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Determinants of User Acceptance of the Halodoc Application: An Analysis of User Experience and User Satisfaction

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A B S T R A C T

Halodoc is one of the leading mobile health (mHealth) applications in Indonesia, offering services such as online doctor consultations, medicine delivery, and health information. This study examines the factors influencing user acceptance of the Halodoc app, focusing on the roles of user experience and satisfaction. The research involved a survey of 81 Halodoc users, followed by validity and reliability testing of the research instruments. Results showed that most items had high validity, with correlation values ranging from 0.775 to 0.851 for user acceptance, and above 0.75 for user experience (except one item). Reliability was also high, with Cronbach's Alpha values exceeding 0.8 across categories. The highest average score was found in user satisfaction (21.77), indicating consistently high levels of satisfaction. Significant correlations were observed among user acceptance, user experience, service quality, and user satisfaction—most notably between user acceptance and satisfaction (0.8314). Regression analysis identified user experience and satisfaction as significant predictors of user acceptance, accounting for 74.4% of the variance. In contrast, service quality did not show a significant effect. The final regression model after stepwise elimination confirmed the strong influence of user experience (coefficient = 0.3513) and satisfaction (coefficient = 0.4399). These findings highlight the importance of enhancing user experience and satisfaction to increase user acceptance of mHealth applications like Halodoc.

1. Introduction

The proliferation of mobile health (mHealth) applications has revolutionized healthcare delivery by providing accessible, convenient, and cost-effective solutions. Despite these advantages, the acceptance of mHealth applications by users remains a critical factor determining their success and sustainability. Understanding the determinants of user acceptance can inform the design and implementation of these applications to better meet user needs and expectations.

Halodoc is a prominent mHealth application in Indonesia that provides various healthcare services, including online consultations with doctors, medicine delivery, and access to health information. The purpose of Halodoc is to make healthcare more accessible, particularly in a country like Indonesia, where healthcare services can be unevenly distributed across its numerous islands and regions. Studying user acceptance of Halodoc is relevant because it helps identify factors that encourage or hinder its use, which is crucial for improving healthcare delivery in Indonesia.

Research has highlighted several key factors influencing the acceptance and use of mHealth applications, including performance expectancy, effort expectancy, social influence, and facilitating conditions [1]. Moreover, individual characteristics such as age, gender, and smartphone experience have been shown to moderate these relationships [2]. The Technology Acceptance Model (TAM) and its extensions have been extensively used to study the acceptance of various health technologies. These models suggest that perceived usefulness and perceived ease of use are primary determinants of users' behavioral intentions to adopt new technologies [3]. Additionally, factors such

as self-efficacy and response-efficacy have been found to significantly influence technology acceptance [4].

Previous studies have also underscored the importance of trust, perceived value, and privacy concerns in shaping user acceptance of mHealth applications [5]. The interplay between these factors and user acceptance highlights the complex nature of technology adoption in healthcare contexts [6]. For example, Sediono and Kusumadewi analyzed user acceptance of online health services in Central Java and Yogyakarta, finding that user experience and service quality significantly influence user acceptance among health practitioners, contributing to 75.2% of the variance in user acceptance for doctors and 70% for nurses. This demonstrates the relevance of user experience and service quality in promoting user acceptance of health applications [7].

Various sources have emphasized the transformative potential of Health Information Systems (HIS) in enhancing patient knowledge, competence, and engagement in health decision-making processes. HIS plays a critical role in modern healthcare, offering vital information that can support patient-doctor interactions, reduce wait times, and facilitate online medical consultations [8], [9], [10], [11], [12]. However, the analysis of user acceptance, particularly from diverse user perspectives, has been relatively underexplored. Concerns about the validity, security, and user comfort with HIS, as well as the challenge of controlling the quality of health information, are significant [13], [14]. Variations in patient health literacy and the potential for misleading information underscore the importance of ensuring reliable and accurate health information [13], [14]. The success of HIS depends not only on its functional criteria but also on its implementation and integration within the healthcare system, leveraging multiple technological platforms to enhance accessibility and decision-making capabilities [15], [16].

This study contributes to the existing literature by focusing specifically on the factors influencing user acceptance of the Halodoc application, particularly user experience and user satisfaction, within the Indonesian context. This focus is significant as digital health solutions like Halodoc are critical for improving healthcare accessibility in regions with varying levels of healthcare infrastructure and digital literacy. By examining these factors, the study aims to provide practical insights into enhancing mHealth applications to better cater to local needs and improve overall user acceptance.

