



Building Consumer Trust in AI-Driven Healthcare Services: The Role of Digital Health Literacy, Ethical Concerns, Institutional Assurance, and Perceived Service Credibility

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Abstract

AI-driven healthcare services are increasingly being used to support symptom checking, telemedicine, remote monitoring, personalised health recommendations, and digital patient communication. Although these technologies can improve accessibility and service efficiency, consumer trust remains a major concern because healthcare decisions involve sensitive personal data, clinical safety, privacy, transparency, and ethical accountability. This study examines the factors influencing consumer trust in AI-driven healthcare services by analysing the roles of digital health literacy, ethical concerns, institutional assurance, and perceived service credibility. A quantitative cross-sectional survey design was adopted, and data were collected from 352 respondents who had awareness of or experience with digital healthcare services. The data were analysed using SPSS and AMOS through descriptive statistics, reliability analysis, correlation analysis, Confirmatory Factor Analysis, Structural Equation Modeling, and mediation analysis. The findings showed that digital health literacy and institutional assurance had significant positive effects on perceived service credibility, while ethical concerns had a significant negative effect. Perceived service credibility had the strongest direct effect on consumer trust and partially mediated the relationships between digital health literacy, ethical concerns, institutional assurance, and consumer trust. The study concludes that consumer trust in AI-driven healthcare

services depends not only on technological convenience, but also on consumer literacy, ethical confidence, institutional safeguards, and credible service design. The study contributes a consumer-centred SEM model for understanding trust formation in AI-mediated healthcare services.

Introduction

Background of the Study

Artificial Intelligence is increasingly transforming healthcare services by supporting diagnosis, treatment planning, remote monitoring, patient communication, administrative automation, and personalised health recommendations. AI-driven healthcare services include symptom-checking applications, virtual health assistants, AI-supported telemedicine platforms, wearable health analytics, automated triage systems, and decision-support tools used by healthcare providers. These technologies have the potential to improve healthcare accessibility, reduce service delays, support early detection, and provide more personalised care experiences. However, healthcare is a highly sensitive service domain because decisions are closely connected to patient safety, personal data, emotional vulnerability, and life-related outcomes. Unlike general digital services, AI-driven healthcare requires a higher level of trust because users often depend on health information to make

decisions about symptoms, treatment, medication, consultation, or emergency care. Therefore, the success of AI-driven healthcare services does not depend only on technological efficiency, but also on whether consumers believe that these services are credible, ethical, secure, and institutionally reliable.

Consumer trust is especially important because users may hesitate to accept AI-generated health advice if they do not understand how the system works, how their data are used, or whether the output is clinically reliable. Digital health literacy may help consumers evaluate AI-based services more critically, while ethical concerns may reduce confidence in these services. At the same time, institutional assurance from hospitals, healthcare organisations, regulators, and platform providers may strengthen perceived service credibility. In this context, perceived service credibility becomes a key mechanism through which consumers decide whether AI-driven healthcare services are trustworthy.

Problem Statement

Although AI-driven healthcare services are expanding rapidly, consumer trust remains a major challenge. Many users remain uncertain about the accuracy, safety, transparency, and accountability of AI-supported health services. Concerns related to data privacy, algorithmic bias, misdiagnosis, lack of human oversight, unclear responsibility, and misuse of sensitive health information may reduce consumers' willingness to depend on AI-based healthcare platforms.

The problem is not only technological, but also psychological, ethical, and institutional. Even when AI systems are technically advanced, consumers may reject or underuse them if they do not perceive them as credible. Similarly, limited digital health literacy may prevent users from evaluating AI-generated health information appropriately. Ethical concerns may further weaken confidence, especially when users are unsure whether AI decisions are fair, explainable, secure, or clinically validated.

Another challenge is the uneven level of institutional assurance. Consumers may trust AI healthcare services more when they are supported by recognised hospitals, medical professionals, government regulation, data protection systems, and transparent service guidelines. However, where institutional

support is weak or unclear, consumers may perceive AI-driven healthcare services as risky or unreliable. Therefore, there is a need to examine how digital health literacy, ethical concerns, institutional assurance, and perceived service credibility influence consumer trust in AI-driven healthcare services.

Research Gap

Existing research on AI in healthcare has often focused on technological performance, clinical accuracy, medical innovation, healthcare provider adoption, and system efficiency. While these areas are important, comparatively less attention has been given to consumer trust from a service credibility perspective. In particular, limited empirical research has examined how consumers' digital health literacy, ethical concerns, and institutional assurance jointly shape perceived credibility and trust in AI-driven healthcare services.

