Understanding Artificial Intelligence as an Innovation in Digital Healthcare

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Abstract

Artificial Intelligence (AI) is a technology that is currently spreading worldwide. The main purpose of AI is to simplify and assist human affairs or work quickly, such as analyzing data, making decisions, triggering innovation, and many other applications in our daily lives. One field that currently significantly utilizes the development of AI is health education. Health education itself is an effort to increase public knowledge or awareness and behavior regarding health. Through health education, the public is encouraged to understand the importance of health in their own lives. The purpose of this paper is to review the extent of the role of artificial intelligence (AI) in supporting health education programs, particularly in the technology of disseminating information that is fast, accurate, and easily accessible to the public. The method used in this research is a quantitative descriptive approach through a questionnaire distributed online using Google Forms. The questionnaire contained 10 questions designed to explore respondents' opinions on the role of AI in improving healthcare services. The application of AI also faces challenges in the form of ethical aspects, data security, regulatory limitations, and the readiness of medical personnel to adopt this technology. Thus, AI has great potential in strengthening health education and improving the quality of life of the community.

Keywords: Artificial Intelligence, Health Education, Health Information Technology, Health Communication, Health Literacy

Introduction

Artificial intelligence (AI) is a technology that is currently developing around the world. Its purpose is to make it easier for humans to perform various tasks and activities so that they can analyze

data, make decisions, and perform many other daily activities more efficiently and accurately. One field that makes extensive use of AI technology is health education.

Health education is an effort to increase public knowledge and awareness about healthy behaviors. Through health education, the public is asked to understand the importance of taking care of themselves and even their environment [1]. The function of AI in this field is to facilitate the rapid and accurate dissemination of health information [2][3]. However, in its application, this technology still faces many challenges, such as data security and many more. The main question of this research is: to what extent does this technology support public health education programs, particularly in terms of effective and accurate information dissemination?

The purpose of this study is to review and analyze the role of artificial intelligence in strengthening health education and increasing public awareness of healthy living. This study was conducted using a questionnaire method that allowed the public to share their opinions about this technological innovation in the field of health education.

The analysis was conducted by identifying key themes and comparing findings from various sources, as well as evaluating the advantages, challenges, and prospects of AI in the future of health education. This qualitative approach allows for a comprehensive understanding of how this technology contributes to the effectiveness of health information dissemination.

Material and Methods

In this study, we used a questionnaire to collect data on public perceptions of Artificial Intelligence (AI) as a digital health innovation. The questionnaire consisted of 10 questions, including 9 closed-ended questions and 1 open-ended question. The closed-ended questions used a two-point scale: “Agree” and “Disagree”. The open-ended question allowed respondents to express their personal opinions on how Artificial Intelligence (AI) could be used to improve healthcare services. The questions were created using Google Forms for easy access and online participation.

Data was collected by sharing the questionnaire link with selected respondents. Respondents were informed that their responses would remain confidential and would be used solely for research purposes. After data collection, all responses were compiled and reviewed to identify trends and general opinions regarding AI in digital health.

Results and Discussion

The respondents in Figure 1 below stated that they believe artificial intelligence (AI) can improve the quality of digital health services. The data from these respondents is consistent with findings in scientific literature that the public's view of AI in the health sector is generally positive.

The application of artificial intelligence in medical diagnosis can improve efficiency and accuracy, but still faces challenges related to ethics and system reliability [1][4]. The questionnaire aimed to understand public perceptions of Artificial Intelligence (AI) as an innovation in digital healthcare

