, or unpredictable [12,13]. Similarly, Uncertainty Management Theory suggests that uncertainty is not simply the absence of information but a psychological state that influences how individuals seek, interpret, and use health information when making healthcare decisions [Brashers [9]]. Together, these perspectives highlight uncertainty as a central element of the patient experience rather than merely a communication problem. Virtual consultations introduce additional sources of uncertainty that are less common in traditional face-to-face encounters. Although virtual consultation improves accessibility and convenience, patients may question whether important physical symptoms have been adequately assessed, whether they have communicated their concerns effectively, or whether the recommended treatment is appropriate without an in-person examination [Greenhalgh, et al. [6,14]]. The rapid adoption of virtual consultations following the COVID-19 pandemic has further highlighted the importance of maintaining effective communication and patient confidence despite physical separation between patients and healthcare providers [Shachak [15]].

Despite these challenges, current evaluations of AI-assisted healthcare remain largely technology-centered. Existing studies primarily assess AI using measures such as diagnostic accuracy, predictive performance, workflow efficiency, and healthcare utilization [Lee, et al. [2,16]]. These metrics are essential for evaluating technical performance; however, they provide only a partial understanding of AI's overall value. A technically accurate AI system does not necessarily improve the patient's healthcare experience if its recommendations are difficult to understand, insufficiently explained, or inconsistent with patients' expectations and concerns. From a patient-centered perspective, successful healthcare extends beyond making the correct diagnosis [Epstein [17]]. Patients also need to understand their condition, feel confident in the recommended course of action, and trust the information they receive. These psychological outcomes strongly influence treatment adherence, patient satisfaction, continued use of digital healthcare services, and ultimately health outcomes [Brashers, et al. [9,11,12]]. Consequently, evaluating AI solely through technical performance overlooks an important dimension of healthcare quality. We therefore argue that patient uncertainty should be recognized as an important outcome when evaluating AI-assisted virtual consultations. Alongside traditional measures of efficiency and diagnostic performance, AI should also be assessed according to its ability to improve patient understanding, strengthen confidence, facilitate communication, and reduce uncertainty throughout the healthcare

journey. Expanding evaluation in this way provides a more comprehensive and patient-centered perspective on the role of AI in virtual consultations.

A Patient-Centered Perspective on AI in Virtual Consultations

Traditionally, AI has been viewed as a technology that improves diagnostic accuracy, automates routine tasks, and enhances healthcare efficiency. While these functions remain important, they represent only part of AI's potential contribution to virtual consultations. A patient-centered perspective suggests that AI creates value not simply by automating healthcare tasks but also by reassuring patients throughout their healthcare journey. Rather than serving solely as a clinical support tool, AI can also facilitate communication, enhance patients' understanding of their health conditions, support informed decision-making, and strengthen confidence throughout the consultation process. In other words, the value of AI extends beyond improving clinical performance to creating more reassuring and patient-centered healthcare experiences. Before a virtual consultation, AI-powered applications can help patients prepare for their appointment by organizing symptoms, identifying relevant health information, and suggesting questions to discuss with their healthcare provider. Such preparation may improve communication during the consultation and reduce patients' uncertainty before the visit. Patients who have a clearer understanding of their symptoms and expectations are often better able to participate in meaningful discussions and shared decision-making. During the consultation, AI can facilitate communication between patients and healthcare providers by translating complex medical terminology into understandable language, summarizing key discussion points, and providing personalized educational resources. These capabilities can improve patients' understanding of their diagnosis, treatment options, and expected outcomes. Rather than replacing clinical judgement, AI can complement healthcare professionals by reinforcing explanations and ensuring that patients leave the consultation with greater confidence in the information they have received.

The contribution of AI continues after the consultation has concluded. Many patients experience uncertainty once they return home, particularly when managing medications, monitoring symptoms, or interpreting follow-up instructions. AI-powered virtual assistants and conversational agents can provide personalized reminders, explain discharge instructions, answer routine questions, and encourage patients to seek further medical attention when necessary. Such continuous support may reduce uncertainty between clinical encounters while strengthening patients' confidence in managing their own health. Importantly, this patient-centered perspective does not advocate replacing healthcare professionals with AI. Instead, AI should function as a supportive technology that enhances communication, promotes understanding, and reinforces the relationship between patients and clinicians. As AI technologies continue to evolve, their

success should be evaluated not only by their technical capabilities but also by their ability to reassure patients, reduce uncertainty, and improve the overall experience of virtual consultations.

Challenges and Future Directions

Despite its potential to improve patient experiences, AI also presents important challenges that must be carefully addressed. AI-generated recommendations may occasionally be inaccurate, incomplete, or inconsistent with current clinical evidence. Large language models can produce plausible yet incorrect responses, and limited transparency in AI decision-making may make it difficult for patients to understand or trust the information they receive (WHO [3]). In addition, concerns regarding data privacy, algorithmic bias, and accountability continue to influence public confidence in AI-assisted healthcare. These challenges reinforce the importance of maintaining healthcare professionals at the center of virtual care. AI should support, rather than replace, clinical judgement and patient-provider communication. Human oversight remains essential for validating AI-generated information, addressing patients' concerns, and ensuring that medical decisions are individualized according to each patient's circumstances. Future research should broaden the evaluation of AI-assisted virtual consultations beyond technical performance. In addition to measures such as diagnostic accuracy and operational efficiency, researchers should examine patient-centered outcomes including perceived uncertainty, trust, understanding, confidence, satisfaction, and engagement. Such measures will provide a more comprehensive assessment of AI's contribution to healthcare and help guide the development of technologies that are not only clinically effective but also responsive to patients' informational and emotional needs. As AI continues to evolve, adopting a patient-centered perspective will be essential for ensuring that technological innovation translates into meaningful improvements in healthcare experiences.

Conclusion

Artificial intelligence is becoming an increasingly important component of virtual consultations, offering significant opportunities to improve healthcare accessibility, clinical decision-making, and operational efficiency. However, its contribution should not be evaluated solely through technical performance. A patient-centered perspective recognizes that successful virtual consultations also depend on patients feeling informed, confident, and reassured throughout their healthcare journey. This opinion article argues that reducing patient uncertainty should be considered an important objective of AI-assisted virtual consultations. By supporting communication, enhancing understanding, and strengthening patient confidence, AI can complement healthcare professionals and contribute to more positive healthcare experiences. Ultimately, the success of AI in virtual

consultations should be judged not only by how efficiently it delivers care, but also by how effectively it reassures patients throughout their healthcare journey.

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