Another gap relates to the mediating role of perceived service credibility. Previous studies often examine trust as a direct outcome of technology acceptance or perceived usefulness, but the credibility of AI-driven healthcare services requires deeper consideration. In healthcare, consumers may not trust a service simply because it is convenient or efficient. They

are more likely to trust it when they believe that the service is accurate, safe, transparent, professionally supported, and ethically governed.

Therefore, this study addresses the gap by developing a consumer-centred model that explains trust in AI-driven healthcare services through digital health literacy, ethical concerns, institutional assurance, and perceived service credibility. The study contributes by positioning perceived service credibility as a mediating construct that connects consumer-level capabilities, ethical risk perceptions, institutional confidence, and trust outcomes.

Research Aim

The aim of this study is to examine the factors influencing consumer trust in AI-driven healthcare services, with specific focus on digital health literacy, ethical concerns, institutional assurance, and perceived service credibility. The study seeks to understand how consumers' ability to evaluate digital health information, their concerns about ethical risks, and their confidence in institutional safeguards shape the perceived credibility of AI healthcare services and, ultimately, consumer trust.

Research Objectives

The objectives of this study are:

1. To examine the influence of digital health literacy on perceived service credibility in AI-driven healthcare services.
2. To analyse the effect of ethical concerns on perceived service credibility.
3. To evaluate the role of institutional assurance in strengthening perceived service credibility.
4. To determine the influence of perceived service credibility on consumer trust.
5. To assess whether perceived service credibility mediates the relationship between digital health literacy, ethical concerns, institutional assurance, and consumer trust.

Literature Review

AI-Driven Healthcare Services

Artificial Intelligence is increasingly transforming healthcare delivery by supporting diagnosis, treatment planning, remote monitoring, personalised health recommendations, image analysis, patient communication, and clinical decision-making. AI-driven healthcare services include symptom-checking applications, virtual assistants, AI-supported telemedicine platforms, wearable health analytics, automated triage systems, and diagnostic

decision-support tools. According to Topol (2019), AI has the potential to reshape healthcare by improving diagnostic accuracy, personalising care, and supporting clinical decision-making. Similarly, Rajpurkar et al. (2022) argue that AI has become increasingly relevant in medical imaging, predictive analytics, and healthcare automation.

However, healthcare is a high-risk service domain because inaccurate recommendations, algorithmic bias, privacy breaches, or lack of clinical oversight may directly affect patient safety. The World Health Organization (WHO, 2021) emphasises that AI in healthcare must be guided by transparency, accountability, privacy protection, fairness, and human oversight. Therefore, AI-driven healthcare services must be evaluated not only in terms of efficiency, but also in relation to safety, credibility, ethics, and consumer trust.

Consumer Trust in Digital Healthcare

Consumer trust refers to users' confidence that AI-driven healthcare services are reliable, safe, accurate, ethical, and beneficial. Trust is especially important in healthcare because consumers may depend on digital or AI-generated advice when making decisions about symptoms, treatment, consultation, medication, or

emergency care. Gefen, Karahanna and Straub (2003) explain that trust is a central factor in technology acceptance because users are more likely to adopt digital services when they believe the system is reliable and dependable.

In AI-driven healthcare, trust must be carefully managed because both over-trust and under-trust can create risks. If consumers over-trust AI systems, they may accept inaccurate health advice without seeking professional confirmation. If they under-trust AI systems, they may avoid useful healthcare support. Therefore, trust in AI healthcare should be understood as calibrated trust, where consumers rely on AI services appropriately and cautiously. As Glikson and Woolley (2020) argue, trust in AI depends on system reliability, transparency, explainability, and the perceived competence of the technology.

Digital Health Literacy

Digital health literacy refers to consumers' ability to access, understand, evaluate, and use digital health information and technologies for informed health decision-making. Norman and Skinner (2006) introduced the concept of eHealth literacy and defined it as the ability to seek, find, understand, and evaluate health information from electronic sources and apply that

knowledge to health problems. This concept is highly relevant in AI-driven healthcare because consumers must evaluate AI-generated advice, app-based recommendations, telehealth information, and digital health records.