To explore these factors, we conducted a comprehensive survey of Halodoc users to evaluate their experiences and satisfaction with the application. The data collected allowed us to analyze the relationships between user experience, service quality, user satisfaction, and overall acceptance of Halodoc.

2. Research Method

2.1. Research Design

This study employs a quantitative research design to investigate the factors influencing user acceptance of the Halodoc mobile health application. The primary variables of interest include user experience, user satisfaction, and user acceptance. A structured questionnaire was used to collect data from Halodoc users [17]. The questionnaire was developed using established scales from previous studies on user acceptance of mHealth applications, as these studies addressed similar topics but with different applications. To suit the specific context of the Halodoc application, the wording of the questions was adapted to reflect the features and user experiences unique to Halodoc. For example, items originally designed to measure perceived usefulness, ease of use, and service quality in other mHealth applications were modified to specifically address the functionalities and services provided by Halodoc. This approach ensured that the questionnaire was relevant and accurately captured user perceptions and experiences with the Halodoc application.

2.2. Population and Sample

The population for this study consists of users of the Halodoc mobile health application. A total of 81 respondents were randomly selected from Halodoc's user base [18]. The sample size of 81 respondents was considered sufficient for this study based on statistical guidelines suggesting that a minimum of 30 participants is generally adequate for reliable survey research, especially in exploratory studies [19]. Recent literature on survey research has proposed adjustments to traditional sample size determination methods to ensure robust findings even with relatively small sample sizes [20]. These adjustments make it possible to draw meaningful conclusions from samples in the range of 80-100 participants, which aligns with the sample size used in this study.

Respondents were randomly selected from the Halodoc user base using a simple random sampling technique, ensuring that every user had an equal chance of being included in the study. This method helps minimize selection bias and improves the generalizability of the findings. The diverse demographic profile of Halodoc users—including various age groups, education levels, and professions—makes it representative of the broader population of mHealth application users in Indonesia. Recent studies have highlighted the critical role of representative sampling in enhancing the validity of technology acceptance research, especially when dealing with diverse user groups [21].

2.3. Data Collection Instrument

To assess user perceptions of the Halodoc mobile health application, a structured questionnaire was developed

based on validated instruments from previous studies. The questionnaire consisted of five main sections, each representing a specific construct relevant to mobile health technology evaluation.

The Demographics section collected essential background data, including age, gender, level of education, and frequency of Halodoc usage. The User Experience (UX) section adopted a modified version of the User Experience Questionnaire (UEQ), which measures both pragmatic quality (efficiency, perspicuity, dependability) and hedonic quality (stimulation, novelty), as proposed by [22].

The Service Quality (SQ) section was adapted from the SERVQUAL model developed by Parasuraman et al., encompassing indicators such as tangibles, reliability, responsiveness, assurance, and empathy [23]. The User Satisfaction (US) section followed the framework used in prior research to capture satisfaction with the app overall, specific features, and perceived service quality [24]. Finally, the User Acceptance (UA) construct was measured using items from the Technology Acceptance Model (TAM), particularly focusing on perceived usefulness, ease of use, and intention to use [25].

Altogether, the questionnaire consisted of 21 items covering the five constructs. The detailed structure of the questionnaire, including category, item codes, and question formulations, is presented in Table 1.

Table 1. Survey Questions for Halodoc Application Evaluation

Category	Item	Question
User Acceptance	Q01	Is the Halodoc application useful in your daily life as a user?
	Q02	Does using the Halodoc application services help you accomplish many things more quickly?
	Q03	Does the Halodoc application increase your productivity as a user?
	Q04	Are you able to use the Halodoc application services easily and skillfully?
	Q05	Is learning to use the Halodoc application services easy enough?
User Experience	Q06	Are the interactions with the Halodoc application services clear and easy to understand?
	Q07	Will you influence others to use the Halodoc application services?
	Q08	Is using the Halodoc application services enjoyable?
	Q09	Has using the Halodoc application become a natural part of your routine?
	Q10	How often do you use the Halodoc application services?
Service Quality	Q11	Are the Halodoc application services more beneficial in terms of their price?
	Q12	Do the Halodoc application services provide the best service for their price?
	Q13	Can users become addicted to using the Halodoc application?
	Q14	Will you always try to use the Halodoc application in your daily life?
User Satisfaction	Q15	Do you plan to continue using the Halodoc application regularly?
	Q16	Do you enjoy your experience with the Halodoc application?
	Q17	Have you successfully used the Halodoc application?
	Q18	Can you control the Halodoc application?
	Q19	Is the information provided by the Halodoc application clear?
	Q20	Do you feel uncomfortable during your experience with the Halodoc application?
	Q21	Do you think the Halodoc application will be useful for your rehabilitation?

