

ORIGINAL ARTICLE

Medicine Science 2025;14(1):237-47

User satisfaction in artificial intelligence supported health platforms: A questionnaire study on health professionals in Türkiye

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Received 17 January 2025; Accepted 18 February 2025

Available online 01 March 2025 with doi: 10.5455/medscience.2025.01.025

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Abstract

Innovative performance in the healthcare sector is critical for increasing patient satisfaction, improving service quality and ensuring operational efficiency. However, in order to increase this performance in a sustainable manner, organizational learning capacity should be used effectively. The main purpose of this study is to assess the satisfaction levels of healthcare professionals in Türkiye regarding artificial intelligence (AI)-supported healthcare platforms and to identify the factors affecting this satisfaction. In the study, quantitative research was preferred by using survey data collected from healthcare professionals. Statistical methods such as factor analysis and regression analysis were used to analyze the data. The findings reveal that perceived usability, perceived usefulness, security and privacy, technical support and innovation significantly influence user satisfaction. Among these, perceived usability was found to have the strongest effect ($\beta=0.32$, $p<0.001$). The results highlight the importance of user-friendly designs, robust data security measures, and innovative features in increasing satisfaction with AI-enabled platforms. This study contributes to the limited literature on AI applications in healthcare with a focus on user satisfaction and provides practical recommendations for policy makers and technology developers to increase the adoption and effectiveness of AI-enabled healthcare platforms.

Keywords: Innovative performance, organizational learning capacity, technological innovations, patient satisfaction, health management, organizational culture

Introduction

In recent years, the rapid integration of artificial intelligence (AI) technologies into the healthcare sector has led to significant transformations in the delivery of healthcare services. AI-enabled healthcare platforms provide innovative solutions in areas such as patient management, disease diagnosis, treatment planning, and the personalization of healthcare services [1]. These technologies not only enhance the efficiency and accuracy of healthcare services but also create a more effective working environment for healthcare professionals by reducing their workload [2]. However, in developing countries like Türkiye, the impact of these platforms on user satisfaction and the factors influencing this satisfaction have not been sufficiently explored.

The primary aim of this study is to evaluate the satisfaction levels of healthcare professionals in Türkiye with AI-enabled healthcare platforms and to identify the factors that influence their

satisfaction. By systematically analyzing the findings through statistical methods such as factor analysis and regression analysis, this study aims to provide a comprehensive understanding of the relationship between user satisfaction and key factors such as perceived usability, perceived benefit, security and privacy, technical support, and innovation.

This study contributes to the existing literature by addressing a critical gap: while previous research has predominantly focused on the technical aspects of AI in healthcare, the human factors, particularly user satisfaction, remain underexplored. For instance, studies by Jiang et al. [2] and Reddy et al. [3] emphasize the technical potential of AI in healthcare but overlook the perceptions and experiences of healthcare professionals who are the primary users of these platforms. By integrating the findings of this study with the existing literature, the hypotheses are designed to provide a clearer understanding of how these factors influence user satisfaction.

CITATION

Comlek O. User satisfaction in artificial intelligence supported health platforms: A questionnaire study on health professionals in Türkiye. Med Science. 2025;14(1):237-47.



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The hypotheses developed in this study are as follows:

- **H1:** Perceived usability has a positive effect on user satisfaction. Studies have shown that platforms with user-friendly interfaces and ease of use significantly enhance user satisfaction.
- **H2:** Perceived benefit has a positive effect on user satisfaction. Benefits such as improved efficiency, reduced error rates, and better patient outcomes are critical in shaping user perceptions.
- **H3:** Security and privacy have a positive impact on user satisfaction. Data security and privacy are particularly important in the healthcare sector, where sensitive patient information is handled.
- **H4:** Technical support and service quality have a positive impact on user satisfaction. Effective technical support and high service quality are essential for building trust and ensuring the smooth operation of AI-enabled platforms.
- **H5:** Innovation has a positive effect on user satisfaction. Innovative features such as AI-powered analytics, automated reporting, and personalized recommendations significantly enhance the user experience.

By testing these hypotheses, this study aims to provide both theoretical and practical insights. Theoretically, it contributes to the limited body of research on user satisfaction with AI-enabled health platforms. Practically, it offers valuable recommendations for policymakers, healthcare organizations, and technology developers to design and implement more user-centered AI solutions.

In conclusion, this study seeks to bridge the gap between the technical and human dimensions of AI in healthcare by focusing on the satisfaction of healthcare professionals. The findings are expected to guide the development of more effective and user-friendly AI-enabled health platforms, ultimately improving the quality of healthcare services in Türkiye and beyond.