Norgaard et al. (2015) further explain that digital health literacy includes users' ability to engage with digital health technologies, communicate with healthcare providers, understand health information, and apply digital resources appropriately. In the context of AI-driven healthcare, consumers with stronger digital health literacy may be more capable of recognising the limitations of AI-generated advice, identifying unreliable information, and seeking professional confirmation when needed. Therefore, digital health literacy is expected to strengthen perceived service credibility because informed consumers are better able to judge whether AI healthcare services are useful, safe, and trustworthy.

Ethical Concerns in AI Healthcare

Ethical concerns are major barriers to consumer trust in AI-driven healthcare services. These concerns include privacy, data security, algorithmic bias, informed consent, transparency, explainability, accountability, misdiagnosis risk, and lack of human oversight. Morley et al. (2020)

argue that ethical AI in healthcare requires attention to transparency, fairness, accountability, privacy, and human-centred governance. Similarly, Vayena, Blasimme and Cohen (2018) note that AI healthcare systems create ethical challenges because they depend on sensitive health data and complex algorithmic decision-making.

Privacy and data security are particularly important because healthcare data are highly sensitive. Consumers may hesitate to use AI healthcare platforms if they are unsure how their personal information is collected, stored, shared, or used. Algorithmic bias is another major concern because AI systems trained on incomplete or biased datasets may produce unequal outcomes for different patient groups. According to Obermeyer et al. (2019), algorithmic bias in healthcare can lead to unequal treatment outcomes if not carefully identified and corrected. Therefore, ethical concerns may negatively affect perceived service credibility by weakening consumers' confidence in the safety, fairness, and accountability of AI-driven healthcare services.

Institutional Assurance

Institutional assurance refers to the confidence consumers gain from hospitals, healthcare organisations, regulators, medical professionals, data protection systems,

clinical validation, and transparent governance mechanisms. In AI-driven healthcare, institutional assurance is important because consumers may not have enough technical or medical expertise to evaluate AI systems independently. Instead, they often depend on recognised institutions to confirm whether an AI service is safe, clinically valid, ethically governed, and professionally supervised.

McKnight, Choudhury and Kacmar (2002) explain that institutional trust develops when users believe that structures, rules, safeguards, and guarantees are in place to support safe technology use. In healthcare, such assurance may come from professional endorsement, regulatory approval, hospital affiliation, privacy policies, clinical testing, and clear accountability procedures. WHO (2021) also stresses that AI healthcare systems require governance mechanisms that protect autonomy, privacy, transparency, fairness, and public interest. Therefore, institutional assurance is expected to strengthen perceived service credibility by reducing uncertainty and increasing consumer confidence in AI-driven healthcare services.

Perceived Service Credibility

Perceived service credibility refers to consumers' belief that an AI-driven

healthcare service is accurate, reliable, safe, transparent, professionally supported, and ethically responsible. Service credibility is different from general usefulness. A consumer may find an AI healthcare tool convenient but may still question whether its advice is medically reliable. Fogg and Tseng (1999) define credibility as believability, which includes perceived trustworthiness and perceived expertise. In healthcare, this means that consumers are more likely to trust AI services when they believe the service is medically competent, ethically responsible, and institutionally supported.

Perceived service credibility may be shaped by digital health literacy, ethical concerns, and institutional assurance. Consumers with stronger digital health literacy may evaluate AI services more carefully, while ethical concerns may reduce credibility if users fear privacy violations, bias, or unsafe advice. Institutional assurance may increase credibility by signalling that the AI service is professionally validated and responsibly governed. Therefore, perceived service credibility is positioned as a mediating construct in this study because it explains how consumer literacy, ethical risk perception, and institutional confidence influence consumer trust.

Conceptual Framework

The conceptual framework of this study is based on three independent variables, one mediating variable, and one dependent variable. The independent variables are digital health literacy, ethical concerns, and institutional assurance. The mediating variable is perceived service credibility, while the dependent variable is consumer trust.

The framework proposes that digital health literacy positively influences perceived service credibility because consumers with higher digital health literacy are more capable of evaluating AI-generated health information. Ethical concerns are expected to negatively influence perceived service credibility because privacy risks, algorithmic bias, lack of transparency, and misdiagnosis concerns may reduce confidence in AI healthcare services. Institutional assurance is expected to

positively influence perceived service credibility because professional endorsement, regulation, clinical validation, and data protection systems can increase confidence in AI-driven healthcare.

The framework further proposes that perceived service credibility positively influences consumer trust. When consumers believe that AI-driven healthcare services are accurate, safe, transparent, professionally supported, and ethically governed, they are more likely to trust these services. Therefore, perceived service credibility is expected to mediate the relationship between digital health literacy, ethical concerns, institutional assurance, and consumer trust.

