Healthcare Customers' Intention to Adopt AI Technologies: A Systematic Literature Review and Future Research Directions

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Abstract

This systematic literature review (SLR) explores the factors determining healthcare customers' intention to adopt artificial intelligence (AI) technologies. Various established theoretical frameworks such as TAM, TAM, UTAUT, BRT, and BHM and their predictors are analysed to comprehend the readiness of healthcare customers to embrace AI-powered technologies in their daily lives. Adhering to PRISMA guidelines, twenty-two studies from diverse databases were meticulously reviewed and synthesised to comprehensively evaluate the determinants influencing the acceptance of AI technologies in healthcare. This study aims to explore the frameworks analysing healthcare customers' intentions to adopt AI-based medical technologies, identify acceptance factors, assess AI's impact on outcomes, and highlight future research areas. Healthcare is transformed by AI technologies such as virtual assistants and wearables, which results in diagnostic precision, improved efficiency, personalised care, better patient outcomes, and lower healthcare costs. Additionally, it highlights potential research areas for further exploration to enhance comprehension of AI adoption among healthcare consumers, emphasising the significance of integrating psychological and behavioural perspectives in providing AI interventions that are effective, morally suitable and customised for specific individuals. This comprehensive study highlights the potential of AI to transform healthcare services and patient care and advocate for strategies that foster its successful implementation and acceptance.

Keywords: AI Adoption Factors, Artificial Intelligence in Healthcare, Healthcare Customers, Systematic Literature Review, Technology Acceptance.

Introduction

Artificial intelligence (AI), a term encompassing a range of technologies to develop systems that mimic intelligence, has made significant strides in healthcare over the past 25 years (1). This resilient technology has been incorporated into various healthcare domains, such as telehealth, telemedicine, mobile health (mHealth), electronic health records (EHR), big data, and wearable technology, revolutionising healthcare decision-making and medical diagnosis by healthcare practitioners (2). The application of AI not only improves accuracy and workflow efficiency but also holds the potential to revolutionise medicine, from the Turing Test to its sophisticated applications in clinical settings (3). The successful implementation of any innovative technology, such as AI in healthcare, heavily depends on its users' acceptance. Understanding the factors influencing healthcare consumers' willingness to adopt AI technologies is significant. It involves critical drivers such as perceived ease of use, perceived usefulness, performance expectancy, effort expectancy, improved accuracy, personalised treatment approaches, and enhanced operational efficiency of healthcare delivery. Addressing concerns about technological trust, data protection, and security is also crucial, as it can affect the acceptance rate. Models such as the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Behavioural Reasoning Theory (BRT), and the Health Belief Model (HBM) have been utilised to analyse the customers' behaviour to accept technology. Extensive studies show increasing interest and optimism about AI's potential, but at the same time, widespread concern exists about accepting emerging AI-enabled medical technologies among its users. Therefore, it is crucial to understand the rationales behind healthcare customers' use of such technologies and their benefits. This understanding will empower individuals in the healthcare sector, such as professionals, scholars, and decision-makers.

This research stands out for its systematic exploration of psychological and behavioural aspects that impact the acceptance of artificial intelligence within healthcare. Research on healthcare customers' adoption of AI technology has focused on technical aspects, with little attention given to socio-demographic characteristics, privacy concerns, trust mechanisms and patients' perceptions. This study explores multifaceted factors that impact the adoption of AI technology, encompassing human, technological, and psychological dimensions. This SLR offers practical insights into effectively integrating AI into healthcare systems, especially by understanding the challenges and significant predictors linked to healthcare customers' adoption. The significance of this research lies in its demonstration of the critical factors within healthcare that impact patients' readiness to embrace AI-powered technologies. It also emphasises the importance of psychological and social factors for future research. This approach enhances our understanding of AI integration in healthcare, intending to improve patient well-being and organisational effectiveness through a comprehensive approach to healthcare technology. This study explores the theoretical frameworks employed in analysing healthcare customers' intentions to adopt AI-based medical technologies and ascertain the factors influencing their acceptance of such technologies. Additionally, the study examines the observed impact of AI adoption on healthcare outcomes. It identifies and assesses significant areas for future research in comprehending the intentions of healthcare customers to embrace AI technologies.

Methodology

The successful implementation of artificial intelligence (AI) technologies in the healthcare sector relies on various crucial factors, such as interoperability, compliance with regulatory standards, and the meticulous examination of privacy issues. Comprehensive strategies are essential to support such technologies' extensive deployment and regulation. It requires cooperation among regulatory bodies, policymakers and other stakeholders (4). Improved efficiency, data confidentiality, and trust concerns are crucial while analysing the attitude towards AI in the healthcare sector. Even though users have a favourable perception of AI's

accessibility and efficiency, data security, patient well-being, and technology maturity concerns can impede its adoption; there is the role of technology acceptance models, which is significant in determining the reason for customers' hesitance to accept the emerging technologies (5). This study aligns with the various technology Acceptance Models in healthcare settings, highlighting the significance of determinants of innovative technology adoption. Training and involvement of healthcare professionals are crucial for the implementation of innovative technologies that help them understand the barriers and enablers of technology adoption (6). Infrastructure sufficiency, perceived risks, socio-cultural organisational aspects, trust, and user receptiveness towards technology are critical factors for adopting AI technologies in healthcare (7). A shift from technical concerns to usability and interoperability is essential to enhance the adoption of technologies in clinical settings, emphasising the practical benefits and user-friendly design (8).