2.4. Data Collection Procedure

Data were collected through an online survey distributed via email and social media platforms linked to Halodoc. The survey was open for responses over a period of 2 weeks. Participation was voluntary, and informed consent was obtained from all respondents prior to completing the questionnaire [26].

2.5. Data Analysis

Data analysis was conducted using Python with pandas, matplotlib, statmodels library. The following statistical techniques were applied:

Descriptive Statistics: To summarize the demographic characteristics of the respondents and the main variables of interest.

Validity and Reliability Tests: Pearson's correlation coefficient was used to test the validity of the questionnaire items. Cronbach's Alpha was calculated to assess the internal consistency of the scales [27]. Validity and reliability are crucial in survey research to ensure accurate and consistent measurement of constructs. Validity confirms that the instrument measures what it is intended to measure, while reliability ensures consistent results across different instances [28]. Without them, survey data can lead to incorrect conclusions [29]. In this study, validity was assessed using the Pearson correlation coefficient, and reliability was measured with Cronbach's Alpha to ensure internal consistency of the scales [30].

Correlation Analysis: To examine the relationships between user experience, service quality, user satisfaction, and user acceptance [31].

Regression Analysis: Multiple regression analysis was performed to determine the impact of user experience, service quality, and user satisfaction on user acceptance [24].

2.6. Flowchart Diagram

The entire research procedure is visually illustrated in Figure 1, outlining each step from instrument development to data interpretation. The process began with the creation of a structured questionnaire using Google Forms, which was then distributed to participants via email and social media platforms connected to Halodoc. Responses were collected over a two-week period, during which all participants were

required to provide informed consent prior to participation.

Following data collection, the responses were downloaded and cleaned to ensure completeness and accuracy. Data preparation was essential to eliminate missing values or inconsistencies before proceeding to analysis.

The next stage involved testing the validity and reliability of the instrument. Validity was assessed through Pearson correlation coefficient analysis, while internal consistency (reliability) was examined using Cronbach's Alpha.

Subsequently, the study conducted a series of statistical analyses. Descriptive statistics were used to summarize respondent demographics and variable distributions. Correlation analysis was performed to explore relationships among variables such as user experience, service quality, user satisfaction, and user acceptance. Multiple regression analysis followed to determine the influence of the independent variables on user acceptance.

In the final phase, the results from the statistical tests were interpreted. The insights gained were used to draw conclusions and discuss the implications of the study, particularly in the context of improving user adoption of mobile health applications like Halodoc.

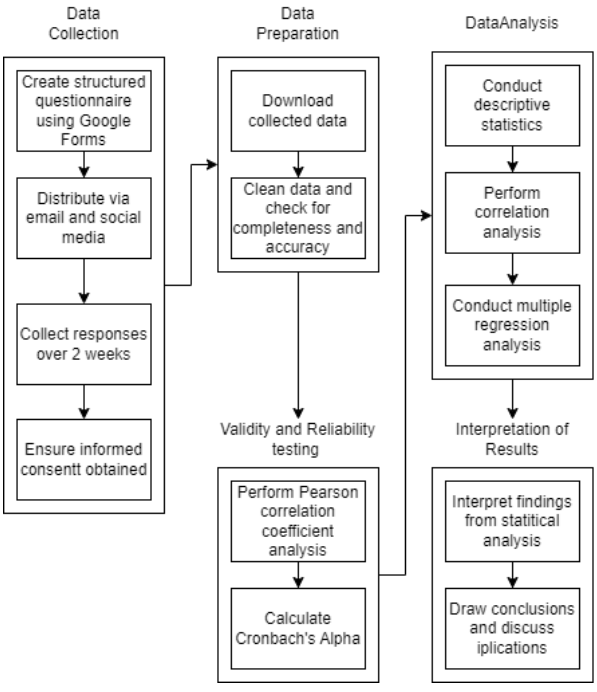

Figure 1. Flowchart Diagram

2.7. Ethical Considerations

This study was conducted in accordance with ethical guidelines for research. Confidentiality of the respondents was maintained, and no personal identifiers were collected. Ethical approval was obtained from the relevant institutional review board prior to the commencement of the study [32].