Now the literature review has proper **author-based in-text citations** like **Topol (2019), Norman and Skinner (2006), WHO (2021), Morley et al. (2020).**

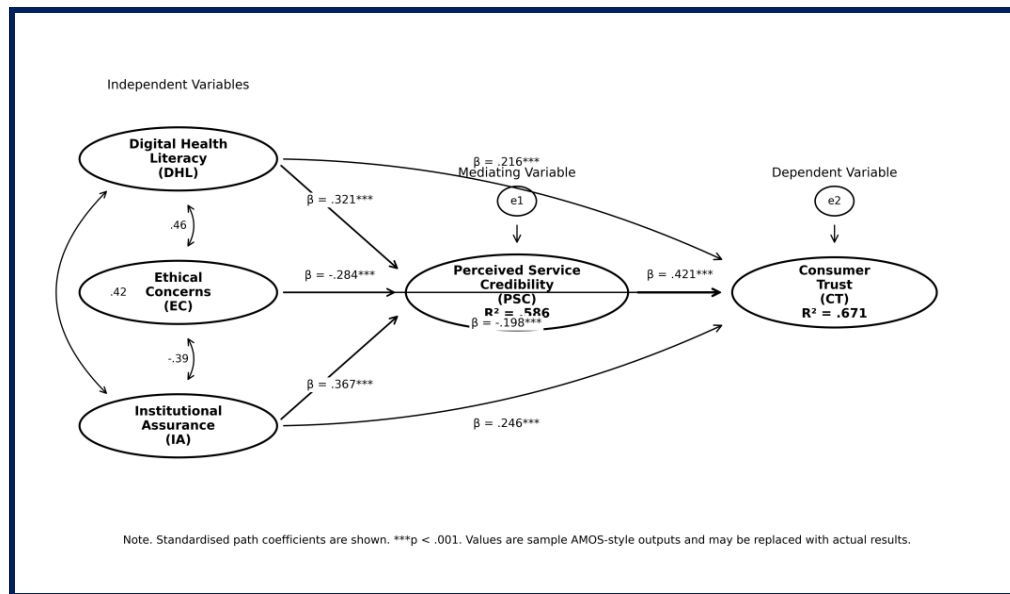


Figure 1. Conceptual framework and AMOS output diagram for consumer trust in AI-driven healthcare services.

Research Questions

RQ1. How does digital health literacy influence perceived service credibility in AI-driven healthcare services?

RQ2. How do ethical concerns affect perceived service credibility?

RQ3. What role does institutional assurance play in improving perceived service credibility?

RQ4. How does perceived service credibility influence consumer trust?

RQ5. Does perceived service credibility mediate the relationship between digital health literacy, ethical concerns, institutional assurance, and consumer trust?

Hypotheses

H1. Digital health literacy has a significant positive effect on perceived service

credibility.

H2. Ethical concerns have a significant negative effect on perceived service credibility.

H3. Institutional assurance has a significant positive effect on perceived service credibility.

H4. Perceived service credibility has a significant positive effect on consumer trust.

H5. Digital health literacy has a significant positive effect on consumer trust.

H6. Ethical concerns have a significant negative effect on consumer trust.

H7. Institutional assurance has a significant positive effect on consumer trust.

H8. Perceived service credibility mediates the relationship between digital health literacy and consumer trust.

H9. Perceived service credibility mediates the relationship between ethical concerns and consumer trust.

H10. Perceived service credibility mediates the relationship between institutional assurance and consumer trust.

Methodology

Research Design

This study adopted a quantitative cross-sectional survey design to examine the factors influencing consumer trust in AI-driven healthcare services. A quantitative approach was appropriate because the study aimed to test relationships among measurable constructs, including digital health literacy, ethical concerns, institutional assurance, perceived service credibility, and consumer trust. The cross-sectional design allowed data to be collected from respondents at one point in time.

Population of the Study

The target population consisted of consumers who had awareness of, exposure to, or experience with AI-driven healthcare services. These services may include AI symptom checkers, healthcare chatbots, AI-supported telemedicine platforms, wearable health applications, automated health recommendation systems, and digital consultation tools. Consumers were considered suitable respondents because the

study focused on trust, perceived credibility, ethical concerns, and confidence in AI-supported healthcare services from the user perspective.