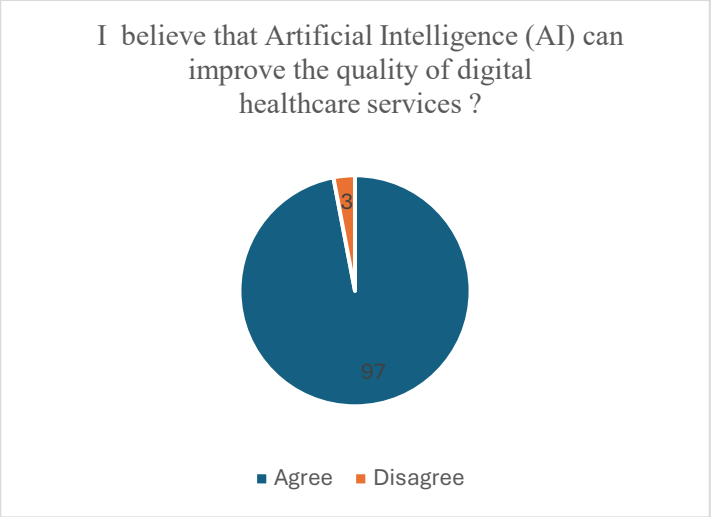

Figure 1. AI, and Quality of Digital Healthcare Services

Based on the structure of the survey, which includes statements with "Agree" and "Disagree" responses and one open-ended question, it is clear that the instrument was designed to collect both quantitative and qualitative insights. The simple format allows respondents to provide quick answers while still giving space for personal opinions about how AI can improve healthcare services in the future [5][6].

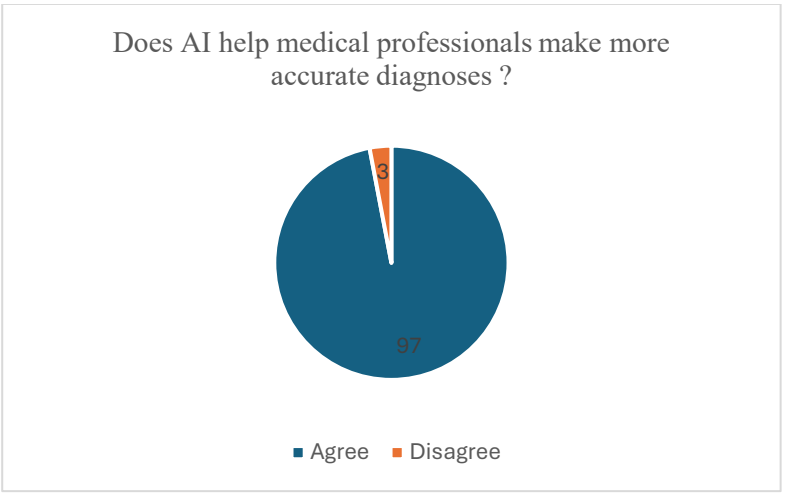

Figure 2. AI, Medical Professionals and Accurate Diagnosis

The percentage of 97% showed a broad view among professionals and even the general public that artificial intelligence is a transformative asset that greatly improves the accuracy of medical diagnoses. This is supported by journal findings showing that AI, with its ability to analyze large amounts of data and medical images quickly and deeply, can reduce errors made by medical personnel in diagnosing diseases.

From the questionnaire design, it can be seen that most questions focus on the potential benefits of artificial intelligence (AI), such as improving diagnostic accuracy, efficiency in patient care, and supporting medical decision-making. This helps identify the level of acceptance and trust of respondents towards AI in the health sector. The use of artificial intelligence (AI) in medical diagnosis offers great

opportunities to improve the accuracy and efficiency of healthcare services, although it still comes with a number of ethical and technical risks [1].

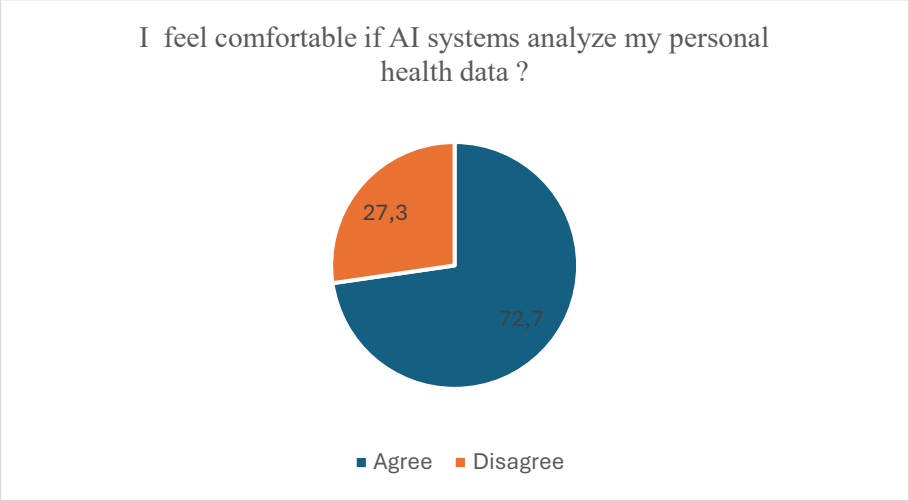

Figure 3. AI Analyze Personal Data

The data graph shows that most people are ready to accept AI because it has many uses and its effectiveness has been proven. To maximize the potential of AI in healthcare, the focus should not only be on technical capabilities but also on building trust.