The major ethical dilemmas are patient confidentiality, biased outcomes, and human fallibility, which can be addressed through continuous monitoring of AI technologies. This technology can potentially improve healthcare efficacy; it is imperative to minimise risks and ensure ethical deployment (9). The vital themes include data management, pharmaceutical innovation, and treatment optimisation while scrutinising the adoption of machine learning systems in the healthcare sector (10). Based on the research patterns and future direction, a unique theoretical framework proposed focusing on four key components: (a) impediments in the healthcare industry, (b) strategies for achieving Operational Excellence, (c) advancements in healthcare technologies, and (d) outcomes of implementation (11). The UTAUT and UTAUT2 models have been used in the literature since 2016, particularly in elucidating the adoption of eHealth services; the interdisciplinary competencies are also emphasised for the effective adoption of eHealth services and cooperation among technical, IT, and managerial professionals (12).

Based on the PRISMA Statement Flow Diagram guidelines, the present study executed a systematic literature review, "Figure 1" (13). This research structured the systematic review process

within the PRISMA framework to ensure the usefulness of the outcomes (14). This systematic methodology encompasses the five pivotal phases suggested by this structured methodology, which include (a) outlining research questions, (b) recognising pertinent literature, (c) evaluating and appraising publications, (d) examining and integrating data, and (e) showcasing and applying the results.

This review started with an extensive literature search through various databases, encompassing databases such as ScienceDirect, Emerald Insight, Sage Journals, Taylor & Francis, Springer Link, IEEE Xplore, and Google Scholar, played a crucial role in ensuring the thoroughness and reliability of our literature review.

Question Formulation

Formulating the research questions marks the primary step in initiating a Systematic Literature Review (SLR). Hence, commencing a literature review by crafting precise research questions is imperative. The key aim of this study is to address the subsequent research questions: identify theoretical frameworks are used to explore healthcare customers' intention to adopt AI-enabled healthcare technologies; determine the predictors of healthcare customers' intentions to accept Artificial Intelligence technologies; examine the observed impacts of AI adoption on healthcare outcomes; and outlining the future research directions for understanding healthcare customers' intentions to adopt AI technologies.

Locating Studies

Scholarly papers from reputable sources like ScienceDirect, Emerald Insight, Sage Journals, Taylor & Francis, Springer Link, IEEE Xplore, and Google Scholar guaranteed the study's transparency and quality. Articles were searched based on the titles, an established method of assessing numerous articles within a condensed timeframe (15). On the 15th and 16th of May in 2024, the researcher executed searches using the article title search technique. A blend of AI adoption-related keywords and terms linked to healthcare was applied regarding the search approach. Keywords such as AI adoption, AI acceptance, AI predictors, AI determinants, and AI adoption by healthcare customers were employed for article retrieval across diverse databases. The articles were from 2017 and included significant studies meeting the predetermined inclusion and exclusion criteria.

Selection and Evaluation of the Articles

Research papers that met specific inclusion and exclusion criteria were chosen for evaluation. Table 1 provides a detailed description of the exclusion criteria applied during the literature screening. The PRISMA tool, specifically designed to aid researchers in conducting systematic literature reviews (SLRs), used for the detailed screening process, depicted in Figure 1, highlights the meticulousness of our approach.

Analysis and Synthesis

The papers in this investigation underwent a comprehensive analysis and synthesis. Various criteria were used for categorisation, including the objective, methodology, research setting, and theoretical and conceptual frameworks. After a thorough literature review, this research meticulously structured the determinants influencing customers' intention to adopt Artificial Intelligence within the healthcare domain, demonstrating the depth and thoroughness of our research process.

Reporting and Using the Results

This systematic literature review (SLR) critically analyses the current literature concerning its customers' adoption of Artificial Intelligence in the healthcare sector. The subsequent segments offer responses to the research inquiries posited in the study.