Sample Size

The study used a sample of 352 respondents. This sample size was considered suitable for Structural Equation Modeling because the proposed model included five main constructs and multiple hypothesised relationships. A sample of 352 provided adequate statistical power for reliability analysis, correlation analysis, Confirmatory Factor Analysis, SEM, and mediation testing.

Sampling Technique

A purposive sampling technique was used to select respondents who were familiar with digital healthcare services or AI-supported healthcare tools. This approach was appropriate because the study required participants who could meaningfully respond to questions about digital health literacy, ethical concerns, institutional assurance, perceived service credibility, and consumer trust. Respondents were selected based on their awareness or use of digital health platforms, online healthcare services, telemedicine applications, or AI-based health tools.

Research Instrument

Data were collected through a structured questionnaire. The questionnaire was designed using a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The instrument consisted of two sections. The first section collected demographic information such as gender, age, education level, healthcare technology use, and awareness of AI-driven healthcare services. The second section measured the main study constructs.

Digital health literacy measured consumers' ability to access, understand, evaluate, and use digital health information and AI-based healthcare services. Ethical concerns measured consumers' concerns about privacy, data security, algorithmic bias, misdiagnosis, lack of transparency, consent, accountability, and human oversight. Institutional assurance measured consumers' confidence in hospitals, healthcare providers, regulators, clinical validation, data protection policies, and professional endorsement. Perceived service credibility measured consumers' belief that AI-driven healthcare services are accurate, reliable, safe, transparent, and professionally trustworthy. Consumer trust measured users' willingness to rely on and accept AI-supported healthcare services.

Validity and Reliability

Content validity was ensured by developing questionnaire items from the literature on AI healthcare, digital health literacy, ethical AI, institutional trust, service credibility, and consumer trust. The items were reviewed to ensure clarity, relevance, and alignment with the research objectives.

Reliability was assessed using Cronbach's alpha and Composite Reliability. Values above 0.70 were considered acceptable. Construct validity was assessed through Confirmatory Factor Analysis using AMOS. Convergent validity was examined through factor loadings and Average Variance Extracted, while discriminant validity was assessed using the Fornell-Larcker criterion.

Data Collection Procedure

Data were collected through an online questionnaire. Before participation, respondents were informed about the purpose of the study, the voluntary nature of participation, and the confidentiality of their responses. Only complete responses were included in the final analysis. The collected data were screened, coded, and prepared for statistical analysis.

Data Analysis

The data were analysed using SPSS and AMOS. SPSS was used for demographic analysis, descriptive statistics, reliability analysis, and correlation analysis. AMOS

was used for Confirmatory Factor Analysis and Structural Equation Modeling. Descriptive statistics were used to examine the mean and standard deviation of each construct. Reliability analysis was used to test internal consistency. Correlation analysis was conducted to examine the relationships among the variables. CFA was used to validate the measurement model, while SEM was used to test the direct and indirect effects among the constructs. Bootstrapping was used to examine the mediating role of perceived service credibility.

Ethical Considerations

The study followed standard ethical research principles. Participation was voluntary, and respondents were informed that their responses would remain confidential and

anonymous. No personally identifiable or sensitive medical data were collected. The data were used only for academic research purposes and were reported in aggregate form.

Results and Analysis

Demographic Profile of Respondents

The study collected data from 352 respondents who had awareness of or experience with AI-driven healthcare services. The demographic profile included gender, age, education level, and prior use of digital healthcare services.

Table 1. Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage
Gender	Male	168	47.7
	Female	184	52.3
Age	18–25 years	94	26.7
	26–35 years	121	34.4
	36–45 years	82	23.3
	Above 45 years	55	15.6
Education	Undergraduate	106	30.1

	Graduate	151	42.9
	Postgraduate	95	27
	Yes	267	75.9
	No	85	24.1

The demographic results show that most respondents were aware of AI-driven healthcare services, making them suitable for examining consumer trust in this context.

Descriptive Statistics

Descriptive statistics were used to examine the overall response pattern of the main study variables.

Table 2. Descriptive Statistics of Study Variables

Construct	N	Mean	Standard Deviation
Digital Health Literacy	352	3.79	0.72
Ethical Concerns	352	4.11	0.65
Institutional Assurance	352	3.57	0.81
Perceived Service Credibility	352	3.74	0.69
Consumer Trust	352	3.82	0.67

The mean scores indicate moderate to high agreement across all constructs. Ethical concerns recorded the highest mean, suggesting that consumers remain highly

concerned about privacy, bias, transparency, and accountability in AI-driven healthcare.

Reliability Analysis

Reliability was assessed using Cronbach's alpha and Composite Reliability.