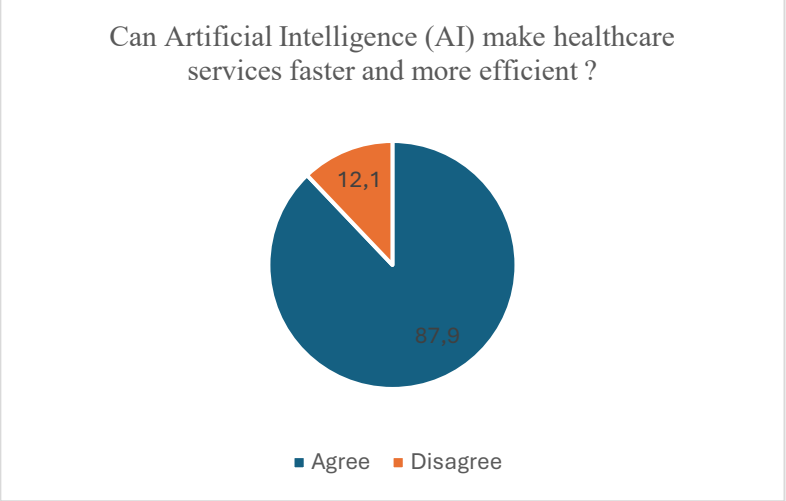

Figure 4. AI, Healthcare Services Faster and More Efficient

The graph shows that artificial intelligence (AI) has been widely accepted based on its performance, which is considered to be a highly accurate technology. This strong acceptance places AI as a strategic priority for the future of healthcare services, where AI will serve as an important digital partner for medical personnel, rather than a replacement.

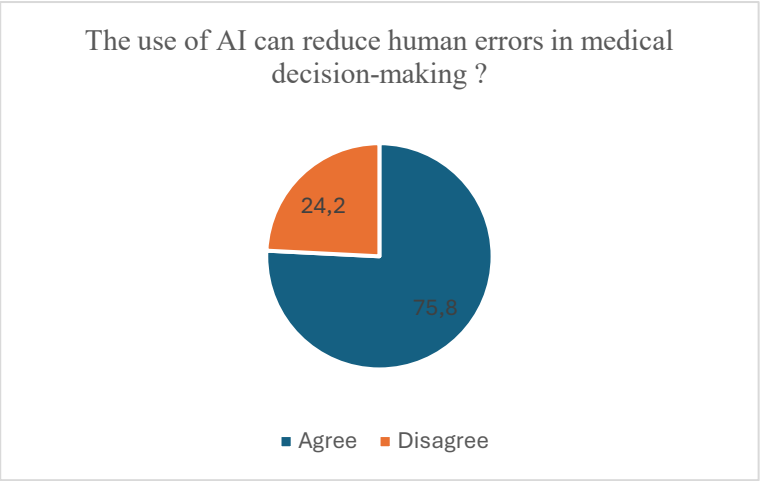

Figure 5. AI Reduces Human Errors in Medical Decision-making

The respondents in this study strongly believed that AI in the healthcare sector has strong functional support, driven by high accuracy based on available data and the ability to reduce clinical errors. However, the overall success of AI implementation depends on humans themselves and how they use it to make it useful in their lives.