Table 1: Exclusion Criteria

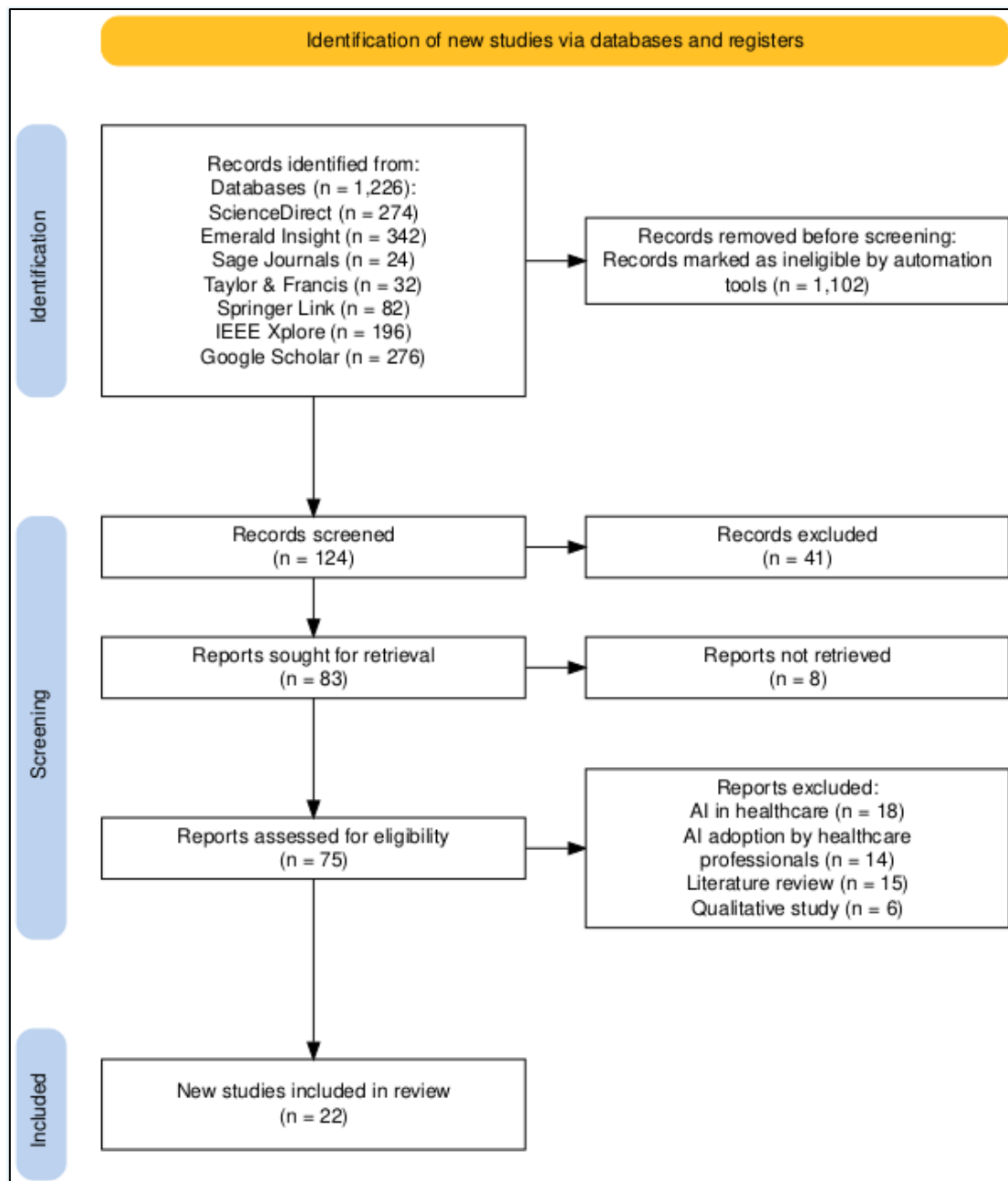| Exclusion Criteria |
| --- |
| General Studies on Artificial Intelligence (AI) in healthcare |
| Non-English studies |
| Studies on AI adoption/acceptance among healthcare practitioners/ professionals |
| Review articles on AI adoption within the healthcare domain |
| Qualitative studies |

Figure 1: Article Selection Process

Results

This section presents comprehensive responses to all research objectives examined in this Systematic Literature Review (SLR). Twenty-two publications met the requirements for inclusion and exclusion in this SLR. The enumeration of articles featured in Table 2 provides a thorough overview of the current corpus of academic literature.

