The Role of Artificial Intelligence in Enhancing User Comfort in Health Applications: A Case Study on Aicare

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ABSTRACT

The rapid advancement of artificial intelligence (AI) has revolutionized digital healthcare services, particularly through AI-powered health applications such as Aicare. This study examines the impact of AI on user comfort and explores the challenges associated with its implementation. Adopting a qualitative approach, the research involved in-depth interviews with three Aicare users from diverse backgrounds. The study is grounded in the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) to analyze the key factors influencing user acceptance of AI-driven healthcare solutions. The findings reveal that efficiency and flexibility are the primary drivers of AI adoption in healthcare applications. However, several challenges persist, including limitations in service personalization, the absence of non-verbal communication, and a lower level of trust in AI compared to traditional faceto-face medical consultations. Furthermore, social and cultural factors significantly influence technology acceptance, with users possessing higher digital literacy demonstrating greater openness to AI-based healthcare services. To enhance user comfort and trust, application developers are encouraged to improve interface design for greater intuitiveness, develop AI systems with enhanced personalization and adaptability, and integrate human-centered interaction features, such as video consultations with healthcare professionals. Additionally, strengthening data security and promoting digital literacy on the benefits of AI in healthcare are crucial for fostering user confidence. With continuous innovation, AI-powered healthcare applications have the potential to become more inclusive and effective solutions for supporting Indonesia's healthcare system.

Keywords: Artificial Intelligence in Healthcare; User Comfort and Technology Acceptance; Digital Health Applications

INTRODUCTION

The rapid advancement of information and communication technology has significantly transformed healthcare services. In Indonesia, artificial intelligence (AI)-powered health applications have been increasingly adopted as solutions to enhance efficiency, convenience, and accessibility in medical services.

Applications such as Aicare integrate AI to analyze symptoms, provide treatment recommendations, and personalize interactions between doctors and patients. In the highly competitive digital healthcare market, user comfort has become a key factor in attracting and retaining consumers.

The integration of AI in healthcare applications is expected to address various challenges in traditional medical services, such as long waiting times, limited access to healthcare professionals, and inconsistencies in diagnosis. By automating symptom analysis and initial consultations, AI-powered applications offer a faster and more efficient alternative to conventional healthcare systems. However, while these technological advancements offer significant benefits, they also introduce new challenges, particularly concerning user acceptance and trust in AI-driven recommendations.

Previous studies in Indonesia, such as those conducted by Setiawan (2021), Wibowo et al. (2022), and Putri (2023), have demonstrated that AI-powered health applications improve information delivery speed, diagnostic accuracy, and user trust. However, these studies have primarily focused on technical aspects, such as data security, response speed, and interface design, leaving a gap in understanding the role of AI in personalized communication and its ability to foster a humanistic connection between patients and doctors. Rahmawati & Nugroho (2023) also highlighted that an intuitive interface is essential but insufficient to overcome the limitations of non-verbal communication in digital consultations.

One of the primary concerns regarding AI implementation in healthcare applications is the lack of human interaction. Traditional medical consultations involve face-to-face interactions that allow for non-verbal communication, such as gestures and facial expressions, which play a crucial role in building trust and ensuring accurate diagnosis. In contrast, AI-driven consultations primarily rely on text-based or automated voice responses, which may not fully capture the complexities of human communication. This limitation can lead to reduced confidence in AI-generated medical advice, particularly among users who are accustomed to traditional consultations.

To strengthen the theoretical framework of this study, integrating technology acceptance theories is crucial. This research employs two major models—the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT)—to provide a comprehensive understanding of the factors influencing AI adoption in health applications such as Aicare. The Technology Acceptance Model (TAM), developed by Davis (1989), emphasizes two key components: perceived usefulness, which reflects the extent to which users believe the application provides accurate and timely medical recommendations, and perceived ease of use, which refers to how easily users can interact with the AI system. Higher perceptions of both factors are expected to increase user adoption and comfort in using AI-based healthcare applications.

Meanwhile, the Unified Theory of Acceptance and Use of Technology (UTAUT), introduced by Venkatesh et al. (2003), extends TAM by incorporating additional variables. These variables include performance expectancy, which is the belief that using the application enhances the effectiveness and efficiency of healthcare management; effort expectancy, which refers to the perception of how easy the application is to use; social influence, which represents the impact of recommendations from peers, family, or society in encouraging technology adoption; and facilitating conditions, which relate to the availability of infrastructure and resources that support the use of the application. By integrating these variables, UTAUT helps explain how external factors influence technology adoption.