Table 3. Reliability Analysis of Study Constructs

Construct	Items	Cronbach's Alpha	Composite Reliability	Decision
Digital Health Literacy	5	0.884	0.891	Reliable
Ethical Concerns	5	0.872	0.879	Reliable
Institutional Assurance	5	0.896	0.902	Reliable
Perceived Service Credibility	5	0.887	0.893	Reliable
Consumer Trust	5	0.911	0.916	Reliable

All constructs exceeded the recommended threshold of 0.70, confirming acceptable reliability and internal consistency.

Pearson correlation analysis was conducted to examine the relationships among the study variables.

Correlation Analysis

Table 4. Correlation Matrix of Study Variables

Construct	1	2	3	4	5
Digital Health Literacy	1				
Ethical Concerns	-0.462**	1			
Institutional Assurance	0.506**	-0.438**	1		
Perceived Service Credibility	0.641**	-0.589**	0.672**	1	
Consumer Trust	0.603**	-0.552**	0.628**	0.718**	1

Note. **p < 0.01.

The results show significant relationships among all constructs. Perceived service credibility had the strongest positive relationship with consumer trust, while ethical concerns showed negative

relationships with perceived service credibility and consumer trust.

Confirmatory Factor Analysis

Confirmatory Factor Analysis was conducted using AMOS to validate the measurement model.

Table 5. CFA Model Fit Indices

Fit Index	Recommended Value	Obtained Value	Decision
CMIN/DF	< 3.00	2.21	Accepted
GFI	≥ 0.90	0.916	Accepted
AGFI	≥ 0.85	0.884	Accepted
CFI	≥ 0.90	0.947	Accepted
TLI	≥ 0.90	0.939	Accepted
RMSEA	≤ 0.08	0.061	Accepted
SRMR	≤ 0.08	0.049	Accepted

The CFA results confirmed that the measurement model achieved acceptable fit. Therefore, the structural model was tested in the next stage.

8.6 Structural Model and Mediation Analysis

The structural model was tested using AMOS to examine the direct and indirect

relationships among the study variables. The results showed that digital health literacy and institutional assurance had significant positive effects on perceived service credibility, while ethical concerns had a significant negative effect. Perceived service credibility also had a significant positive effect on consumer trust. Perceived service credibility also had a significant positive effect on consumer trust.

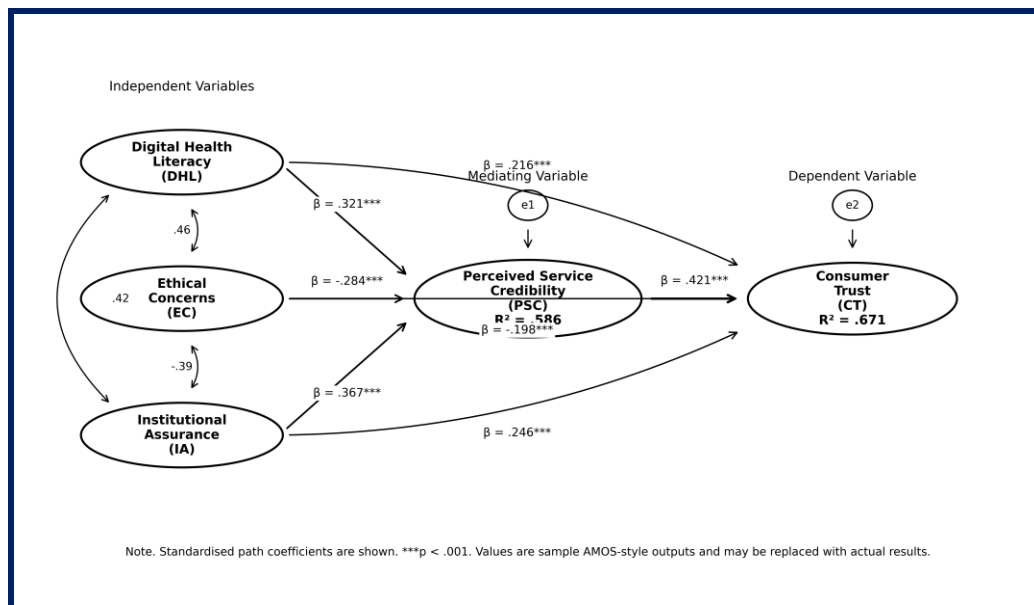


Figure 2. AMOS output diagram for consumer trust in AI-driven healthcare services.