Table 2: Overview of the Study

Study Author(s)	Theoretical and Conceptual Models	Predictors of AI Adoption	Outcome of AI Adoption	Future Research Direction	Population and Country
Amin MAS, Johnson VL, Prybutok V, Koh CE (16)	Privacy Calculus Theory (PCT) and the Technology Acceptance Model (TAM)	• Trust • Privacy Concerns • Perceived Benefits. • Perceived Ease of Use (PEOU) • Perceived Usefulness (PU) • Social isolation	• Improved personalization and proactive care. • Companionship and reduced social isolation. • Greater readiness to share personal health data (PHI). • Enhanced trust and privacy management.	• Explore Privacy and Trust Mechanisms in AI adoption. • Exploring additional factors within the Technology Acceptance Model (TAM)	Individual aged 60 and above in United States.
Huang W, Ong WC, Wong MKF, Ng EYK, Koh T, Chandramouli C, *et al.,* (17)	UTAUT2	• Performance expectancy • Effort expectancy • Social influence • Facilitating conditions • Hedonic motivation	• Enhanced diagnostic accuracy, increased efficiency, and personalized care can increase patients' engagement and satisfaction. • It helps the stakeholders to design effective adoption strategies.	• Create effective implementation plans using important elements and evaluate how they influence patients' willingness to use different AI tools. • Explore socio-demographic factors • Integration with existing systems/ frameworks.	Individuals from Singapore who are 21 years old or older and experiencing at least one symptom of heart failure.
Choudhary S, Kaushik N, Sivathanu B, Rana NP (18)	Behavioural Reasoning Theory (BRT) and UTAUT2	• Value of openness to change • Reasons for adoption • Reasons against adoption • Attitude towards adoption • Performance Expectancy • Hedonic Motivation: • Facilitating Conditions:	• AI-powered voice assistants enhance user experience by enabling web searches, content consumption, task completion, and shopping, thereby increasing customer satisfaction. • It can be incorporated into smart home gadgets,	• Investigate the usage of voice assistants across various cultures to gain insights into regional preferences and adoption patterns. • Understand the impact of privacy and security concerns on user adoption can play a	This study gathered data from various cities in North India.

		- Social influence - Price value - Effort expectancy	electronic devices, and vehicles to elevate everyday convenience and operational efficiency. • They enrich user engagement by promoting social interactions between individuals and machines. • It offers tailored suggestions and facilitate conversational commerce, demonstrating their significance in advancing future technological innovations.	crucial role in enhancing trust in voice assistants. • Delve into the influence of social factors and marketing strategies in driving the adoption of voice assistants, highlighting their distinct functionalities.	
Liew TW, Tan SM, Yoo NE, Gan CL, Lee YY (19)	UTAUT	- Performance expectancy, - Effort expectancy, - Social influence - Facilitating conditions - Perceived intelligence - Perceived anthropomorphism - Perceived risk - Trust	- Improved access and convenience - Enhanced user experience - Anonymity and comfort - Predictive and personalized care.	• Explore the impact AI adoption on diverse population. • Explore the integration of AI attributes with adoption theories.	Young adults in Malaysia aged 18-35.
Schaarup JFR, Aggarwal R, Dalsgaard EM, Norman K, Dollerup OL, Ashrafian H, *et al.,* (20)	No theoretical or conceptual models explicitly used.	- Health literacy - Attitude towards data sharing	- Improved Management of chronic conditions - Accessibility and convenience - Better health outcomes - Enhanced data utilization - Operational efficiency	• Conduct longitudinal studies to assess the long-term impact and acceptance of AI technologies in healthcare	People aged 18–75 years with diabetes and without diabetes from Denmark
Gupta O, Joshi P, Gupta A (21)	No theoretical or conceptual	- Trustworthiness - Self-efficacy	- Enhanced health monitoring - Improved health outcomes	• Identification of Additional Enablers and Barriers	Elderly individuals who are potential

	models explicitly used.	• Health interest • Perceived Value • Performance Expectancy	• Reduced errors • Cost-effective care	• Explore the role of Demographic Factors • Study Personality-Related Variables	users of AI-based health care wearables from India
Alanzi T, Almahdi R, Alghanim D, Almusmili L, Saleh A, Alanazi S, *et al.,* (22)	TAM	• Performance expectancy (PE) • Effort expectancy (EE) • Social influence (SI) • Facilitating conditions • Trust • Perceived privacy risk (PPR) • Personalized innovativeness (PI)	• Efficient patient management • Enhanced health monitoring • Insights gained from research can influence the integration of AI-enhanced VAS, with a focus on personalized tactics to tackle patient issues.	• Identify economic and organizational factors affect AI adoption. • Explore regulatory and ethical considerations of healthcare customers in AI adoption.	Leukaemia patients from Saudi Arabia
Rasheed HMW, Chen Y, Khizar HMU, Safeer AA (23)	Behavioural reasoning theory (BRT)	• Cultural values • Consumers' attitudes • Perceived ease of use • Perceived usefulness • Perceived enjoyment • Perceived innovativeness • Technological complexity • Technological anxiety • Perceived safety • Privacy concern	• Enhance customer experiences by providing personalized services based on cultural values and preferences • Improve operational efficiency • Offer faster service delivery, and ensure consistent service quality, contributing to overall customer loyalty and positive brand perception.	• Explore potential negative outcomes of AI adoption in the hospitality industry. • Employ a multi-method approach. • Explore ethical considerations in AI adoption.	Hospitality customers from Pakistan
Méndez-Suárez M, Monfort A, Hervas-Oliver JL (24)	TAM and UTAUT	• Attitude towards innovation • Socio-demographic variables	• Help institutions to tailor their strategies accordingly. • Provides a valuable framework for companies to predict how customer-based	• Provides a valuable framework for companies to predict how customer-based perspectives on AI adoption can impact firm performance	The study involved 3005 respondents from Spain