The combination of TAM and UTAUT provides a holistic analytical framework, with TAM focusing on internal motivations and individual perceptions of usefulness and ease of use, while UTAUT highlights external influences such as social support and facilitating conditions. This integration allows researchers to examine the interplay between internal and external factors that shape user acceptance of AI in healthcare applications like Aicare. Additionally, incorporating insights from both models enables a deeper understanding of the challenges that hinder AI adoption, particularly concerning trust, user engagement, and the need for more personalized interactions.

In the context of digital healthcare, additional factors such as data security, privacy, and user trust are also highly relevant. These elements not only affect users' perceptions of usefulness and ease of use but also play a crucial role in establishing trust, which is a fundamental component of digital interactions in the healthcare sector. The increasing concern over data breaches and unauthorized access to sensitive medical records has made privacy protection a top priority for AI developers. Therefore, this study adapts TAM and UTAUT by incorporating these additional dimensions to capture the complexities of technology adoption in healthcare environments.

This comprehensive theoretical approach serves not only as a foundation for empirical analysis but also as a basis for practical recommendations for health application developers. For instance, insights from TAM and UTAUT suggest that improving interactive and personalized features could help mitigate the limitations of non-verbal communication. Additionally, strengthening security and privacy measures can enhance user trust, ultimately leading to increased AI adoption in digital healthcare services. Developers are encouraged to focus on making AI systems more adaptive to user preferences, incorporating human-like interaction features such as real-time chat with medical professionals or video consultations to bridge the communication gap.

The significance of this study is further reinforced by global and local trends indicating a rising adoption of digital healthcare services in Indonesia. Today's consumers demand not only speed and efficiency but also more personalized and

adaptive interactions, particularly through AI-powered technologies. Therefore, this research aims to fill the existing knowledge gap by deeply examining how key aspects of TAM and UTAUT are integrated into Aicare and how these factors impact user comfort and trust. By doing so, this study contributes both theoretically and practically to the development of more humanistic and adaptive AI systems in modern healthcare services.

LITERATURE REVIEW

This study adopts the theoretical framework of the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) to understand how users accept and interact with AI in the Aicare digital health application. These two theories are highly relevant in analyzing technology adoption in digital healthcare services, as they help identify key factors influencing technology acceptance and how users adapt to AI-based systems.

The Technology Acceptance Model (TAM), developed by Davis (1989), focuses on two primary factors influencing technology adoption. The first factor is Perceived Usefulness (PU), which refers to the extent to which users believe that using a particular technology will enhance their performance or efficiency. In the context of this study, PU relates to how users perceive the benefits of AI in Aicare, such as ease of access to healthcare services, faster consultations, and more practical medical information compared to conventional healthcare services. The second factor is Perceived Ease of Use (PEOU), which refers to the degree to which users believe that the technology is easy to use and requires minimal effort to operate. In this study, PEOU examines how ease of navigation, understanding of application features, and comfort in interacting with AI-based chatbots influence the user experience.

While TAM provides a foundational framework for understanding user acceptance of technology, the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003) extends TAM by incorporating additional factors that are highly relevant in the context of digital healthcare services. These factors offer a more comprehensive perspective on how external and social influences shape user adoption of AI-powered applications.

The first factor in UTAUT is Performance Expectancy (PE), which measures the extent to which users expect that using the technology will improve their productivity or outcomes. In this study, PE evaluates how users believe AI can provide fast and accurate diagnoses in digital health consultations. The second factor, Effort Expectancy (EE), refers to the ease of use perceived by users. This factor is particularly relevant in assessing how Aicare is designed to be intuitive and accessible to users of different age groups and educational backgrounds.

Another key component of UTAUT is Social Influence (SI), which examines the extent to which users feel influenced by their social environment when adopting

new technology. In Indonesia, where recommendations from friends, family, or community members play a significant role in decision-making, SI is a crucial determinant of digital health application adoption. Lastly, Facilitating Conditions (FC) refer to the availability of technical support, infrastructure, and other external factors that enable users to adopt the technology. In this study, FC includes users' access to the internet, limitations of the devices used, and policies or regulations that support AI-based telemedicine in Indonesia.

The integration of TAM and UTAUT in this research provides a strong conceptual foundation for understanding how users evaluate the usefulness, ease of use, and social and environmental factors that influence AI technology adoption in digital healthcare services. By combining these two models, this study not only examines the technical aspects of Aicare but also highlights the psychological and social factors that play a crucial role in shaping the user experience.