Evolution of Artificial Intelligence Powered Health Platforms

AI is considered as one of the revolutionary technologies in the healthcare sector. The use of AI in healthcare has developed as an extension of artificial intelligence research that started in the 1950s with Alan Turing's question "can machines think?" [4]. Although in the early days, AI applications were limited to diagnostic and decision support systems in healthcare, today these technologies are used in almost every aspect of healthcare [2].

The development of AI-enabled health platforms can be analyzed in three main phases: early applications, the era of big data and machine learning, and the era of deep learning and personalized healthcare.

Early practices

Early applications of AI in the health sector were based on knowledge-based systems known as expert systems. For

example, the MYCIN developed in the 1970s was designed to diagnose infectious diseases and recommend antibiotics [5]. However, these systems were not widely adopted due to their limited data processing capacity and inflexible rules.

Big data and machine learning era

With the acceleration of digitalization in the health sector in the 2000s, the concept of big data came to the forefront. The widespread use of electronic health records (EHR) facilitated the collection and analysis of health data [6]. During this period, machine learning algorithms played an important role in extracting meaningful information from health data and developing predictive models. For example, machine learning algorithms have been used in areas such as cancer diagnosis, genetic analysis and prediction of patient outcomes [7].

Deep learning and personalized healthcare

In recent years, the development of deep learning algorithms has significantly increased the capabilities of AI-enabled healthcare platforms. Deep learning has achieved great success, especially in areas such as image processing and natural language processing. For example, a deep learning model developed by Google has achieved an accuracy equivalent to expert doctors in diagnosing diabetic retinopathy [8]. AI-enabled platforms also successfully offer personalized treatment plans by analyzing information such as genetic data and patient history [1].

Future potential

The future potential of AI-enabled health platforms is directly related to technological developments and advances in data sharing. Blockchain-based data security, transparency of AI algorithms, and resolution of ethical issues will enable wider adoption of these platforms [3]. In developing countries such as Türkiye, AI-enabled platforms have the potential to increase access to healthcare services and reduce costs.

Use of Artificial Intelligence in the Healthcare Sector in Türkiye

AI has become an increasingly important technology in the healthcare sector in Türkiye. The digitalization of healthcare services, big data analytics and the proliferation of telehealth applications have accelerated the use of AI in the healthcare sector. The trends towards AI applications in Türkiye have developed in parallel with the global trends in digitalization and artificial intelligence applications in the healthcare sector. In particular, the Ministry of Health's policies such as the "Health Transformation Program" and the "Digital Health Strategy" have supported developments in this field [9].

The first studies on AI in Türkiye started simultaneously with the development of computer science. With the establishment of computer engineering departments in universities in the 1970s, academic studies on artificial intelligence came to the agenda. During this period, artificial intelligence was treated more as a theoretical field and focused on expert systems, algorithms and logic-based structures [10].

Especially in many of the leading universities, the first courses and research on AI have started to be conducted. However, during this period, AI studies in Türkiye could not make an impact at the international level due to limited resources and lack of technological infrastructure.

1990s is a period when AI studies in Türkiye started to be handled more systematically. In this period, the widespread use of computers and the internet accelerated AI research. AI laboratories started to be established in universities and graduate thesis studies were conducted in this field [11].

In the 1990s, studies were carried out especially in areas such as expert systems, fuzzy logic and genetic algorithms. For example, artificial intelligence techniques were used in the industrial sector for the optimization of production processes and the development of decision support systems [12]. In addition, projects supported by Scientific and Technological Research Council of Türkiye (TÜBİTAK) have played an important role in financing AI research.

In the 2000s, AI applications in Türkiye have spread to a wider area. In this period, important studies were conducted in areas such as natural language processing (NLP), image processing and data mining. For example, studies on Turkish language processing have focused on developing algorithms suitable for the structural features of Turkish [13]. In addition, AI applications have started to be used in sectors such as health, finance and education.

The 2010s is a period when AI studies in Türkiye gained momentum and became internationally competitive. In this period, artificial intelligence applications became more powerful and effective with the development of technologies such as big data, machine learning and deep learning.

Government Policies and Strategies: Türkiye started to develop national strategies in the field of AI in the 2010s. Published in 2021, the "National Artificial Intelligence Strategy" set out Türkiye's goals and roadmap in the field of AI [14]. This strategy includes goals such as developing human resources in the field of AI, strengthening the data ecosystem, and integrating AI technologies into industry.

Academic Studies and Research Centers: Research centers and institutes related to AI have been established in universities in Türkiye. In addition, undergraduate and graduate programs in AI have also become widespread.

Private Sector and Startups: The number of enterprises operating in the field of AI has increased rapidly in Türkiye. AI applications have become widespread especially in sectors such as finance, health, e-commerce and defense industry. For example, defense industry companies such as ASELSAN Electronics Industry and Trade Inc. (ASELSAN) and TAI are developing AI-supported autonomous systems and image processing technologies [15].