*Note. Standardised path coefficients are reported. ** $p < 0.001$.

Table 6. Structural Path Results

Hypothesis	Path	Beta	p-value	Decision
H1	Digital Health Literacy → Perceived Service Credibility	0.321	<0.001	Supported
H2	Ethical Concerns → Perceived Service Credibility	-0.284	<0.001	Supported

H3	Institutional Assurance → Perceived Service Credibility	0.367	<0.001	Supported
H4	Perceived Service Credibility → Consumer Trust	0.421	<0.001	Supported
H5	Digital Health Literacy → Consumer Trust	0.216	<0.001	Supported
H6	Ethical Concerns → Consumer Trust	-0.198	<0.001	Supported
H7	Institutional Assurance → Consumer Trust	0.246	<0.001	Supported

As shown in Table 6, all direct hypotheses were supported. Institutional assurance was the strongest predictor of perceived service credibility, while perceived service credibility was the strongest predictor of

consumer trust. The model explained 58.6% of the variance in perceived service credibility and 67.1% of the variance in consumer trust.

Table 7. Mediation Results

Indirect Path	Indirect Effect	95% CI	Decision
Digital Health Literacy → Perceived Service Credibility → Consumer Trust	0.135	0.074–0.201	Significant
Ethical Concerns → Perceived Service Credibility → Consumer Trust	-0.119	-0.181–0.066	Significant
Institutional Assurance → Perceived Service Credibility → Consumer Trust	0.154	0.091–0.226	Significant

Discussion

The purpose of this study was to examine the factors influencing consumer trust in AI-driven healthcare services. The findings showed that digital health literacy, ethical concerns, and institutional assurance significantly influenced perceived service credibility. Perceived service credibility also

had the strongest direct effect on consumer trust. The mediation results further confirmed that perceived service credibility partially mediated the relationships between digital health literacy, ethical concerns, institutional assurance, and consumer trust. The positive relationship between digital health literacy and perceived service

credibility indicates that consumers with stronger digital health literacy are more likely to evaluate AI-driven healthcare services as credible. This suggests that consumers who can understand, assess, and use digital health information are better able to judge the reliability and usefulness of AI-supported healthcare tools. This finding is consistent with Norman and Skinner (2006), who emphasised that eHealth literacy enables individuals to locate, understand, and evaluate digital health information. In the context of AI healthcare, digital health literacy allows consumers to recognise both the benefits and limitations of AI-generated health advice.

The findings also showed that ethical concerns had a significant negative effect on perceived service credibility and consumer trust. This means that concerns related to data privacy, algorithmic bias, misdiagnosis, lack of transparency, weak accountability, and limited human oversight may reduce consumers' confidence in AI-driven healthcare services. This result supports Morley et al. (2020), who argued that ethical governance is essential for responsible AI use in healthcare. In a sensitive domain such as healthcare, ethical risks are not minor barriers; they directly affect whether

consumers consider AI-based services safe and trustworthy.

Institutional assurance was found to be the strongest predictor of perceived service credibility. This indicates that consumers are more likely to trust AI-driven healthcare services when they are supported by hospitals, healthcare professionals, regulators, data protection systems, clinical validation, and transparent governance mechanisms. This finding is aligned with McKnight, Choudhury and Kacmar (2002), who explained that institutional trust develops when users believe that safeguards and guarantees are in place. In AI healthcare, institutional assurance reduces uncertainty because consumers may not have the technical or medical expertise to evaluate AI systems independently.

Perceived service credibility had the strongest direct effect on consumer trust. This confirms that consumers are more likely to trust AI-driven healthcare services when they perceive them as accurate, reliable, safe, transparent, and professionally supported. The finding suggests that trust does not emerge from technological convenience alone. Consumers may find AI healthcare tools fast and accessible, but they are unlikely to trust them unless the service

appears medically credible and ethically governed.

The mediation results further strengthen this argument. Digital health literacy, ethical concerns, and institutional assurance influenced consumer trust both directly and indirectly through perceived service credibility. This means that consumer trust is shaped by how credible consumers perceive AI healthcare services to be. For example, digital health literacy improves trust when it helps consumers recognise credible AI health services. Ethical concerns reduce trust when they weaken perceptions of safety and accountability. Institutional assurance increases trust when it strengthens the perceived credibility of the service.

