P435

AI IN HEALTHCARE

Acceptance of artificial intelligence in healthcare: A review of survey studies among clinicians and service users.

Bennett A[1], Zhao F[1], and Cao ZW[2] 1) Cardiff Metropolitan University, UK 2) Guizhou Provincial People's Hospital, China

Abstract

Artificial intelligence (AI) is showing great promise in healthcare, but its acceptance is crucial to its application. This rapid systematic review explored survey studies for the levels, barriers, and facilitators of acceptance of AI in healthcare, comparing the views of clinicians and service users.

The study derives from the significant outcomes of our NIHR funded project (AI-AWARD02305) which used advanced Artificial Intelligence (AI) techniques to develop methodologies for the accurate and reliable automatic diagnosis of otitis media with effusion (OME). Recent research has yielded promising results, demonstrating an excellent accuracy of over 90% in the automatic diagnosis of OME (Grais et al., 2024).

Further research questions emerged from the input of PPIE panel members:

- *How likely would it be that this AI technology could start to make a difference in local GP surgeries?*
- *What about wider GP interest in AI technology application?*
- *How to ensure doctors' and patients' understanding of the safety concerns of this AI device?*

The questions led to a new NIHR funded project **"*Using Artificial Intelligence to Diagnose Glue Ear' in Children and its Acceptability as a Clinical Support Tool: Users' and Clinicians' Perspectives*",** which involved the current review**.**

The findings indicate high variance in acceptance levels depending on the aspect surveyed, along with shared and divergent factors affecting the acceptance of AI in the two groups.

Objectifs

Investigate the perceptions of service users and clinicians on the adoption of advanced AI techniques as clinical diagnostic support tools in healthcare settings:

- Conduct systematic searches and screening to find relevant data.
- Extract and compare levels of acceptance of AI across studies, grouping aspects of acceptance by key themes, and analyse facilitators and barriers thematically.
- Compare the two groups regarding all aspects and explore indications of potential confounding factors.

Méthodes et Matériels

A systematic review following the Cochrane and PRISMA guidelines, registered in OSF (DOI:10.17605/OSF.IO/64XWT).

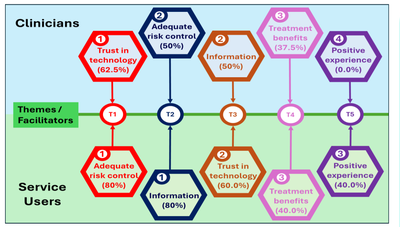
- **Inclusion:** Survey studies up to April 2024, involving appraisable survey instruments for evaluating service users' and / or clinicians' opinions regarding the acceptability of AI applications in healthcare settings. Qualifying studies in final review: N=12.

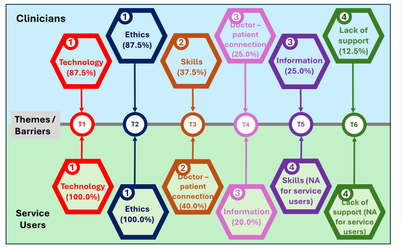
Résultats

In attitudes and views on AI in healthcare, an overall relatively positive perception was noted. The views of clinicians tended to be linked with higher levels of acceptance (65% - 85%) than the views of service users (29% - 78%).

	View of AI	%	General usefulness	Acceptance	Specific scenarios	Perceived necessary	Intention to use	*
Clinician	Considers AI useful in the medical field	85%	✓					i
	Considers AI useful in the medical field	83%	✓					h
	AI can be useful / extremely useful in my field [health]	79%	✓					d
	Optimistic about the potential of AI in medicine	77%	✓					a
	Agree that AI would be useful in own clinical practice	72%	✓					j
	Agree that they would use AI in defining prescriptions	69%			✓			j
	Agree that they would use AI to make diagnoses	68%			✓			j
	Level of acceptance of medical AI	67%		✓				g
	Positive attitude of the participants towards AI	67%		✓				g
Client	Acceptance of AI in pediatric medicine / postgraduate degree	78%		✓				c
	Level of openness to AI in healthcare	62%		✓				b
	Acceptance of AI in pediatric medicine / university degree	56%		✓				c
	AI will improve treatments somewhat in the next 10 years	55%			✓			k
	Comfortable with AI reading medical records	53%			✓			k
	Acceptance of AI in pediatric medicine / high school	46%		✓				c
	AI will improve treatments a great deal in the next 10 years	29%			✓			k
Clinician + client	Believes that AI would be useful in medicine	66%	✓					l
	Believes that AI would be necessary to medicine	65%				✓		l
	Intends to use AI-driven medicine	45%					✓	l

* a: Allen et al., 2024; b: Antes et al., 2021; c: Berghea et al., 2024; d: Castagno and Khalifa, 2020; e: Cornelissen et al., 2022; f: Esmaeilzadeh, 2020; g: Hamedani et al., 2023; h: Oh et al., 2019; i: Orlova et al., 2023; j: Pedro et al., 2023; k: Rojahn et al., 2023; l: Tamori et al., 2022





Most common facilitators:
*** Clinicians: 'Trust in technology' (perceived accuracy and efficiency of AI)**
*** Service users: 'Adequate risk control' and 'Information'.**
Most common barriers in both groups: Technological and ethical concerns.

Conclusion

Levels of acceptance of AI were higher among clinicians than among service users, and on aspects of AI use that were distant, abstract, or general, compared to specific use cases or practical applications in participants' own lives. Most of the participants had a positive view on AI in healthcare. However, due to quality issues in study designs, these estimates may be artificially inflated. Most common barriers for all participants were technological and ethical concerns. Careful planning and provision of trustworthy, unbiased information on both technological and ethical aspects of AI in healthcare is recommended, informed by the needs and perceptions of clinicians and service users.

Références

Grais EM, Wang XY, Wang J, Zhao F, Jiang W, Cai YX, Zhang LF, Lin QW, Yang HD. 2021, Analysing wideband absorbance immittance in normal and ears with otitis media with effusion using machine learning. *Scientific Reports,* 11:10643. https://doi.org/10.1038/s41598-021-89588-4

QR to online survey on acceptability of AI in healthcare and in OME diagnosis

19›22 September 2024

Paris, France

CNIT Paris La Défense