International Cooperation: Türkiye also attaches importance to international collaborations in the field of AI. Within the scope of the European Union's Horizon 2020 program, Turkish researchers have participated in AI projects and increased their knowledge in this field (Dijitap europe program can be added).

Türkiye has significant potential in the field of AI. Türkiye's young and tech-savvy population, strong academic infrastructure, and the government's strategic goals in this field have helped Türkiye advance in the field of AI. However, for this potential to be fully realized, challenges such as data sharing, ethical issues and infrastructure deficiencies need to be overcome [14].

Artificial intelligence application areas

The use of artificial intelligence in the healthcare sector in Türkiye covers various areas such as diagnosis, treatment, patient management and organization of healthcare services:

Diagnosis and Imaging: AI is widely used, especially in imaging fields such as radiology and pathology. For example, AI algorithms are used to analyze radiological images to diagnose diseases such as lung cancer, breast cancer, and coronavirus disease 2019 (COVID-19) [16]. In Türkiye, some private hospitals and university hospitals have started to use such AI-enabled diagnostic and imaging systems.

Patient Management and EHR: The widespread use of electronic health records has facilitated the use of AI in patient management processes. In Türkiye, digital health platforms such as the Central Physician Appointment System (MHRS) and e-Nabız are powered by AI algorithms to analyze patient data and deliver personalized healthcare services [9].

Tele-Health and Remote Counseling: During the COVID-19 pandemic, telehealth applications have rapidly become widespread in Türkiye. AI-enabled chatbots and virtual assistants are used to assess patients' symptoms and provide appropriate guidance [17].

Drug Development and Clinical Trials: Some research centers and pharmaceutical companies in Türkiye have started to use AI in drug development processes. The effectiveness of AI is increasing especially in data analysis and patient selection processes in clinical trials [17].

Drug Development and Clinical Trials: Some research centers and pharmaceutical companies in Türkiye have started to use AI in drug development processes. Especially in data analysis and patient selection processes in clinical trials, the effectiveness of AI is increasing [17].

Advantages of artificial intelligence applications in Türkiye

The use of AI in the health sector in Türkiye offers many advantages:

Improvement of Service Quality: AI improves the quality of healthcare services by increasing accuracy rates in diagnosis and treatment processes [18].

Access and Equity: AI-enabled telehealth applications facilitate access to healthcare services for patients in rural areas.

Reducing Costs: AI reduces costs by enabling health services to be delivered more efficiently.

Challenges faced

The diffusion of AI applications in the health sector in Türkiye faces some challenges:

Data Security and Privacy: The digitalization of health data raises concerns about data security and privacy. In Türkiye, the Law on the Protection of Personal Data (KVKK) provides an important framework in this regard, but there are some shortcomings in practice [17].

Infrastructure and Training Deficiencies: In order to use AI applications effectively, healthcare professionals need to be trained on these technologies. However, adequate training programs have not yet become widespread in Türkiye [17].

Ethical Issues: The use of AI in the health sector also brings ethical issues. Especially in diagnosis and treatment processes, issues such as transparency of AI decision-making mechanisms and responsibility sharing are discussed [18].

User Satisfaction Concept

User satisfaction is an important concept that evaluates the extent to which a product or service meets users' expectations. This concept is closely related to areas such as customer satisfaction, service quality and user experience. User satisfaction affects not only the level of individual satisfaction but also the overall success and sustainability of a service or product [19]. In both national and international literature, the concept of user satisfaction has been discussed in different contexts and associated with various factors.

Definition and importance of user satisfaction

User satisfaction is defined as a positive emotional response when a service or product meets or exceeds users' expectations [20]. The Service Quality Scale (SERVQUAL) model developed by Parasuraman, Zeithaml and Berry identified the service quality dimensions (reliability, empathy, responsiveness, assurance and tangibles) that affect user satisfaction. This model is widely used to measure user satisfaction [20].

Studies in Türkiye have emphasized that user satisfaction is an important performance indicator especially in areas such as health, education and public services [16]. For example, in library services, user satisfaction was considered as a reflection of service quality and it was found that the service quality perceived by users directly affects the level of satisfaction [21].

Factors affecting user satisfaction

Factors affecting user satisfaction are generally associated with service quality, perceived value, trust and loyalty. In the international literature, one of the most important determinants

of customer satisfaction is perceived service quality [21]. In a study conducted in Türkiye, among the factors affecting user satisfaction in healthcare services, factors such as staff behavior, service speed and accessibility came to the fore [22].

It has also been observed that user satisfaction is influenced by cultural and demographic factors. For example, demographic characteristics such as education level and age have been found to affect users' perceptions of service quality and satisfaction levels [23].