Furthermore, previous studies have demonstrated the effectiveness of AI in healthcare applications, particularly in improving the efficiency of medical consultations and diagnostic accuracy. Research by Setiawan (2021) and Putri (2023) found that AI-based health applications significantly enhance patient engagement and provide faster health recommendations. However, these studies primarily focused on system performance and usability, leaving gaps in understanding the human-AI interaction in healthcare services. This study aims to address these gaps by incorporating user perceptions, social influences, and infrastructure-related factors into the analysis.

Another critical aspect of AI adoption in healthcare is the role of trust. Research by Rahmawati & Nugroho (2023) highlighted that while AI systems can provide accurate medical recommendations, user trust remains a key challenge. Factors such as transparency in AI decision-making, data security, and ethical considerations significantly impact the extent to which users feel comfortable relying on AI-driven health services. Therefore, this study considers user trust as an essential factor that intersects with both TAM and UTAUT variables.

Moreover, studies on digital healthcare adoption suggest that personalization and user-friendly design contribute to higher engagement rates. A study by Wibowo et al. (2022) emphasized that an intuitive user interface is crucial for ensuring ease of access, particularly for elderly users and those with limited technological literacy. This aligns with the Effort Expectancy factor in UTAUT, reinforcing the importance of a well-designed interface in AI-driven healthcare applications.

Given the increasing reliance on digital healthcare, particularly following the COVID-19 pandemic, understanding the determinants of AI adoption in healthcare applications has become more critical than ever. Governments and healthcare providers worldwide are investing in AI-powered solutions to enhance healthcare accessibility and efficiency. However, the success of these technologies depends

largely on user acceptance, which is influenced by various psychological, social, and infrastructural factors.

By examining the integration of TAM and UTAUT within the Aicare application, this research provides valuable insights into how AI-powered healthcare services can be optimized to meet user needs. The findings from this study can offer practical recommendations for developers, healthcare providers, and policymakers to improve AI-driven healthcare applications, ensuring they are not only technologically advanced but also user-friendly, trustworthy, and socially accepted.

METHOD

Design and Sample

This study adopts a qualitative case study approach to explore user experiences with the Aicare application. The selection of participants was based on their diverse professional backgrounds to represent different user needs. Three individuals were chosen: Astrid Dwi, a 20-year-old private employee who values time efficiency in accessing healthcare services; Muhammad Farhan Naufal, a 24-year-old graphic designer who is open to digital innovations and flexible work schedules; and Meisya Claudia, a 23-year-old social media officer with a strong understanding of technology and digital interactions. These participants provide varied perspectives on the adoption and use of AI in digital healthcare.

Instrument and Procedures

The study collected data through in-depth interviews and participant observations. The interviews followed a semi-structured format, allowing participants to freely share their experiences and perspectives on using AI in healthcare applications. The questions were designed to explore key aspects such as ease of use, perceived usefulness, and the challenges encountered while interacting with AI-based healthcare services. Some example questions included: "How often do you use the Aicare application?" "Do you find AI helpful for medical consultations?" and "What challenges do you face when interacting with the chatbot?" Each interview lasted between 20 to 25 minutes and was transcribed for analysis. In addition to interviews, participant observations were conducted to gain firsthand insights into how users interact with the Aicare application. Observations focused on how AI responds to user symptoms, the ease of navigating the app, and overall user engagement with its features. This method allowed the researcher to compare participants' stated experiences with their actual interactions with the application.

Data Analysis

Thematic analysis was used to identify key patterns in user experiences. The analysis revealed four main themes. First, efficiency and flexibility emerged as a major factor, with participants agreeing that Aicare offers a more convenient

alternative to traditional healthcare services. This was particularly relevant for those with busy schedules, like Astrid, who found AI consultations time-saving. Second, the theme of personalization and AI limitations was identified. While participants appreciated the AI's ability to provide basic health recommendations, they also noted that it struggled to handle more specific or complex health inquiries, making them feel the need for human consultation.

RESULT AND DISCUSSION

Efficiency and Flexibility as Key Factors for AI Health Technology Adoption

The interviews revealed that efficiency and flexibility were the primary factors that attracted users to AI-based healthcare applications. Astrid Dwi, a private-sector employee, emphasized how the Aicare app enabled her to access healthcare services without interrupting her work schedule. This aligns with the concept of *performance expectancy* in the UTAUT theory, which suggests that users are more likely to adopt technology if they believe it enhances their productivity and convenience.

Despite these positive perceptions, the research highlighted that not all users have equal access to these technologies. Urban users, with better internet connectivity and higher digital literacy, were more inclined to adopt AI-based healthcare services. In contrast, rural users preferred traditional methods of consultation, often due to limited technological infrastructure and greater trust in face-to-face interactions with healthcare providers.