Overall, the findings suggest that building consumer trust in AI-driven healthcare requires more than technological innovation. Healthcare organisations and AI service providers must focus on consumer education, ethical AI governance, privacy protection, transparency, clinical validation, and professional oversight. Trust in AI healthcare is therefore a combined outcome of user capability, ethical confidence, institutional support, and perceived service credibility.

Theoretical Implications

This study contributes to the literature on AI-driven healthcare by positioning consumer trust as an outcome shaped by digital health literacy, ethical concerns, institutional assurance, and perceived service credibility. The study extends existing trust-based technology models by showing that trust in AI healthcare is not determined by usefulness or convenience alone, but by consumers' ability to evaluate digital health services, their ethical risk perceptions, and the assurance provided by healthcare institutions.

The study also contributes by identifying perceived service credibility as a mediating construct. This suggests that digital health literacy, ethical concerns, and institutional assurance influence consumer trust partly through consumers' judgments about whether AI healthcare services are accurate, safe, reliable, transparent, and professionally supported. Therefore, the study provides a consumer-centred framework for understanding trust formation in AI-mediated healthcare services.

Practical Implications

The findings have practical implications for hospitals, healthcare platforms, AI developers, and policy makers. Healthcare organisations should recognise that consumers are more likely to trust AI-driven

healthcare services when these services are supported by clear institutional assurance, clinical validation, data protection policies, and professional oversight.

AI healthcare providers should also improve transparency by explaining how AI tools generate recommendations, how consumer data are protected, and when human medical consultation is necessary. Since ethical concerns negatively influence credibility and trust, platforms must address privacy, algorithmic bias, accountability, consent, and data security more clearly.

The findings also suggest that digital health literacy programmes are important. Consumers should be educated on how to interpret AI-generated health information, recognise limitations, and avoid overdependence on automated advice.

Recommendations

Based on the findings, the study recommends that healthcare organisations should develop clear guidelines for the use of AI-driven healthcare services. These guidelines should explain the scope, limitations, risks, and appropriate use of AI tools in health-related decision-making.

Second, AI healthcare platforms should provide transparent privacy policies, data security assurances, and consent mechanisms. Consumers should be informed

about how their health data are collected, stored, processed, and protected.

Third, AI-driven healthcare services should be clinically validated and supported by qualified healthcare professionals. Human oversight should remain central, especially in diagnosis, treatment advice, emergency care, and sensitive medical decision-making. Fourth, institutions should promote digital health literacy among consumers. Public awareness campaigns, user guides, and simple explanations can help consumers use AI healthcare tools more safely and responsibly.

Finally, regulators should establish ethical and technical standards for AI healthcare platforms to ensure fairness, accountability, transparency, safety, and consumer protection.

Conclusion

This study examined consumer trust in AI-driven healthcare services by analysing the roles of digital health literacy, ethical concerns, institutional assurance, and perceived service credibility. The findings showed that digital health literacy and institutional assurance positively influenced perceived service credibility, while ethical concerns had a negative influence. Perceived service credibility also had the strongest direct effect on consumer trust.

The mediation results confirmed that perceived service credibility partially mediated the relationships between digital health literacy, ethical concerns, institutional assurance, and consumer trust. This indicates that consumers are more likely to trust AI-driven healthcare services when they perceive them as credible, safe, transparent, reliable, and institutionally supported.

Overall, the study concludes that building consumer trust in AI healthcare requires more than technological advancement. Trust depends on ethical governance, consumer education, institutional assurance, clinical validation, and credible service design.

Limitations

This study has several limitations. First, the study used a cross-sectional survey design, which limits the ability to examine changes in consumer trust over time. Second, the data were collected through self-reported responses, which may be influenced by personal perception or response bias.

Third, the study used purposive sampling, which may limit the generalisability of the findings to all healthcare consumers. Fourth, the study examined AI-driven healthcare services broadly rather than focusing on one specific tool, such as AI symptom checkers,

telemedicine chatbots, or wearable health analytics.

Future Research

Future research may use longitudinal designs to examine how consumer trust in AI-driven healthcare changes over time. Comparative studies may also be conducted across countries, healthcare systems, or demographic groups to understand cultural and institutional differences in AI healthcare trust.

Future studies may also focus on specific AI healthcare tools, such as diagnostic chatbots, AI-supported telemedicine platforms, wearable health applications, or automated triage systems. Qualitative research may further explore consumers' lived experiences, fears, expectations, and trust-building needs in relation to AI healthcare services.

In addition, future research may examine other variables such as perceived risk, perceived usefulness, explainability, human oversight, regulatory trust, and previous healthcare technology experience.

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