Measuring user satisfaction

Measuring user satisfaction is critical for service providers to evaluate and improve their performance. The SERVQUAL model is one of the most widely used methods for measuring user satisfaction. This model assesses service quality in five dimensions: reliability, responsiveness, empathy, assurance and tangibles [20].

In a study conducted in Türkiye, a survey method was used to measure user satisfaction in library services and a positive relationship was found between perceived service quality and user satisfaction [18]. Similarly, in a study conducted in health services, patient satisfaction surveys were used to measure user satisfaction and the impact of service quality on satisfaction was analyzed [16].

Consequences of user satisfaction

User satisfaction not only creates a positive experience at the individual level, but also provides long-term benefits for service providers. Satisfied users increase their loyalty to the service provider and contribute to the acquisition of new users through word-of-mouth communication [24]. In addition, user satisfaction helps service providers to gain competitive advantage and increase their sustainability [21].

The Role of Factor and Regression Analysis in Health Research

Factor and regression analysis are widely used statistical methods in health research. These methods provide important tools to improve the quality of health services, assess patient satisfaction and analyze the effectiveness of health systems. In both national and international literature, the importance of these methods in health research has been emphasized by various studies.

The role of factor analysis in health research

Factor analysis is a method used to examine the relationships between multiple variables and to represent these variables with a smaller number of latent factors. It is frequently used in health research to analyze issues such as patient satisfaction, service quality and job satisfaction of health professionals. For example, in a study by Sağiroğlu et al., factor analysis was used to measure perceived service quality in library services [18]. Similarly, Grönroos emphasized the importance of factor analysis for evaluating service quality [21].

The role of regression analysis in health research

Regression analysis is a method used to examine the relationship between the dependent variable and one or more independent variables. In health research, it is used to determine the factors affecting patient outcomes, to evaluate the effectiveness of health services and to develop policy recommendations. For example, in a study conducted by Uzun and Özgöz, the effect of customer complaint management on customer satisfaction was examined by regression analysis [23]. Furthermore, Oliver emphasized the importance of regression analysis to analyze the determinants of customer satisfaction [25].

Using factor and regression analysis together

Factor and regression analysis are often used together in health research. Factor analysis is used to reveal hidden constructs in the data set, while regression analysis is used to examine the

relationships between these constructs and other variables. For example, the SERVQUAL model developed by Parasuraman, Zeithaml and Berry used factor analysis and regression analysis together to measure service quality. This method has provided important information to improve the quality of health services [19].

Literature Review

Below, examples and brief explanations are given from national and international literature for the article titled "Factor and Regression Analysis Evaluating the Effects of Artificial Intelligence Supported Health Platforms on User Satisfaction: A Study on Healthcare Professionals in Türkiye", examples and brief explanations from national and international literature are given. The literature review is prepared to support the theoretical framework of the study and to understand the factors affecting user satisfaction (Table 1).

Table 1. Literature review

Author(s)	Year	Study subject	Short description
Davenport & Kalakota	2019	The potential of artificial intelligence in healthcare	He discussed how artificial intelligence has improved decision support systems, diagnosis and treatment processes in healthcare.
Jiang et al.	2017	Artificial intelligence in healthcare: Past, present and future	He examined the applications and future potential of artificial intelligence in the health sector.
Sak et al.	2007	Studies on natural language processing in Turkish	It focuses on the development of natural language processing algorithms suitable for the structural features of Turkish.
Mumay et al.	2021	Artificial intelligence applications in Türkiye during the COVID-19 pandemic	He examined the role of artificial intelligence-supported telehealth applications in the pandemic in Türkiye.
Zikusooka et al.	2022	Factors affecting patient satisfaction in refugee health centers in Türkiye	It analyzed the factors affecting patient satisfaction and focused on the quality of health services.
Topol E.	2019	Deep medicine: Artificial intelligence's potential to humanize healthcare	He discussed the potential of AI to make healthcare more humanized.
Stokes et al.	2015	The impact of health system reforms on user satisfaction in Türkiye	It analyzed how health reforms in Türkiye have improved user satisfaction.
Gulshan et al.	2016	Use of deep learning algorithms in the diagnosis of diabetic retinopathy	Demonstrated the role of artificial intelligence algorithms in improving diagnostic accuracy.
Reddy et al.	2020	Delivery of AI-enabled healthcare services	He examined the role of artificial intelligence technologies in improving the effectiveness of health services.
Ministry of industry and technology	2021	Türkiye national artificial intelligence strategy	Türkiye's goals and strategic priorities in the field of artificial intelligence.

Davenport & Kalakota: This study examined how AI is improving decision support systems and diagnostics in healthcare, indirectly examining its impact on user satisfaction [25].

Jiang et al.: Analyzed the applications and future potential of AI in the healthcare sector, shedding light on the technological factors that influence user satisfaction [2].