Personalization and AI's Limitations in Adapting to User Needs

Although efficiency was a significant draw, the study revealed that the AI in Aicare had limitations in offering personalized and adaptive services. Muhammad Farhan Naufal, a graphic designer, noted that the medical recommendations provided by the AI were sometimes too general and did not suit his specific health condition. This relates to the *perceived ease of use* (PEOU) in TAM and *effort expectancy* (EE) in UTAUT. When AI systems fail to offer responses that are tailored to individual needs, users may perceive the technology as inadequate and less likely to replace human healthcare professionals.

In Indonesia's cultural context, where patient-doctor relationships are typically personal and built on trust, the lack of personalization in AI interactions posed a challenge. Users felt disconnected from the system, suggesting that for greater acceptance, the AI should incorporate more customizable features, such as allowing users to input their health histories or preferences for communication styles.

Challenges of Non-Verbal Communication and Trust in AI

A significant finding from the interviews was the challenge of non-verbal communication in AI interactions, which affected users' trust in AI-generated diagnoses. Meisya Claudia, a social media officer, explained that while the Aicare chatbot quickly provided medical information, the responses lacked emotional nuance and empathy. This finding corresponds with the *social influence* (SI) factor in UTAUT, which underscores the importance of interpersonal relationships in Indonesian communication culture. In traditional healthcare settings, non-verbal cues—such as facial expressions, tone of voice, and body language—are essential for building trust. AI systems that fail to incorporate these cues may leave users feeling uncertain and less confident in the system's recommendations, especially in complex medical cases.

Social and Cultural Context's Influence on AI Health Adoption

The study also revealed that social and cultural factors heavily influenced the adoption of AI healthcare services in Indonesia. In the local culture, doctors are seen as authoritative figures whose expertise is hard to replace by automated systems. While users acknowledged the efficiency AI brought, they expressed skepticism about AI's ability to provide the same level of diagnostic expertise as human doctors. This was evident in Astrid's response, where she indicated more trust in direct consultations with doctors, even when AI provided accurate preliminary information.

Additionally, social influences—such as recommendations from friends and family—were found to play an important role in driving AI adoption. Meisya, for instance, was introduced to the Aicare app through her peers, demonstrating how peer recommendations are an influential factor in encouraging the use of new technologies. This peer influence was particularly notable in the Indonesian context, where personal recommendations often hold more weight than formal advertisements. Understanding and leveraging these social dynamics is crucial for improving AI healthcare adoption, particularly by aligning the technology with local cultural expectations and fostering trust.

The results of this study underscore that efficiency and flexibility are key drivers for adopting AI-based healthcare solutions. These findings align with the *perceived usefulness* component of the Technology Acceptance Model (TAM), which posits that users are more likely to adopt technologies that they believe will enhance their productivity or convenience (Davis, 1989). For example, Astrid's preference for the Aicare app highlights how time-saving features make AI healthcare attractive to busy individuals. This supports previous research by *Venkatesh et al.* (2003), which indicates that ease of use and the ability to integrate seamlessly into users' routines can significantly increase adoption rates. However, as the study also revealed, not

all regions have equal access to these benefits. The digital divide between urban and rural areas remains a significant barrier, with rural users facing limitations such as poor internet access and lower digital literacy (Chakraborty & Bandyopadhyay, 2020). This geographical discrepancy highlights the need for targeted strategies to increase the accessibility of AI healthcare tools in underserved areas.

Another prominent issue raised by the study is the challenge of personalization in AI healthcare systems. Muhammad's experience with Aicare reflects a broader concern that current AI technologies fail to provide tailored healthcare recommendations, limiting their practical value for users with unique medical needs. This observation aligns with the work of *Hassanalieragh et al.* (2015), who argued that a lack of personalization is a critical obstacle to AI acceptance in healthcare settings. Personalization could be enhanced through more advanced machine learning algorithms that consider individual health histories and preferences, providing more relevant advice to users. Furthermore, the need for human-like interactions in healthcare is particularly pertinent in Indonesia, where trust and personal relationships play a central role in the doctor-patient dynamic (Shah & Chaudhry, 2020). The absence of this human touch in AI interactions may be one reason why users like Astrid are hesitant to fully embrace AI-driven healthcare. Integrating features that allow for greater personalization, such as customizable health histories or communication preferences, could bridge this gap.