			perspectives on AI adoption can impact firm performance.	• Investigating the relationship between innovation attitudes and AI acceptance to identify the factors influencing customer adoption of AI	
Rangasamy S, Nagarathinam A, Chellasamy A, NE (25)	Conceptual model developed by authors based on LR	• Awareness • Trust • Health seeking behaviour • Belief on Traditional, Complementary and Alternative Medicine.	• Improved awareness leads higher acceptability of healthcare Chatbots	• Extend study to a large population including rural and urban. • Include challenges of Chatbot usage in Indian population	Survey conducted to collect data from Indian urban population
Isbanner S, O'Shaughnessy P, Steel D, Wilcock S, Carter S (26)	No theoretical or conceptual models explicitly used.	• Ethical, legal and social dimensions such as accuracy, speed, explanation, human contact, responsibility, fairness and reducing cost.	• Better understanding of public attitude towards healthcare AI. • Shedding light on key priorities for AI development in healthcare sector. • Understand the importance of human interventions in healthcare. • Underscore the significance of ethical and social dimensions of AI in healthcare.	• Conduct an analysis on the disparities in opinions among various demographic groups to gain a comprehensive understanding of public perspectives regarding the potential implementation and acceptance of AI in the healthcare sector. • Qualitative research to delve into the reasons behind public judgments on the acceptability of specific AI applications in health care • Explore how judgments can impact AI adoption.	The study conducted in Australian population
Singh JP (27)	No theoretical or conceptual models explicitly used.	• Improved health outcomes • Convenience and accessibility	• AI is able to recognize patterns and insights that human practitioners may overlook.	• Investigate the role of transformer models • Investigate the effects of data privacy worries and issues of trust.	The study conducted among healthcare customers in India

		- Empowerment through personalisation - Technological sophistication - Market competition - Government endorsement - Social Influence - Brand Reputation - Media coverage	- AI is precise in diagnoses, tailor-made treatment strategies, and the exploration of novel therapeutic methods. - Anticipating potential health dangers and taking preventive measures against illnesses.	Examine the impact of additional factors that were not accounted for in this research.	
De Blanes Sebastián MG, Guede JRS, Antonovica A (28)	UTAUT2	- Performance expectancy - Effort expectancy - Facilitating conditions - Social influence - Hedonic motivation - Price value - Habit - Perceived privacy risk - Trust - Personal innovativeness	- By studying behavioural intention factors, organizations can tailor their strategies to promote the use of ai virtual assistants effectively. - Enhancing the design and functionality of virtual assistants can lead to better user engagement and satisfaction, resulting in more efficient interactions	- Explore integrating ergonomics to make using AI virtual assistants more human-like. - Investigate additional factors like gender, age, and user needs can provide insights into enhancing user experiences with ai assistants - Research on user intention and actual usage can offer valuable insights. - Explore the impact of anthropomorphism on user trust and satisfaction to enhance the acceptability of virtual assistants	The study conducted in Spanish population
Frank DA, Elbaek CT, Borsting CK, Mitkidis P,	No theoretical or conceptical models explicitly used.	- Perceived trust for AI - Perceived trust for human - Perceived uniqueness neglect from a human physician	Enhance healthcare services, increase access to information, and improve convenience, concerns about accuracy, security	- Explore Trust Building in AI - Study the Impact of Social and Psychological Factors	People from Denmark and France in the initial phase of the worldwide COVID-

Otterbring T, Borau S (29)		• Perceived uniqueness neglect from a medical AI • Open-mindedness • Social belonging • Self-esteem • Risk perception • Political ideology		• Explore balancing Trust Between AI and Human Physicians	19 outbreak, spanning from April to May 2020
Esmaeilzadeh P, Mirzaei T, Dharanikota S (30)	No theoretical or conceptual models explicitly used.	• Perceived performance risks • Perceived communication barriers • Perceived social biases • Perceived privacy concerns • Perceived trust • Perceived transparency of regulatory standards • Perceived liability issues • Perceived benefits	• Improved Diagnostic Accuracy • Convenience and Efficiency • Enhanced Access to Healthcare	• Explore how Regulatory Standards can impact AI adoption • Longitudinal Studies • Explore the role of Communication Barriers can impact AI adoption. • Conduct similar studies in other geographical locations	Data collected from 634 individuals from United States
Sohn K, Kwon O (31)	(TAM), (TPB), (UTAUT), and (VAM)	• Perceived Usefulness • Perceived Ease of Use • Attitude • Subjective Norms • Perceived Behavioural Control. • Performance Expectancy • Social Influence • Effort Expectancy • Usefulness • Enjoyment, • Technicality • Perceived Fee	• Highlighted importance of Enjoyment and subjective norms in AI adoption. • Improves efficiency in Healthcare Delivery. • Provides Emotional Support • Enhances Personalized Care	• Identification of Additional Variables • Consumer Behaviour in New Areas	People who are intrigued by utilizing products like smart speakers, voice assistant services, and AI-based home appliances from South Korea.