3. Result and Discussion

3.1. Demographic Data

The survey results for the Halodoc application include 82 respondents, with 49% men and 51% women. Most respondents have a Bachelor's degree (71%), followed by 22% with a Master's or Doctorate degree, 6% with primary to high school education, and 1% with a diploma. Age distribution shows 15% aged 21-25, 26% aged 26-30, 18% aged 31-35, and 41% aged 36 and above. Occupations vary, with 39% in education, 4% in healthcare, and 57% in technical fields. This demographic data demonstrates a diverse respondent background as shown in Figure 2.

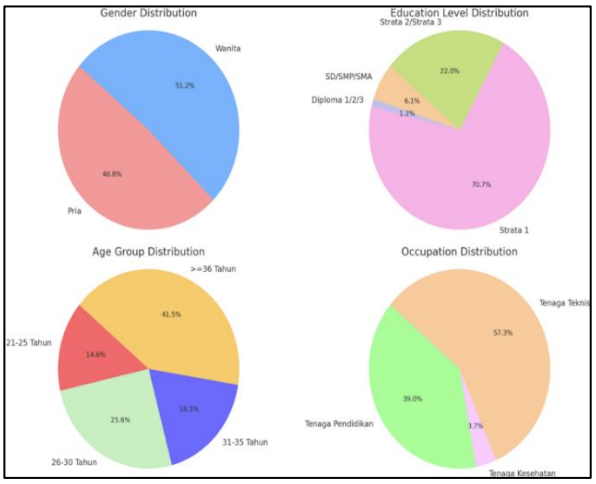

Figure 2. Demographic Distribution of Halodoc Application Users

3.2. Validity Test

The validity of the survey instrument was assessed using Pearson's correlation coefficient to determine how well each item reflects the construct it is intended to measure. The results of the validity test for each item, categorized by variable, are presented in Table 2. The User Acceptance category demonstrates strong item correlations, ranging from 0.7753 (Q5) to 0.8510 (Q3). These results indicate a high degree of validity, confirming that the items effectively capture respondents' perceptions regarding their acceptance of the Halodoc application.

In the User Experience category, most items also show acceptable to high validity, with correlation values generally above 0.75. Notable examples include Q8 (0.8478) and Q9 (0.8420). However, Q6 presents a lower correlation value of 0.6225, which, while still acceptable, suggests room for refinement.

The Service Quality category also reveals strong validity, with item correlations ranging from 0.6821 (Q12) to 0.8773 (Q14). The highest value, found in Q14,

highlights the robustness of the item in capturing perceptions of service reliability and value.

In the User Satisfaction category, most items score above 0.75. Items such as Q16 (0.8303) and Q21 (0.8092) exhibit particularly strong correlations, supporting their effectiveness in measuring user satisfaction. The only exception is Q20, which yields a lower correlation value of 0.5691, indicating limited alignment with the overall satisfaction construct.

Overall, the findings confirm that the survey instrument demonstrates strong construct validity across all categories and is appropriate for evaluating user perceptions of the Halodoc application.

Table 2. Pearson's Correlation for Survey Items by Category

Category	Item	Pearson's Correlation
User Acceptance	Q1	0.8178
	Q2	0.8420
	Q3	0.8510
	Q4	0.8429
	Q5	0.7753
User Experience	Q6	0.6225
	Q7	0.7678
	Q8	0.8478
	Q9	0.8420
	Q10	0.7702
Service Quality	Q11	0.7788
	Q12	0.6821
	Q13	0.8289
	Q14	0.8773
	Q15	0.8457
User Satisfaction	Q16	0.8303
	Q17	0.7517
	Q18	0.7953
	Q19	0.8070
	Q20	0.5691
	Q21	0.8092

3.3. Reliability Test

The reliability of the survey instrument was assessed using Cronbach's Alpha, which measures the internal consistency of the items within each category. A Cronbach's Alpha value above 0.7 is generally considered acceptable, while values above 0.8 are regarded as very good in the context of social and behavioral research.

Table 3. Cronbach's Alpha Reliability Scores for Survey Categories

Category	Item
User Acceptance	0.8830
User Experience	0.8192
Service Quality	0.8635
User Satisfaction	0.8404

As shown in Table 3, the User Acceptance category achieved a Cronbach's Alpha of 0.8830, indicating excellent internal consistency and high reliability in measuring user acceptance of the Halodoc application. The User Experience category also demonstrated good reliability, with a Cronbach's Alpha of 0.8192, confirming that the items are consistent in capturing user experience despite being slightly lower than that of User Acceptance.