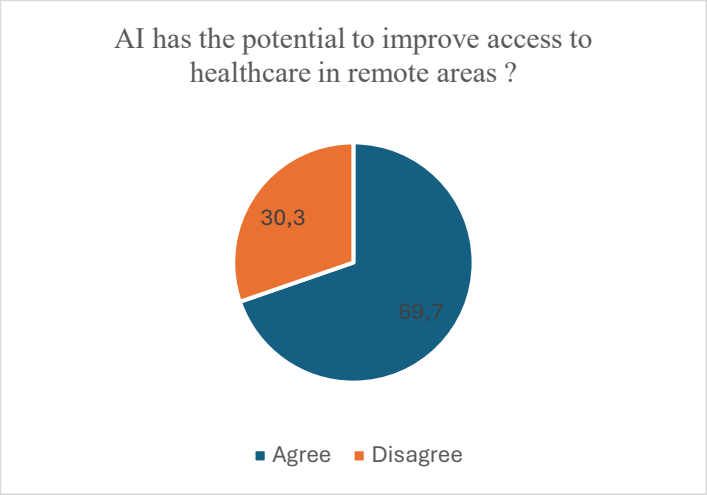

Figure 6. AI, Potential to Improve Acces to Healthcare

The scholars in this study are highly optimistic about AI's ability to improve technical medical quality because AI is very capable of reaching remote areas and providing services to communities that lack medical personnel. (34.4% uncomfortable) are the biggest non-technical barrier that must be overcome through strict regulatory enforcement and the implementation of Explainable AI to build public trust.

AI is an important part of digital transformation in the health sector4). The integration of AI with other technologies such as big data, blockchain, and 5G networks supports the efficiency of service systems and improves access to high-quality medical services [4][7][13]. This technological collaboration also strengthens the development of a national health system based on digital learning (learning health system).

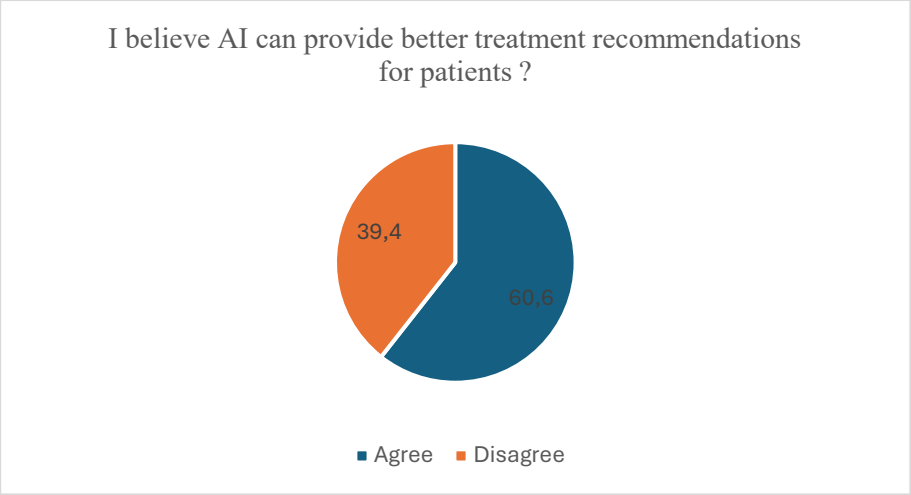

Figure 7. AI Provide Better Treatment for Patients

They also believes that AI can provide better treatment recommendations for patients, and that AI can also assist in medical decision-making. Most respondents showed a positive attitude towards this development.

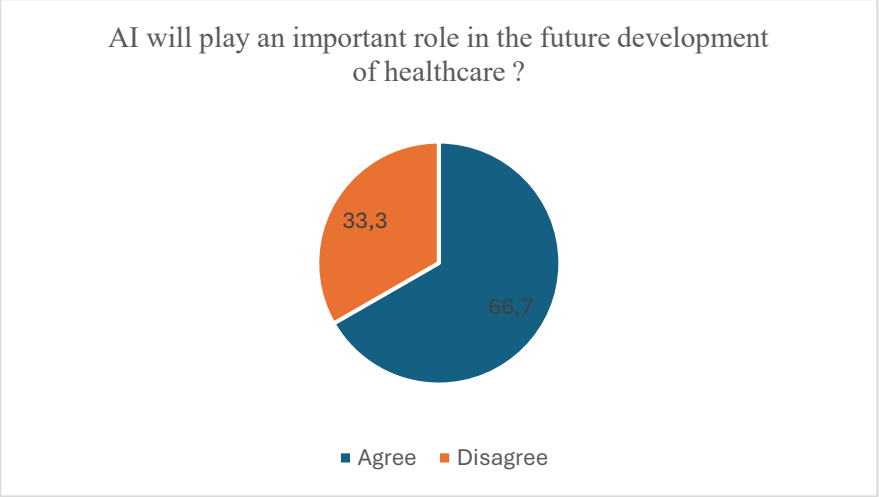

Figure 8. AI Play Important Role In the Future of Healtcare

Based on the results of the diagram above, the public tends to be optimistic about AI in the advancement of healthcare. However, some respondents are not yet fully convinced about AI in the future [8]. This is reinforced by several factors, such as data security and dependence on technology [9][10].