		• Perceived Value			
Esmaeilzadeh P (32)	Value-based adoption model	• Perceived performance anxiety • Perceived communication barriers • Perceived social biases • Perceived privacy concerns • Perceived mistrust in AI mechanisms • Perceived unregulated standard • Perceived liability issues • Perceived risks • Perceived benefits • Intention to use AI-based tools	• Enhanced Prognosis • Better access to healthcare. • Improved Patient Care. • Increased Efficiency.	• Study to mitigate ethical and regulatory concerns • Study to address Technological Concerns in AI adoption. • Conduct longitudinal Studies	Individuals in the United States in April 2020 from United States
Nadarzynski T, Bayley J, Llewellyn C, Kidsley S, Graham CA (33)	No theoretical or conceptual models explicitly used.	• Past experiences • Perception of having STI symptoms	• Better Accessibility to Health Information system. • Enhanced Engagement • Improved Service Delivery	• Conduct comparative Studies Across Different Populations. • Evaluate Long-Term Impact of AI adoption. • Study on integration of AI with Traditional Services	Patients attending sexual and reproductive health (SRH) services within the Solent NHS Trust, a healthcare provider in the UK
Dhagarra D, Goswami M, Kumar G (34)	TAM	• Perceived usefulness (PU) • Perceived ease of use • Trust (T) • Privacy concern (PCON)	• Improved accessibility and quality • Enhanced trust and satisfaction • Improved service delivery • Data management and utilization	• Conduct diverse population studies • Explore the impact of AI on different healthcare levels. • Identify Behavioural constructs in AI adoption.	Patients along with their companions between the ages of 18 and 60 from 11 dispensaries in

Author	Model				Study Population
				• Study how to address privacy concerns	8 districts out of 11 in Delhi, India.
Nadarzynski T, Miles O, Cowie A, Ridge D (35)	No theoretical or conceptual models explicitly used.	• Positive attitudes • Curiosity about new technologies • Perceived utility • Perceived trustworthiness	• Enhanced Predictive Capabilities. • Cost-Effectiveness • Convenience and Access • Anonymity • Timesaving.	• Explore factors such as accuracy, cybersecurity, absence of empathy, and technological advancement that influence the delay in acceptance or refusal of AI technologies.	University students between the ages of 18 and 22 as well as individuals with an average age of 30, who are of White ethnicity and have an education level below a university degree, are from the United Kingdom.
Ye T, Xue J, He M, Gu J, Lin H, Xu B, Cheng Y (36)	TAM, TPB, HBM, DFT, SQB and UTAUT	• Perceived usefulness • Perceived Ease of Use • Attitude • Subjective Norms • Perceived Behavioural Control • Performance Expectancy • Social Influence • Effort Expectancy • Usefulness • Enjoyment • Technicality • Perceived Fee • Perceived Value • TPB: Subjective norms	• Improved Diagnostic Accuracy and Speed • Accessibility to Safe Diagnosis • Objective and Consistent Care • Relief for Exhausted Healthcare Resources • Increased Efficiency	• Explore and develop strategies to build trust in AI among healthcare customers. • Study impact of Social and Psychological Factors in AI adoption • Study on addressing AI aversion	Potential consumers of artificial intelligence technology for ophthalmology in China

		• Perceived behavioural control		
		• Health consciousness.		
		• Perceived risk		
		• Resistance bias		
Zhang M, Luo M, Nie R, Zhang Y (37)	TAM, HBM, and Conformity and Reference Group Theory	• Technology attributes • Health attribute • Customer attributes	• Helps customers to make informed choice about AI technologies. • Helps the institutions to develop targeted marketing strategies and product designs that cater to different consumer attributes.	• Explore specific characteristics like health literacy, that could impact consumers' willingness to adopt healthcare AI.	Data collected from 436 participants from China

Discussion

RQ 1: What Theoretical Frameworks are used to Identify Healthcare Customers' Intentions to Adopt AI-Enabled Healthcare Technologies?

This section presents the key frameworks used to analyse the adoption of AI technologies in healthcare, based on Table 2. Healthcare customers' acceptance of AI technology has been rigorously examined using the TAM framework, offering deep insights into how perceived usefulness and ease of use drive adoption. TAM's practicality shines through in real-world healthcare settings, where it plays a pivotal role in deciphering technology uptake. But the story doesn't end there—UTAUT, a robust extension of TAM, layers on performance expectations, effort expectations, social influence, and facilitating conditions deepen our understanding of technology adoption. Paired with the Privacy Calculus Theory (PCT), TAM reveals how elderly individuals weigh perceived benefits against risks, shaping their willingness to share health information. Meticulously assessing the factors that steer user intentions and interactions with AI virtual assistants, UTAUT2 further refines this analysis, hence elevating the research's predictive power.