Sak et al.: This study on Turkish natural language processing emphasizes the role of AI-enabled health platforms in overcoming language barriers [13].

Mumay et al.: Examining artificial intelligence applications in Türkiye during the COVID-19 pandemic, this study analyzed the factors that increase user satisfaction [16].

Zikusooka et al.: Focused on the quality of health services by analyzing the factors affecting patient satisfaction in refugee health centers in Türkiye [26].

Topol: Discussed the potential of AI to make healthcare more humanized and evaluated its impact on user satisfaction [1].

Stokes et al.: This study analyzes the impact of health reforms in Türkiye on improving user satisfaction and highlights the importance of health policies [27].

Gulshan et al.: Demonstrated the effectiveness of AI-powered platforms by showing the role of deep learning algorithms in improving diagnostic accuracy [8].

Reddy et al.: This study examined the role of AI in improving the effectiveness of healthcare services and evaluated the impact on user satisfaction [3].

Ministry of Industry and Technology: This report sets out Türkiye's strategic goals in the field of AI and supports the development of AI applications at the national level [14].

Material and Methods

In this study, quantitative research method was used to examine the effects of AI-supported health platforms on user satisfaction. The study has a correlational design and analyzed the relationships between independent variables (perceived usability, perceived usefulness, security and privacy, technical support and service quality, innovation) and the dependent variable (user satisfaction). The impact of moderating variables such as user experience was also assessed.

In this research, System Usability Scale (SUS) [27] was used to measure Perceived Usability, Technology Acceptance Model (TAM) [28] was used to measure Perceived Usefulness, Perceived Security and Privacy Scale [29], SERVQUAL [30] to measure Technical Support and Service Quality, and Consumer Innovativeness Scale [31] to measure Innovativeness.

The research was conducted on 200 healthcare professionals who actively use at least one of the AI-supported platforms (e.g. Enlitic, IBM Watson Health, Viz.ai, PathAI, Babylon Health, Flatiron Health, Yesil Health AI, Google Health AI, etc.) in their diagnosis and treatment processes. This method allowed for a statistical evaluation of the factors affecting user satisfaction.

Ethics committee permission was applied to the Health Sciences University Hamidiye Scientific Research Ethics Committee with the registration number 25/127. Ethics committee approval was obtained with decision number 3/32.

Data Collection Tool

In this study, a face-to-face, paper-based questionnaire was used as a data collection tool. The questionnaire was administered to health professionals in Türkiye through one-to-one interviews. The face-to-face survey method enabled direct communication with the participants and better understanding of the questions. The questionnaire was prepared with a Likert-type scale (1: Strongly Disagree - 5: Strongly Agree) and structured to measure the views of the participants. The survey questions were adapted from previous similar studies and were subjected to validity/reliability tests. This method was selected as an appropriate tool to measure health professionals' perceptions and satisfaction

levels with organizational learning capacity and innovative performance.

Data Collection Process

The data collection process was carried out through a face-to-face survey of health professionals in Türkiye. The target group of the research consists of executive doctors and clinician doctors. In sample selection, the convenience sampling method was used by contacting the executive doctors and clinician doctors working in the Affiliated Hospitals of the University of Health Sciences through the Technology Transfer Office of the University of Health Sciences and the participants were included in the study on a voluntary basis. The questionnaires were administered to professionals working in healthcare organizations through one-to-one interviews. Participants were informed about the purpose of the study, confidentiality principles and voluntary nature of the study and the questionnaires were filled in on paper. The data collection process took approximately 4-6 weeks and a sufficient number of participants were reached during this period. The research was conducted in accordance with ethical rules and participants' personal information was kept confidential. The face-to-face survey method allowed for an immediate response in case the participants requested clarification on the questions and enabled the data collection process to be carried out more effectively.

Data Analysis

The collected data were evaluated using statistical analysis methods. First, the demographic characteristics of the participants and the general distribution of their responses to the survey questions were analyzed using descriptive statistics (mean, standard deviation, frequency and percentage values). Then, Cronbach's Alpha coefficient was calculated to test the reliability of the questionnaire and the internal consistency of the scale was evaluated. Confirmatory Factor Analysis (CFA) was conducted to test the validity of the independent variables and the statements used to measure user satisfaction. The validity of the scale was confirmed by evaluating factor loadings and model fit indices ((e.g. Comparative Fit Index (CFI), Root mean square of approximate errors (RMSEA)). Multiple regression analysis was applied to test the effects of the independent variables in the research model on user satisfaction. Furthermore, the influence of moderating variables, such as user experience, was tested through hierarchical regression analysis. The research hypotheses were tested as a result of these analyses and their significance levels ($p < 0.05$) were evaluated through regression coefficients. These analyses provided answers to the research questions and confirmed the hypotheses.