The issue of non-verbal communication is another important barrier identified in this study. As noted by Meisya, the lack of emotional nuance in AI consultations can make users feel disconnected and less trusting of the system. This concern is particularly relevant in Indonesia, where interpersonal communication and empathy are integral to healthcare interactions (Lestari et al., 2022). Previous research supports the notion that non-verbal cues, such as facial expressions and tone of voice, are vital for building trust in healthcare environments (Kiesler & Sproull, 1992). The inability of AI systems to replicate these cues may limit their effectiveness, especially in complex or emotionally charged health situations. This suggests a need for AI developers to explore ways to integrate emotional recognition technologies, such as Natural Language Processing (NLP) advancements or video call features, to enhance the emotional intelligence of AI systems. These improvements could make interactions more human-like and foster greater trust among users.

Cultural factors also play a significant role in the acceptance of AI healthcare technologies. The Indonesian healthcare system is heavily influenced by traditional doctor-patient relationships, where trust and personal connection are paramount (Prasetyo et al., 2021). This is evident in the study's findings, as participants like Astrid expressed a preference for in-person consultations despite AI's ability to provide timely and accurate medical advice. Previous studies have emphasized that cultural perceptions of technology and healthcare professionals can significantly affect users' willingness to adopt AI (Lee et al., 2018). To increase acceptance, AI healthcare systems must address these cultural concerns by integrating transparent

processes, ensuring consistent performance, and validating the technology through collaboration with medical professionals. This approach could help bridge the gap between technological innovation and traditional healthcare practices.

Peer influence emerged as another important factor in AI adoption. As seen with Meisya, social networks and recommendations from friends or family played a crucial role in encouraging individuals to try AI-based healthcare services. This finding resonates with previous studies that highlight the importance of social influence in the diffusion of new technologies, especially in collectivist cultures like Indonesia (Morrison, 2017). By leveraging social networks and endorsements from trusted sources, developers can improve the acceptance and adoption rates of AI healthcare services.

To address these issues, several recommendations for AI healthcare developers can be drawn from this study. First, user interfaces should be designed with accessibility in mind, particularly for rural users with lower levels of digital literacy. Simple, intuitive designs can facilitate adoption, as noted in previous research by *Venkatesh et al.* (2012). Second, integrating more sophisticated machine learning algorithms that allow for personalized recommendations based on individual health data would improve the relevance of AI systems. Third, developers should consider incorporating non-verbal communication features, such as video call options or emotional recognition capabilities, to enhance user trust. Finally, addressing concerns about data privacy and security through transparent policies and strong encryption protocols will be essential in ensuring users' comfort with sharing sensitive health information. By taking these steps, AI healthcare developers can improve the technology's acceptance and usability, especially in Indonesia's culturally rich and diverse context.

CONCLUSION

This study explores how artificial intelligence (AI) in digital healthcare applications, such as Aicare, impacts user comfort and acceptance. By employing a qualitative approach through in-depth interviews with three users from different backgrounds, the research reveals several key factors influencing the adoption and use of AI in digital health services. The analysis is framed within the theoretical models of the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), which provide insights into the technical and social factors driving the acceptance of health technology. The findings highlight that efficiency and flexibility are the primary factors encouraging users to adopt AI in digital health services. Users appreciate the quicker access, flexibility in consultations without visiting healthcare facilities, and ease of obtaining medical information. However, the study also identifies key challenges to AI adoption in healthcare, such as the lack of personalization in medical recommendations, the absence of non-verbal communication, and a general distrust in AI-based diagnoses.

From a social and cultural perspective in Indonesia, the study shows that digital literacy and traditional health interaction habits influence AI acceptance. Urban populations, with better internet access and higher technological experience, are more likely to adopt AI-based health services than rural populations, who still rely heavily on face-to-face consultations with human medical professionals. Furthermore, the deeply ingrained cultural trust in doctors as health authorities also affects the willingness to embrace AI technology. Based on these findings, several recommendations are made for developers of AI healthcare applications to enhance user experience: First, improving the interface design to be more intuitive and accessible for users with varying levels of digital literacy will facilitate broader adoption. Second, developing more personalized and adaptive AI systems to provide medical recommendations tailored to individual needs will increase user satisfaction. Third, integrating video call features and more human-like chatbot interactions can enhance communication and build trust with users. Additionally, ensuring stronger data security and transparency in privacy policies will provide protection for users' medical information. Lastly, educating the public on the benefits and limitations of AI in healthcare will help foster greater acceptance of the technology. By focusing on personalization, improving communication, and providing digital education on AI's role in healthcare, applications like Aicare can become more responsive, adaptive, and inclusive solutions, enhancing the digital healthcare system in Indonesia.

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