Highlight that AI has great potential in improving diagnostic accuracy, service efficiency, and medical decision-making [11][12]. Through big data analysis and machine learning capabilities, AI assists medical professionals in detecting diseases more quickly and accurately, thereby driving healthcare systems toward more predictive and personalized care [1][7][1].

Key challenges include ethical issues, patient data protection, algorithmic bias, and regulatory limitations. In addition, the lack of digital literacy among healthcare professionals slows down the adoption of AI technology and requires a continuous educational approach [3][12][14].

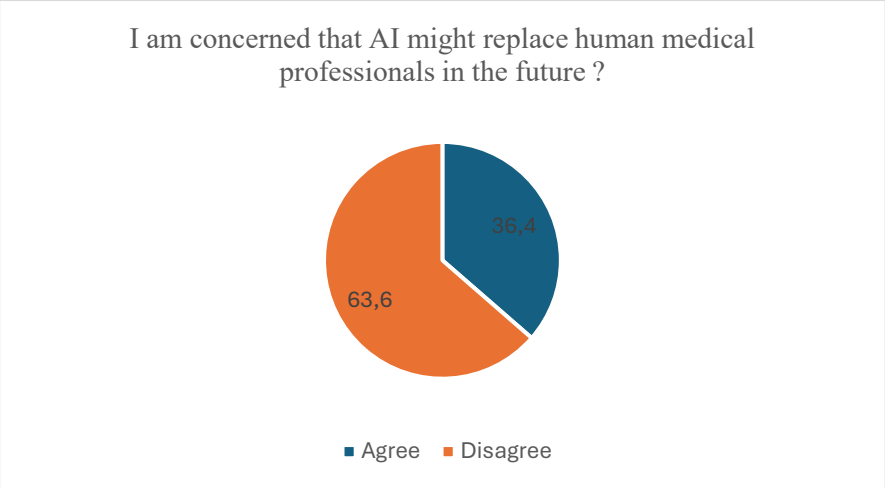

Figure 9. AI Might Replacce Human Professionals

At present, AI is widely accepted in the medical field because it can technically improve the quality of services. However, AI is seen more as a work partner for medical personnel, not a replacement [8]. Nonetheless, AI could play an important role in the future, and the healthcare sector must seriously address ethical issues, especially regarding patient data privacy, which is often a major concern.

Overall, this questionnaire serves as a valuable tool to explore general attitudes toward the integration of AI in digital health. The inclusion of an open-ended question adds depth by allowing respondents to express their personal views and expectations [6]. For future studies, adding more varied response scales and demographic questions could provide a more comprehensive understanding of public perception.

The use of digital technology creates new opportunities for health startups to develop data-based solutions, telemedicine services, and smart diagnostic tools. This shows that the integration of AI not only impacts medical services but also the growth of the digital economy in the health sector [5][10].

Conclusion

Based on the results and discussion of our questionnaire on the understanding of Artificial Intelligence as a Digital Health Service Innovation, it can be concluded that the majority of respondents expressed a positive attitude towards the use of AI in digital health services. They believe that AI has great potential to improve efficiency, speed up the diagnostic process, and assist in medical decision-making. This shows a relatively high level of public acceptance and trust in the development of AI in the health service sector. Most respondents also stated that AI is not a competitor to humans, but rather facilitates human services in any sector, especially the healthcare sector.

However, this study has several limitations. The use of only “Agree” and “Disagree” as answer options limits the depth of respondents' perceptions. However, we also included one question in the questionnaire that encouraged respondents to express their opinions, requiring them to be open-minded in their responses.

For future research, it is recommended to use a Likert scale with several levels of agreement, such as “Strongly Agree” to “Strongly Disagree.” The Likert scale also helps to gain a deeper understanding of respondents' perceptions. Researchers also need to consider including more critical questions to assess respondents' responses from various perceptions, and more open-ended questions to enrich qualitative data. This will provide a more comprehensive understanding of public perception and acceptance of AI as an innovation in digital health services.

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