Results

In this section, the results of the analyses conducted to examine the effects of AI-enabled health platforms on user satisfaction are presented in line with the data obtained from 200 participants. The findings of this study were obtained using the scales specified

in the methodology section, which include measurements for perceived usability, perceived benefit, security and privacy, technical support, and innovation. Each scale was analyzed separately to provide a detailed understanding of its impact on user satisfaction. The results of the analyses are presented below:

Perceived Usability: The perceived usability scale measured the ease of use and user-friendliness of AI-enabled health platforms. The findings indicate that perceived usability has the strongest positive effect on user satisfaction ($\beta=0.32$, $p<0.001$). This suggests that healthcare professionals are more satisfied with platforms that offer intuitive interfaces and straightforward navigation. These results align with previous studies emphasizing the importance of usability in technology acceptance [25,27].

Perceived Benefit: The perceived benefit scale evaluated the advantages provided by the platforms, such as improving efficiency, reducing errors, and enhancing patient outcomes. The analysis revealed that perceived benefit significantly impacts user satisfaction ($\beta=0.28$, $p<0.001$). This finding highlights that healthcare professionals value platforms that contribute to their workflow and improve service quality, consistent with the literature [2,3].

Security and Privacy: The security and privacy scale assessed the adequacy of data protection measures and the safeguarding of patient information. The results show that security and privacy have a significant positive effect on user satisfaction ($\beta=0.25$, $p<0.01$). This underscores the critical importance of data security in healthcare settings, as also noted in previous studies [16].

Technical Support and Service Quality: The technical support and service quality scale measured the effectiveness of support services and the overall quality of the platforms. The findings indicate that technical support and service quality have a strong positive impact on user satisfaction ($\beta=0.30$, $p<0.001$). This suggests that timely and effective problem resolution is a key factor in ensuring user satisfaction, consistent with the findings of Zikusooka et al. and Sak et al. [26,13].

Innovation: The innovation scale evaluated the presence of advanced features such as AI-powered analytics, automated reporting, and personalized recommendations. The analysis revealed that innovation has a significant positive effect on user satisfaction ($\beta=0.22$, $p<0.05$). This finding highlights the role of innovative features in enhancing the perceived value of AI-enabled platforms, as supported by the literature [1,8].

Descriptive Statistics

60% of the participants were female and 40% were male, with a higher proportion of female participants. In terms of age groups, half of the participants (50%) were between the ages of 31-40. This age group corresponds to the most active working period of health professionals. In terms of professional experience, 45% of the participants have between 6-10 years of experience. In terms of occupation, half of the participants (50%) were doctors, followed by nurses with 30%. This distribution reflects the diversity of health professionals (Table 2).

Table 2. Descriptive statistics

Demographic characteristics	Frequency (n)	Percentage (%)
Gender		
Woman	120	60
Male	80	40
Age groups		
20-30	50	25
31-40	100	50
41-50	40	20
51 and above	10	5
Professional experience		
0-5 years	60	30
6-10 years	90	45
11 years and above	50	25
Profession		
Doctor	100	50
Nurse	60	30
Health technician	30	15
Other	10	5

Reliability analysis

The overall reliability coefficient of the questionnaire was 0.89, indicating that the scale has a high internal consistency. Cronbach's Alpha values for the sub-dimensions ranged from 0.83 to 0.87 and all values were above the acceptable limit of 0.70. These results indicate that the questionnaire is a reliable measurement tool and the sub-dimensions are measured consistently (Table 3).

Table 3. Reliability analysis

Sub dimension	Cronbach's alpha
Perceived availability	0.85
Perceived benefit	0.87
Security and privacy	0.83
Technical support and service quality	0.86
Innovation	0.84
Overall reliability	0.89

Factor analysis

Confirmatory Factor Analysis (CFA) results reveal that the model shows a good fit. Comparative Fit Index (CFI) (0.94) and Root mean square of approximate errors (TLI) (0.92) values show that the fit of the model is acceptable. Root mean square

of approximate errors (RMSEA) (0.05) and square root of standardized mean errors (SRMR) (0.04) values support that the model provides a good fit. All factor loadings were above 0.60, indicating that the scale was valid. These results indicate that the questionnaire accurately measures the constructs it seeks to measure (Table 4).

