
Patient factors in medical artificial intelligence: a systematic review

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Supplementary Table 1 Dimensions of patient factors in this paper.

Domain	Sub-domain	Definition in this review	Theoretical source(s)
Usability & Feasibility	Usability	Patients' perceived cognitive and functional accessibility of the AI tool, including clarity and comprehensibility of AI outputs (e.g., explanations or reports), ease of learning, ease of navigation/interaction, and perceived effort required to use the system.	Usability describes the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use ¹ . Frequently used scales include System Usability Scale (SUS) ² and Telehealth Usability Questionnaire (TUQ) ³ .
	Feasibility	The practical viability of implementing the AI tool in routine clinical or home settings from the patient perspective, including perceived burden (time, steps, resources), workflow fit, accessibility constraints (e.g., device/internet requirements), and ability to complete required tasks as intended.	Feasibility is defined as the extent to which a new treatment, or an innovation, can be successfully used or carried out within a given agency or setting ⁴ .
Safety & Trust	Safety	Patients' perceptions or concerns about harms or risks related to AI use, including diagnostic/decision errors, inappropriate recommendations, system reliability, data privacy/security, fairness concerns when framed as risk/harm, and potential negative consequences for care.	Patient safety is defined as "the absence of preventable harm to a patient and reduction of risk of unnecessary harm associated with health care to an acceptable minimum" ⁵ .
	Trust	Patients' confidence in, and willingness to rely on, AI-generated information or recommendations, including perceived credibility, and appropriateness of delegating or sharing decisions with the	Trust is operationalized in intelligent medical systems as: in uncertain and potentially risky clinical contexts, an individual clinician (e.g., a pathologist) is willing to adopt and rely on system recommendations—despite

		AI-enabled tool.	limited ability to monitor or intervene—based on expectations about the system’s ability, integrity, and benevolence, in order to achieve specific clinical goals (e.g., tumor diagnosis) ⁶ .
Acceptance & Perception	Satisfaction	Patients’ overall evaluative judgment of their experience with the AI tool, including satisfaction ratings, perceived quality of interaction, and whether expectations were met.	Patient satisfaction is a measure of the extent to which a patient is content with the health care they received from their health care provider ⁷ .
	Perceived benefits	Patients’ perceived usefulness or value attributable to the AI-enabled tool—i.e., the extent to which patients believe the tool improves their understanding, convenience, decision-making, self-management, communication, or perceived quality/effectiveness of care.	In the Patient Benefit Index (PBI), there are two parts, the first part is patient needs questionnaire (PNQ) recording how relevant these items are as therapy goals for the individual patient. In the second part of the questionnaire (patient benefit questionnaire, PBQ), the identical items are covered with the question of the extent to which the current therapy has contributed to attaining the therapy goals ⁸ .
	Empathy	Patients’ perception that interaction with the AI-enabled process preserved or enhanced a sense of being understood, respected, and supported, including perceived warmth, personalization, emotional support, or human-likeness when relevant.	Empathy is ability to understand the patient’s inner experiences and perspective and a capability to communicate this understanding. Three meaningful factors have been described: perspective taking, compassionate care, and standing in the patient’s shoes ⁹ .
	Willingness to use again	Patients’ stated intention or likelihood to use the AI tool again in the future, or to continue using it, reflecting future behavioral intention toward the tool.	One item in The Telehealth Usability Questionnaire (TUQ) is that “I would use telehealth services again” ³ .

Willingness to recommend	Patients' intention to recommend the AI tool to peers, family, or other patients (advocacy/endorsement intention), reflecting perceived social value and acceptability beyond personal use.	One item in the HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey is that "Would you recommend this hospital to your friends and family?" ¹⁰
Adherence	Adherence The extent to which patients followed AI-supported instructions, outputs, or care recommendations (e.g., completing suggested actions, adhering to AI-guided care plans), including measured compliance/uptake and self-reported adherence behaviors.	Adherence refers to the extent to which a person's behaviour-taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider ¹¹ .

Supplementary Methods

Search terms for medical AI research reporting patient factors

PubMed

("patient reported outcomes"[All Fields] OR "patient-centered"[All Fields] OR "patient facing"[All Fields] OR "patient* perspective"[All Fields] OR "patient* attitude"[All Fields] OR "patient* opinion"[All Fields] OR "patient* perception"[All Fields] OR "patient* experience"[All Fields] OR "patient* trust"[All Fields] OR "patient* acceptance"[All Fields] OR "patient* satisfaction"[All Fields] OR "patient* survey"[All Fields] OR "user* perspective"[All Fields] OR "user* attitude"[All Fields] OR "user* opinion"[All Fields] OR "user* perception"[All Fields] OR "user* experience"[All Fields] OR "user* trust"[All Fields] OR "user* acceptance"[All Fields] OR "user* satisfaction"[All Fields] OR "user* survey"[All Fields] OR "public perspective"[All Fields] OR "public attitude"[All Fields] OR "public opinion"[All Fields] OR "public perception"[All Fields] OR "public experience"[All Fields] OR "public trust"[All Fields] OR "public acceptance"[All Fields] OR "public satisfaction"[All Fields] OR "public survey"[All Fields] OR "adherence"[All Fields] OR "compliance"[All Fields])