Similarly, the Service Quality category obtained a Cronbach's Alpha value of 0.8635, reflecting strong consistency among items related to users' evaluation of service performance. The User Satisfaction category showed a reliability coefficient of 0.8404, which indicates that the items effectively and consistently measure users' overall satisfaction with the application.

Taken together, these results confirm that the survey instrument used in this study possesses strong internal consistency across all categories. Therefore, it can be considered reliable for evaluating user perceptions related to acceptance, experience, service quality, and satisfaction with the Halodoc mobile health application.

3.4. Descriptive Statistical Analysis

The descriptive statistical analysis was conducted to summarize the central tendencies and dispersion of each variable measured in the survey. The results, as presented in Table 4, provide an overview of user responses across the four key categories: User Acceptance, User Experience, Service Quality, and User Satisfaction.

Table 4. Descriptive Statistics for Survey Categories

Category	User Acceptance	User Experience	Service Quality	User Satisfaction
Mean	19.86	18.23	16.27	21.77
Std Dev	3.51	3.69	4.13	4.27
Min	7.00	8.00	5.00	6.00
Max	25.00	25.00	25.00	30.00
Median	20.00	18.00	16.00	22.00
1st Quartile	18.00	16.00	14.00	20.00
3rd Quartile	22.00	21.00	19.00	24.00

Among these categories, User Satisfaction recorded the highest mean score of 21.77, with a standard deviation of 4.27, indicating that users reported a generally high and consistent level of satisfaction with the Halodoc application. The median score in this category was 22.00, with the first quartile at 20.00 and the third quartile at 24.00, suggesting that a majority of users rated their satisfaction above average.

In comparison, the User Acceptance category showed a mean score of 19.86, and the User Experience category had a mean score of 18.23, both reflecting positive user responses. These findings suggest that users not only accept the application but also perceive it as a favorable and beneficial tool for managing their health needs.

Although the Service Quality category yielded the lowest mean value of 16.27, the results still indicate moderate satisfaction regarding the services offered. Taken together, the data suggest that Halodoc is generally well-received and aligns with user expectations in terms of satisfaction, usability, and overall experience.

3.5. Correlation Analysis

Correlation analysis was conducted to examine the relationships among the four main constructs: User Acceptance, User Experience, Service Quality, and User Satisfaction. The results are presented in Table 5, which displays the correlation matrix of these variables.

As shown in the Table 5, the strongest correlation was observed between User Acceptance and User Satisfaction (r = 0.8314), suggesting that users who are more satisfied with the application are also more likely to accept and continue using it. Similarly, a high correlation was found between User Experience and User Satisfaction (r = 0.8006), and between User Experience and User Acceptance (r = 0.7983), indicating that a positive user experience plays a significant role in shaping both satisfaction and acceptance.

Table 5. Correlation Matrix of Survey Categories

	User Acceptance	User Experience	Service Quality	User Satisfaction
User Acceptance	1.0000	0.7983	0.6921	0.8314
User Experience	0.7983	1.0000	0.8495	0.8006
Service Quality	0.6921	0.8495	1.0000	0.7661
User Satisfaction	0.8314	0.8006	0.7661	1.0000

The Service Quality variable also demonstrated strong correlations with other constructs. In particular, it showed a correlation of 0.8495 with User Experience, and 0.7661 with User Satisfaction, suggesting that perceived service quality contributes meaningfully to a user's overall experience and satisfaction.

These results highlight that all constructs are significantly interrelated. Improvements in one aspect such as service quality can have a cascading positive effect on other dimensions like user experience, satisfaction, and acceptance. This finding reinforces the internal coherence of the conceptual model and supports the validity of the measurement instrument used in this study.

3.6. Hypothesis Testing with Regression Analysis

The linear regression analysis results before and after applying the stepwise method provide valuable insights into the influence of independent variables on user acceptance. Before applying stepwise, the regression model with independent variables user experience, service quality, and user satisfaction shows an R-squared value of 0.744 and an adjusted R-squared value of 0.734. This means that about 74.4% of the variation in user acceptance can be explained by this model. The coefficients for user experience (0.4292) and user satisfaction (0.4644) are significant with p-values less than 0.05, indicating that these two variables have a significant influence on user acceptance. However, service quality is not significant (p-value 0.276), indicating that its influence on user acceptance is not strong enough to be included in the model.