In the broader landscape, TAM, Theory of Planned Behaviour (TPB), UTAUT, and the Value-based Adoption Model (VAM) are foundational pillars in understanding AI-driven technologies' acceptance in healthcare. Among these, VAM emerges as particularly potent, effectively clarifying the practical adoption of products—a testament to its value in Value-Added Marketing (VAM). The synthesis of TAM, TPB, the Health Belief Model (HBM), Dual Factor Theory (DFT), and Status Quo Bias (SQB) paints a comprehensive picture, especially when trust is factored in as a moderating influence. These sophisticated theories highlight how various elements, including social environments, shape AI's integration into healthcare.

Simultaneously, the Behavioural Reasoning Theory (BRT) delves into the complexities of AI acceptance with a keen eye on safety concerns. `integrating TAM and HBM with Conformity and Reference Group Theory offers thorough insights into the drives that impact the acceptance of healthcare wearable technology, In parallel, the Behavioural Reasoning Theory (BRT) delves into the hospitality sector, unravelling the complexities of AI acceptance with a keen eye on safety concerns. Not to be outdone, TAM and HBM join forces with Conformity and Reference Group Theory, offering a granular view of what drives the acceptance of healthcare wearable technology. Here, the focus sharpens on technical features, health considerations, and consumer preferences, painting a vivid picture of the factors that sway adoption in this rapidly evolving field.

RQ2: What are the Predictors of Healthcare Customers' Intentions to Accept Artificial Intelligence Technologies?

Table 2 highlights the key predictors influencing customers' intention to adopt AI technologies in healthcare. Trust, privacy concerns, and social seclusion are key influencers of older individuals sharing personal health data (PHI) with AI-powered caregiver robots. Hedonic motivation and performance expectancy also play important roles in technology adoption.

Technology adoption is a complex process. It's a complex interplay of support infrastructure, the ever-present need for trust, nagging privacy concerns, and a dash of personal innovation. A robust support system can be a game-changer, enhancing credibility and pushing users toward acceptance. Perceived intelligence, performance expectancy, effort expectancy, and the subtle forces of social influence, especially in chatbots, foster trust and anthropomorphism. The UTAUT model crystallises these dynamics, spotlighting performance expectancy, effort expectancy, facilitating conditions, and social influence as key variables in AI chatbot adoption. Yet, at the heart of it all lies health-seeking behaviour, and awareness are critical drivers steering healthcare customers toward embracing AI.

Regarding wearable technology, readiness to share data is more influential than age, gender, or even health literacy. For the elderly, their dependability, self-confidence, and active interest in health shape their acceptance of AI-driven wearables. But let's not forget the broader picture: cultural values, subjective norms, perceived utility, and a resistance bias all weave together, influencing AI

adoption. Technological, ethical, and regulatory concerns also enter the fray, particularly around perceived risks in performance and communication functions. And then there's the demographic, socioeconomic status and age, with younger, wealthier individuals generally more receptive to AI, leaving us to wonder how these tools will truly reshape the healthcare landscape.

RQ 3: What are the Observed Impacts of AI Adoption on Healthcare Outcomes?

AI-driven technologies are dramatically reshaping the healthcare environment, as highlighted in Table 2. Virtual assistants revolutionise healthcare by delivering personalised interventions that boost patient satisfaction and enhance efficiency. AI-driven caregiver robots transform healthcare by providing personalised care, combating patient isolation, and encouraging sharing of personal health information while skilfully navigating privacy concerns, building trust, and paving the way for broader adoption. SRH chatbots are breaking barriers by making healthcare more accessible and convenient, especially in conservative communities. These chatbots are engaging, private, and instrumental in overcoming societal taboos, enabling users to seek health information actively.

AI-integrated wearables are a game changer, particularly for elderly people. These devices monitor physical activities, track vital signs, and promote proactive care, catching health issues before they escalate. The result is fewer hospital visits, reduced consultations, and a lighter financial burden on the healthcare system. AI's predictive capabilities are extensively powerful in transforming data into actionable insights through health chatbots and other applications. AI-driven solutions are accessible 24/7, confidential, and streamlined, reducing the need for hospital visits and face-to-face consultations, and cost-effective and efficient. Further, AI improves the patient experience by enabling personalised care, automating routine tasks, offering emotional support, and providing tailored health recommendations.

Voice assistants are another innovation based on AI technology. They enhance user experiences by streamlining tasks, enhancing content consumption, assisting with shopping, and integrating smart home devices. AI-based technologies transform healthcare by improving accessibility, trust, patient engagement, and service delivery. They also ensure privacy, manage data efficiently, and automate repetitive tasks. As AI reduces biases and optimises workflows, it unburdens healthcare professionals, allowing them to focus on patient care.