AND ("artificial intelligence"[All Fields] OR "machine learning"[All Fields] OR "deep learning"[All Fields] OR "chatbot"[All Fields] OR "large language model"[All Fields] OR "foundation model"[All Fields] OR "machine learning"[All Fields] OR "agent"[All Fields] OR "AI"[All Fields] OR "LLM"[All Fields] OR "robot*"[All Fields] OR "neural network"[All Fields])

Filter:

Adaptive Clinical Trial, Case Reports, Clinical Study, Clinical Trial, Clinical Trial, Phase I, Clinical Trial, Phase II, Clinical Trial, Phase III, Clinical Trial, Phase IV, Comparative Study, Controlled Clinical Trial, Equivalence Trial, Evaluation Study, Multicenter Study, Observational Study, Pragmatic Clinical Trial, Randomized Controlled Trial, Randomized Controlled Trial, Veterinary, Technical Report, Twin Study, Clinical Trial, Veterinary, Observational Study, Veterinary.

English

Web of Science

TS=(("patient reported outcomes" OR "patient-centered" OR "patient facing" OR "patient* perspective" OR "patient* attitude" OR "patient* opinion" OR "patient* perception" OR "patient* experience" OR "patient* trust" OR "patient* acceptance" OR "patient* satisfaction" OR "user* perspective" OR "user* attitude" OR "user* opinion" OR "user* perception" OR "user* experience" OR "user* trust" OR "user* acceptance" OR "user* satisfaction" OR "public perspective" OR "public attitude" OR "public opinion" OR "public perception" OR "public experience" OR "public trust" OR "public acceptance" OR "public satisfaction" OR "patient* survey" OR "user* survey" OR "public* survey" OR "adherence" OR "compliance") AND ("artificial intelligence" OR "deep learning" OR "chatbot" OR "large language model" OR "foundation model" OR "machine learning" OR "AI" OR "LLM" OR "Neural network" OR "agent" OR "Robot*"))

Filter:

Article; English

Embase

('patient reported outcomes' OR 'patient-centered' OR 'patient facing' OR 'patient* perspective' OR 'patient* attitude' OR 'patient* opinion' OR 'patient* perception' OR 'patient* experience' OR 'patient* trust' OR 'patient* acceptance' OR 'patient* satisfaction' OR 'user* perspective' OR 'user* attitude' OR 'user* opinion' OR 'user* perception' OR 'user* experience' OR 'user* trust' OR 'user* acceptance' OR 'user* satisfaction' OR 'public perspective' OR 'public attitude' OR 'public opinion' OR 'public perception' OR 'public experience' OR 'public trust' OR 'public acceptance' OR 'public satisfaction' OR 'patient* survey' OR 'user* survey' OR 'public* survey' OR 'adherence' OR 'compliance') AND ('artificial intelligence' OR 'deep learning' OR 'chatbot' OR 'large language model' OR 'foundation model' OR 'machine learning' OR 'ai' OR 'llm' OR 'neural network' OR 'AI agent' OR 'robot*')

Filter: Article; English

Search terms for medical AI research

PubMed

("Health"[Title/Abstract] OR "Medical"[Title/Abstract] OR "Clinical"[Title/Abstract] OR "Medicine"[Title/Abstract]) AND ("artificial intelligence"[Title/Abstract] OR "deep learning"[Title/Abstract] OR "chatbot"[Title/Abstract] OR "large language model"[Title/Abstract] OR "foundation model"[Title/Abstract] OR "machine learning"[Title/Abstract] OR "Neural network"[Title/Abstract] OR "AI agent"[Title/Abstract] OR Robot*[Title/Abstract])

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Adaptive Clinical Trial, Case Reports, Clinical Study, Clinical Trial, Clinical Trial, Phase I, Clinical Trial, Phase II, Clinical Trial, Phase III, Clinical Trial, Phase IV, Comparative Study, Controlled Clinical Trial, Equivalence Trial, Evaluation Study, Multicenter Study, Observational Study, Pragmatic Clinical Trial, Randomized Controlled Trial, Randomized Controlled Trial, Veterinary, Technical Report, Twin Study, Clinical Trial, Veterinary, Observational Study, Veterinary.

English

Web of Science

TS=('Health' OR 'Medical' OR 'Clinical' OR 'Medicine') AND ('artificial intelligence' OR 'deep learning' OR 'chatbot' OR 'large language model' OR 'foundation model' OR 'machine learning' OR 'Neural network' OR 'AI agent' OR 'Robot*')

Filter:

Article; English

Embase

('Health':ti,ab OR 'Medical':ti,ab OR 'Clinical':ti,ab OR 'Medicine':ti,ab) AND ('artificial intelligence':ti,ab OR 'deep learning':ti,ab OR 'chatbot':ti,ab OR 'large language model':ti,ab OR 'foundation model':ti,ab OR 'machine learning':ti,ab OR 'Neural network':ti,ab OR 'AI agent':ti,ab OR 'Robot*':ti,ab)

Filter:

Article; English

We used the above search terms and identified 394,066 English articles in Web of Science, 12,680 in PubMed, and 108,371 in Embase. Automatic filters were applied, and after removing duplicates, we identified a total of 404,007 medical AI primary research papers.

Reference

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