After applying the stepwise method, the model is simplified by removing the non-significant variable service quality. This simplified model has an R-squared value of 0.740 and an adjusted R-squared value of 0.734, almost the same as the initial model, indicating that the removal of the service quality variable does not significantly reduce the model's ability to explain variations in user acceptance. The coefficients for user experience (0.3513) and user satisfaction (0.4399) remain significant with very low p-values of 0.000, indicating that these two variables are strong predictors of user acceptance.

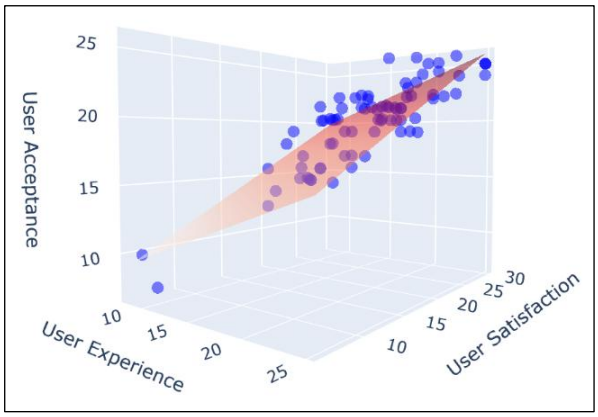

Figure 3. Simplified Linear Regression Model of User Acceptance

The simplified linear regression model in Figure 3 can be expressed with the following equation:

$$UA = 3.8844 + 0.3513 * UX + 0.4399 * US \quad (1)$$

Considering the linear regression results before and after applying the stepwise method, we can conclude that user experience and user satisfaction have a significant influence on user acceptance. The null hypothesis (H0) that the coefficients of the independent variables are equal to zero (no influence) is rejected for these two variables, while for service quality, the null hypothesis cannot be rejected. This analysis indicates the importance of user experience and user satisfaction in determining user acceptance, while service quality may require additional evaluation or re-measurement to assess its actual impact.

Although service quality was not found to be a significant factor in the regression model, this result may be explained by the nature of mobile health applications like Halodoc, where users prioritize functionality and convenience over traditional service quality metrics. In the context of mHealth applications, particularly those aimed at providing on-demand healthcare services, users may place more emphasis on quick access to medical consultations and ease of use rather than service aspects like customer support responsiveness or empathy.

Therefore, service quality may play a more secondary role, overshadowed by the app's performance in delivering immediate and efficient healthcare solutions.

Beyond simply presenting these statistical findings, the results have clear practical implications for app developers and marketers. For developers, focusing on enhancing user experience (UX) is essential. Simplifying navigation, ensuring a smooth user interface, and reducing friction points during service usage can help foster higher user acceptance. Marketers, on the other hand, should capitalize on the findings by emphasizing the app's ease of use and efficiency in promotional campaigns. Highlighting these aspects will likely appeal to potential users, driving both adoption and retention of the application.

When comparing these results with previous studies, our findings align with other research, such as Wang and Qi (2021), which also emphasize the importance of UX and user satisfaction in determining health app acceptance. However, the diminished role of service quality contrasts with studies in more long-term or chronic care-focused health apps, where service interactions are more critical. This suggests that service quality may be more relevant in apps designed for prolonged user engagement, whereas in transactional, on-demand services like Halodoc, UX and satisfaction dominate.

Further analysis reveals that user experience and satisfaction significantly explain variations in user acceptance. A positive user experience reduces barriers to service access, creating a seamless interaction that encourages users to repeatedly engage with the app. Satisfaction, reflecting the fulfillment of user expectations, plays a key role in sustaining long-term use. Users who find the app reliable and easy to navigate are more likely to recommend it to others, thereby amplifying user acceptance.

4. Conclusion

This study highlights the significant impact of user experience and user satisfaction on the acceptance of the Halodoc mobile health application. The findings reveal that these two factors are critical predictors of user acceptance, accounting for 74.4% of its variance. The high correlation between user acceptance and user satisfaction (0.8314) underscores the importance of ensuring that users are satisfied with their overall experience to foster acceptance. The regression analysis further confirms that user experience and user satisfaction are essential for enhancing user acceptance, with respective coefficients of 0.3513 and 0.4399 in the simplified model. Service quality, while important, did not show a significant direct impact on user acceptance in this study, suggesting that further research might be needed to explore its indirect effects or contextual relevance. Overall, these insights can guide developers and stakeholders in optimizing mHealth applications like Halodoc by focusing on improving user experience and satisfaction to meet user needs and expectations effectively.

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