RO 4: What are Future Research Directions for Understanding Healthcare Customers' Intentions to Adopt AI Technologies?

As highlighted in Table 2, future research must address the complexities of privacy, trust, and ethical dilemmas in AI technologies, focusing on demographic variations such as age, gender, socioeconomic status, and health literacy. Understanding these factors is crucial to revealing disparities in AI adoption patterns and forging inclusive solutions, especially in rural and urban landscapes. The impact of personality traits, such as attitudes and motivations, on healthcare technology adoption should also be explored. A detailed study of public perceptions toward AI, segmented by demographic categories, will provide deeper insights and guide the development of these technologies. Longitudinal studies are essential to understanding AI's acceptance and evolving influence. They track shifts in attitudes and sustainability over time and identify trends and areas needing refinement.

AI's financial impact on healthcare also should be explored thoroughly to evaluate economic feasibility and efficiency. Investigating organisational factors such as workflow changes, staff training, and readiness for technological advancements will be vital for the smooth integration of AI implementation.

Interoperability, data privacy, and trust issues will be explored as they enhance technology adoption and user satisfaction. The social, psychological, and cultural factors that drive AI acceptance or rejection are crucial for crafting effective interventions. Further study on integrating modern digital services with traditional methods also suggests that it can improve AI accessibility and efficiency. Enhancing virtual assistants' ergonomics and anthropomorphic features will boost their human-like appeal, fostering greater user trust and satisfaction.

Recommendation on Future Research Directions

This SLR proposes additional areas for further academic investigation based on the future research directions identified in existing sources. Future research should explore how AI technologies that detect and respond to patient emotions shape trust and acceptance within healthcare environments. Examining the adoption pattern of AI technologies in different geographic regions, healthcare systems, and categories of AI technology is crucial to understanding the factors influencing AI adoption. This will help healthcare providers develop effective strategies for AI integration.

The influence of peer recommendations, social validation, and personalised AI solutions remains unexplored in healthcare customers' adoption of AI technologies. It is also crucial to scrutinise how perceived ethical standards of AI technologies influence adoption intentions. There are potential opportunities to explore how AI integrates with traditional healthcare practices to improve patient satisfaction and drive higher adoption rates, offering promising avenues for enhancing AI acceptance in the healthcare sector.

The Implication of this Study

The implications of this SLR on AI adoption by healthcare customers are profound and wide-reaching for various stakeholders, with many benefits.

Healthcare Providers: Understanding the variables that impact the acceptance of AI can empower healthcare professionals to integrate AI innovations into their medical routines. This will increase diagnostic precision in clinical decision-making, enhance patient supervision, facilitate individualised treatment, streamline administrative tasks, and ultimately improve patient results and optimise resource distribution.

Policymakers and regulators: Trust, data privacy, and ethical factors in developing policies and rules to ensure a secure and trustworthy environment for implementing AI technologies in the healthcare sector.

Healthcare customers: Understanding the implications of AI adoption will be a top priority for customers who want to adopt technology, emphasising ease of use and ethical considerations. This will lead to increased satisfaction and greater patient engagement.

Academic and Research Institutions: By identifying future research directions, pinpointing gaps in current knowledge, and developing an ethical framework for AI adoption, fostering innovation and enhancing understanding of AI technologies in healthcare.

Healthcare IT experts: Understanding the interoperability and integration issues highlighted in the research will enable a smooth integration with existing healthcare infrastructures, which can enhance the development of AI systems. They should also ensure that these technologies are secure, reliable, and adhere to data privacy and ethical standards.

Limitations

This review focuses solely on healthcare customers' intention to adopt AI technologies, which overlooked insights from other industries that could offer similar adoption patterns or methods. Incorporating perspectives from different domains, such as psychology, sociology, and human-computer interaction, could improve our understanding of AI adoption in the healthcare industry. Another constraint of this study is that it does not consider non-English publications, leading to the exclusion of critical studies conducted where English is not the primary language. It could narrow the global scope of findings.

Conclusion

This comprehensive review explored the essential elements that impact the adoption of AI technologies among healthcare consumers. These factors encompass trust, apprehensions regarding data privacy, perceived simplicity of use, and ethical deliberations. To secure broad acceptance, it is imperative to tackle these concerns by deploying transparent, tailored, and ethically appropriate AI solutions.

Abbreviation

Nil.

Acknowledgement

Author Contributions

Joshy Mathew designed the study, coordinated the research, and contributed to the literature search, data collecting, analysis, interpretation, paper writing, and final approval. Akansha Mer contributed to the literature search, data gathering, analysis, interpretation, paper preparation, and final approval; she also reviewed and edited the text. Vimlesh Tanwar contributed to the literature search, data collecting, manuscript review, editing, and final approval.

Conflict of Interest

The authors declare no conflicts of interest related to this work. No financial, personal, or professional affiliations influenced the research outcomes or interpretations.

Ethics Approval

Not applicable.

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