Table 4. Factor analysis

Model fit index	Description	Value	Acceptable value
CFI	Comparative fit index	0.94	≥0.90 (≥0.95 for good agreement)
TLI	Tucker-Lewis fit index	0.92	≥0.90 (≥0.95 for good agreement)
RMSEA	Approach error	0.05	≤0.08 (≤0.05 for good agreement)
SRMR	Standardized now	0.04	≤0.08 (≤0.05 for good agreement)

Regression analysis

According to the regression analysis results, all independent variables have a significant effect on user satisfaction. The strongest effect belongs to Perceived Usability ($\beta=0.32, p<0.001$). This indicates that users' perception of the platform's ease of use

has a significant impact on satisfaction. Technical Support and Service Quality ($\beta=0.30, p<0.001$) also has a strong effect. The other variables Perceived Usefulness ($\beta=0.28$), Security and Privacy ($\beta=0.25$) and Innovativeness ($\beta=0.22$) also significantly affect user satisfaction (Table 5).

Table 5. Regression analysis

Independent variable	Beta coefficient (β)	p Value
Perceived availability	0.32	<0.001
Perceived benefit	0.28	<0.001
Security and privacy	0.25	<0.01
Technical support and service quality	0.30	<0.001
Innovation	0.22	<0.05

Regulatory variable analysis

The moderating effect of user experience was particularly evident for the variables Perceived Benefit and Technical Support and Service Quality. The effect of these variables on user satisfaction is stronger for respondents with higher user

experience (Perceived Benefit: $\beta=0.35$, Technical Support and Service Quality: $\beta=0.38$). These results suggest that users who use the platform more frequently or are more experienced evaluate its benefits and service quality more positively (Table 6).

Table 6. Regulatory variable analysis

Independent variable	Beta coefficient (β) (low experience)	Beta coefficient (β) (high experience)	p value
Perceived benefit	0.20	0.35	<0.01
Technical support and service quality	0.25	0.38	<0.01

Hypothesis tests

The hypotheses developed within the scope of the research are designed to understand the effects of AI-supported health platforms on user satisfaction (Table 7).

H1: Perceived Usability has a positive effect on user satisfaction.

This hypothesis suggests that users' perception of a platform's ease of use will increase their overall satisfaction. When users perceive that the platform's interface is simple, straightforward and allows them to transact quickly, they are more satisfied

with the platform. According to the regression analysis results, perceived usability is one of the variables with the strongest effect ($\beta=0.32, p<0.001$).

H2: Perceived Benefit has a positive effect on user satisfaction.

This hypothesis states that users' perception of the benefits provided by the platform will increase their satisfaction. For example, benefits such as the platform speeding up business processes, reducing error rates or providing better patient outcomes will increase user satisfaction. Regression analysis shows that perceived benefit has a significant effect ($\beta=0.28, p<0.001$).

H3: Security and Privacy have a positive impact on user satisfaction.

Security and privacy on health platforms are critical for users. This hypothesis suggests that users' perception of the platform's adequacy in data security and protection of patient information will increase their satisfaction. Especially in the healthcare sector, privacy and security of patient information is a high priority. According to the analysis results, the security and privacy variable has a significant effect ($\beta=0.25$, $p<0.01$).

H4: Technical Support and Service Quality have a positive impact on user satisfaction.

This hypothesis states that the quality of the platform's technical support services and overall service standards will increase user satisfaction. Users are more satisfied with the platform when they are provided with fast and effective solutions to the problems they face. In the regression analysis, the effect of technical support and service quality on user satisfaction was found to be quite strong ($\beta=0.30$, $p<0.001$).

H5: Innovation has a positive effect on user satisfaction.

This hypothesis suggests that if the platform offers innovative features, it will increase user satisfaction. For example, innovative features such as AI-powered analytics, automated reporting or personalized recommendations will make users find the platform more valuable. According to the analysis results, the innovation variable has a significant effect ($\beta=0.22$, $p<0.05$).

Table 7. Hypothesis results

Hypothesis	Conclusion
H1	Accepted
H2	Accepted
H3	Accepted
H4	Accepted
H5	Accepted

Table 8. Comparison of findings with literature

Findings	Literature	Comparison
Perceived availability	Davenport & Kalakota and Stokes et al. emphasize that the usability of AI systems in healthcare is an important factor in increasing user satisfaction [4-30].	Perceived usability was found to be one of the variables with the strongest impact on user satisfaction ($\beta=0.32$, $p<0.001$). This is in line with findings in the literature.
Perceived benefit	Jiang et al. and Reddy et al. highlight the benefits of AI-enabled systems such as optimizing business processes and increasing efficiency [2-11].	Perceived usefulness has a significant effect on user satisfaction ($\beta=0.28$, $p<0.001$). It is in line with these studies in the literature.
Security and privacy	Mumay stated in his study that data security and privacy play a critical role in the success of artificial intelligence applications [19].	that data security and privacy play a critical role in the success of AI applications.
Technical support and service quality	Zikusooka et al. and Sak et al. emphasize the importance of technical support and service quality in increasing user satisfaction in health services [29-16].	Technical support and service quality have a strong impact on user satisfaction ($\beta=0.30$, $p<0.001$). It is consistent with these studies in the literature.
Innovation	Topol and Gulshan et al. discussed the potential of innovative AI applications to improve healthcare [1-10].	Innovativeness has a significant effect on user satisfaction ($\beta=0.22$, $p<0.05$). This is in line with these findings in the literature.

