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Patient and Caregiver Perspectives on the Use of Artificial Intelligence in Heart Failure Care: A UK patient survey

Introduction

Heart failure (HF) affects approximately 65 million people worldwide and leads to frequent hospitalizations, increased mortality, and poor quality of life. Evidence generation assessing the use of artificial intelligence (AI) in HF care has mainly focused on the efficacy and safety of AI and on clinician perspectives; there is a relative paucity of data regarding patient and caregiver insights. Currently available evidence is limited to surveys with small sample sizes or qualitative studies.[1,2] We conducted this UK-wide patient survey to explore the awareness, acceptability, and potential concerns regarding use of AI in HF care among patients and caregivers.

Methods

This cross-sectional survey was conducted in May 2026 by UK's HF patient charity, the Pumping Marvellous Foundation (PMF). The survey was codesigned by patient representatives from PMF and an HF consultant cardiologist. The questions consisted of multiple-choice responses with Likert-scale ratings (such as "strongly disagree," "disagree," "neutral," "agree," and "strongly agree"). Eligible participants (adult patients with HF or their caregivers living in the UK) were contacted through the established PMF patient support networks, online communities, and social media platforms.

Results

There were 797 survey respondents (97% patients/3% caregivers; 69% women). The majority of respondents (677/797 [85%]) were aged 60 years or older (183/797 [23%] aged ≥80 years). Other respondent characteristics are detailed in the Table. Digital confidence levels were high, with 82% (654/797) of respondents reporting moderate, high, or very high confidence levels in the use of smartphones, tablets, laptops, desktop computers, and mobile applications, and 38% (303/797) used generative AI.

More than half (454/797 [57%]) of respondents had heard about the use of AI in health care; 85% (677/797) reported that information regarding AI had come from television, social media, or internet websites, with only 5% (40/797) reporting that information came from clinicians. Only 20% (159/797) of respondents reported awareness that AI was used in their health care.

The majority (462/797 [58%]) agreed or strongly agreed that use of AI could improve and speed up the diagnosis of HF, improve home monitoring of symptoms, support clinicians in making better treatment decisions, reduce medical errors, assist the health care team, and improve access to care, with trust in AI higher when reviewed by a health care professional. The majority (702/797 [88%]) also agreed or strongly agreed that AI should support, not replace, clinicians. The Table lists areas in which respondents opined AI could be used in HF care and potential concerns regarding AI.

Discussion

To our knowledge, this is the largest UK survey of patient perspectives regarding AI in HF care. Despite limited understanding of AI in health care, HF patients and their caregivers in our survey showed a largely positive outlook on the potential benefits of AI in diagnosis, monitoring, self-care, education, and management of HF, with the caveat that AI should complement, not replace, clinician care, judgment, and oversight. Based on survey responses, there is also a need to ensure clear escalation pathways, transparency, robust governance, and regulation. Concerns were expressed by patients regarding data privacy, potential for errors in the absence of clinical oversight, and a reduction in human interaction. The positive outlook regarding AI use in health care and concerns expressed in our survey were similar to that outlined in a previous smaller UK survey of HF patients.[1] The need for clinician oversight, personalization of use, transparency, and governance has also been mirrored in the European Union–funded AI4HF (Trustworthy Artificial Intelligence for Personalized Risk Assessment in Chronic Heart Failure) project.[2]

Despite the majority of respondents in our survey being older patients with HF, digital literacy was high. Responses highlighted the need for comprehensive explanation by clinicians to patients and carers regarding the benefits and potential risks due to clinician-supervised use of AI in HF care and to provide reassurance regarding regulatory controls, accountability, equity, and governance.

TABLE Participant Characteristics and Responses

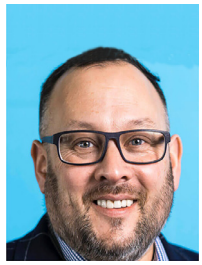
Participant characteristics and responses (n = 797)	Data (%)
Participant demographics	
Age	85% (677/797) aged ≥60 years, of whom 23% (183/797) were ≥80 years
Sex	69% women; 29% men; 2% no response
Geographical breakdown	England: 78%, Scotland: 11%, Wales: 7%, Northern Ireland: 4%
Education	
College or university education	49% (391/797)
Postgraduate education	13% (104/797)
Duration of HF diagnosis	
<1 y	17% (135/797)
1–3 y	37% (295/797)
4–6 y	21% (167/797)
>6 y	25% (200/797)
Participant responses	
1. AI awareness	
Self-rating by respondents regarding an understanding of AI	• Basic understanding: 45% (358/797) • No understanding: 25% (199/797) • Moderate understanding: 22% (174/797) • Good understanding: 8% (63/797) • Expert understanding: <1% (3/797)
Use of generative AI by respondents	• Never used generative AI: 62% (494/797) • Used ChatGPT: 19% (152/797), Microsoft Co-Pilot: 8% (67/797), Gemini: 6% (50/797), Claude: 3% (24/797), and Grok: 1% (10/797)
Source of information for respondents regarding AI in health care	• Television / news: 38% (303/797) • Social media: 35% (278/797) • Internet: 12% (96/797) • Family / friends: 7% (56/797) • Doctors / nurses: 5% (40/797) • Personal experience: 3% (24/797)
2. Perceptions about AI	
Areas in HF care, where respondents felt use of AI would be helpful	• Medication and appointment reminders: 66% (526/797) • Aiding diagnosis, acquisition and reporting echocardiograms, remote monitoring of symptoms and patient self-education: 54% (431/797) • Use of AI chatbots for self-management advice: 25% (199/797)
Respondents expressing concerns regarding use of AI	• Data privacy: 51% (404/797) • Possibility of decision errors if not reviewed by a doctor: 80% (637/797) • Reduction in human interaction: 75% (596/797) • Potential lack of personalized decision-making: 85% (675/797) • Potential for widened health inequality: 58% (460/797)

Survey responses indicated that patients believe AI could play an important role in early HF diagnosis by helping with symptom assessment and the acquisition and analysis of echocardiograms, ECGs, and other health care data. This positive response is in consonance with the beneficial outcomes noted through use of AI-aided point-of-care echocardiography in projects based on the "BEAT to Treat" methodology[3] such as the Everton BEAT Breathlessness project.[4] The positive responses regarding AI-enabled remote monitoring of symptoms and prediction of clinical deterioration lend support to findings from a recent UK study on virtual wards.[5] Many other AI tools in HF care are currently in evidence-generation or real-world validation phases, before they can be incorporated into guidelines and standard practice.

We acknowledge limitations of this survey such as digital exclusion (older, frail patients or due to language barriers) and sampling bias due to self-selection.

Conclusion

This large survey exploring UK patient and caregiver perspectives regarding implementation of AI in HF care demonstrates support for its use in diagnosis, monitoring, and treatment. However, this support is contingent upon its use as a patient-focussed supplement to clinician-led personalized care, maintenance of clinician oversight, and a need to ensure a robust governance framework.



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Declaration of competing interests

None of the authors have any competing interests relevant to this manuscript.

CRediT authorship contribution statement

Nick Hartshorne-Evans: Writing – review & editing, Writing – original draft, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Kate Hornby:** Writing – review & editing, Software, Resources, Project administration, Data curation. **Dawn Robinson:** Writing – review & editing, Software, Resources, Project administration, Data curation. **Gavin Redhead:** Writing – review & editing. **Corinne Surname Hudson:** Writing – review & editing. **Rajiv Sankaranarayanan:** Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Conceptualization.

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