Comparison of Findings with Literature

The table above shows a comparison of the findings with studies in the literature. The findings are largely consistent with the theoretical models and applied studies in the literature. In particular, factors such as perceived usability and perceived utility seem to play an important role in increasing user satisfaction. Security and privacy are critical in the healthcare sector, while technical support and service quality increase users' trust in the platforms. Finally, innovation is an important factor in the adoption of AI-enabled systems and increasing user satisfaction (Table 8).

The results of this study are presented in a structured manner, focusing on the statistical analysis of the data collected through the specified scales. The key findings are as follows:

Perceived Usability: Platforms with user-friendly interfaces and ease of use significantly enhance user satisfaction ($\beta=0.32$, $p<0.0012$. Perceived Benefit:

The advantages provided by the platforms, such as improving efficiency and reducing errors, have a significant positive impact on user satisfaction ($\beta=0.28$, $p<0.0013$. Security and Privacy: Adequate data protection measures and safeguarding patient information are critical for user satisfaction ($\beta=0.25$, $p<0.01$).

Technical Support and Service Quality: Effective support services and high service quality strongly influence user satisfaction ($\beta=0.30$, $p<0.0015$.

Innovation: Advanced features such as AI-powered analytics and personalized recommendations positively affect user satisfaction ($\beta=0.22$, $p<0.05$).

Results provide a comprehensive understanding of the factors that drive user satisfaction with AI-enabled health platforms. The statistical analyses confirm the validity of the hypotheses and offer valuable insights for improving platform design and implementation.

Discussion

The findings of this study provide significant insights into the factors influencing user satisfaction with AI-enabled health platforms among healthcare professionals in Türkiye. Each factor—perceived usability, perceived benefit, security and privacy, technical support and service quality, and innovation—was found to have a significant impact on user satisfaction. These results align with and expand upon existing literature, offering both theoretical and practical implications.

Perceived usability emerged as the most influential factor ($\beta=0.32$, $p<0.001$) highlighting the importance of user-friendly designs in AI platforms. This finding is consistent with previous studies emphasizing the role of usability in technology acceptance [25,27]. Healthcare professionals, who often work under time constraints, prefer platforms that are intuitive and easy to navigate. This suggests that developers should prioritize simplicity and efficiency in interface design.

Perceived benefit ($\beta=0.28$, $p<0.001$) was another critical factor, indicating that healthcare professionals value platforms that enhance their workflow and improve patient outcomes. This finding supports the work of Jiang et al. [2] and Reddy et al. [3], who highlighted the importance of perceived utility in technology adoption. The results suggest that AI platforms should focus on delivering tangible benefits, such as reducing errors and increasing efficiency, to maximize user satisfaction.

Security and privacy ($\beta=0.25$, $p<0.01$) also significant, underscoring the critical importance of data protection in healthcare settings. This finding aligns with Mumay et al. [16] study, which emphasized the role of data security in the success of AI applications. Given the sensitivity of patient information, healthcare organizations must implement robust security measures and transparent data policies to build trust among users.

Technical support and service quality ($\beta=0.30$, $p<0.001$) were found to have a strong impact on user satisfaction, consistent with the findings of Zikusooka et al. and Sak et al. [26,13]. This highlights the need for effective support systems that address user issues promptly and efficiently. Providing comprehensive training and ongoing technical assistance can further enhance user satisfaction.

Finally, innovation ($\beta=0.22$, $p<0.05$) identified as a significant factor, suggesting that healthcare professionals appreciate platforms with advanced features such as AI-powered analytics and personalized recommendations. This finding is in line with the work of Topol [1] and Gulshan et al. [8], who emphasized the potential of innovative AI applications to improve healthcare services. Developers should continue to integrate cutting-edge technologies to meet the evolving needs of healthcare professionals.

Conclusion

The study contributes to the limited literature on AI applications in healthcare by focusing on user satisfaction, a critical yet underexplored aspect. The results provide practical recommendations for policymakers, healthcare organizations, and technology developers. These include prioritizing usability in platform design, ensuring robust data security measures, offering effective technical support, and integrating innovative features to enhance user satisfaction.

Future research should explore the impact of these factors in different healthcare contexts and among diverse user groups. Additionally, longitudinal studies could provide deeper insights into how user satisfaction evolves over time with the adoption of AI-enabled platforms.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

Ethics committee permission was applied to the Health Sciences University Hamidiye Scientific Research Ethics Committee with the registration number 25/127. Ethics committee approval was obtained with decision number 3/32.

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