

ANALYSIS OF THE FACTORS AFFECTING TELEMEDICINE USAGE ON ONLINE PURCHASE INTENTIONS FOR HEALTH INSURANCE

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Keywords

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ABSTRACT

Telemedicine has emerged as a vital tool for providing remote medical consultations, diagnostics, and treatment, especially during the COVID-19 pandemic. However, the integration of telemedicine and health insurance has the potential to enhance healthcare accessibility and affordability. This study aims to analyze the relationships between variables to identify factors influencing the public's intention to purchase online, based on the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB), supported by extension variables such as Risk and User Satisfaction, in line with digital marketing within the field of management. The study employs robust methodological approaches, such as Structural Equation Modeling (SEM) and Partial Least Squares (PLS), offering valuable frameworks for future research while addressing the evolving healthcare landscape in Indonesia. The research findings provide evidence-based insights to address psychological and societal barriers, supports policymakers and healthcare providers in enhancing telemedical strategies, and evaluates the role of government and insurance collaboration in overcoming adoption challenges.

INTRODUCTION

The rapid advancement of digital technology has significantly reshaped various industries, including healthcare. Telemedicine, as a prominent innovation, has emerged as a vital tool for providing remote medical consultations, diagnostics, and treatment, especially during the COVID-19 pandemic (Haleem et al., 2021; Jnr, 2020; Lukas et al., 2020; Omboni et al., 2022; Shen et al., 2021). This shift has not only enhanced accessibility to healthcare services but also fostered new opportunities for integrating telemedicine with complementary sectors such as health insurance. The growing reliance on telemedicine has highlighted the need to explore how this technological evolution influences consumer behavior, particularly their intention to purchase health insurance online (Hossain et al., 2023; Kautish et al., 2023; Upadhyay et al., 2023). Understanding these dynamics is crucial for leveraging telemedicine as a driver of health insurance adoption in an increasingly digitized world.

The integration of telemedicine and health insurance presents both opportunities and challenges. While telemedicine platforms provide users with convenience and improved healthcare experiences, factors such as perceived risk and user satisfaction significantly shape their online purchasing intentions. In Indonesia, concerns about data security breaches and the varying quality of telemedicine services add complexity to this relationship. Despite these challenges, the synergy between telemedicine and health insurance has the potential to enhance healthcare accessibility and affordability. Therefore, analyzing the factors affecting telemedicine usage in influencing health insurance purchase decisions is imperative to develop targeted strategies that address user concerns and improve adoption rates.

Indonesia had a population of over 210 million people in 2022, experiencing rapid growth in internet usage, which reached 77% (Asosiasi Penyelenggara Jasa Internet Indonesia (APJII), 2022).

According to the World Health Organization (WHO), telemedicine has significant potential to overcome geographical barriers, provide clinical support, and enhance access to healthcare services (Raja et al., 2021). However, data from the Central Statistics Agency (BPS) indicates that 95.11%, or 95 out of 100 people in Indonesia, have never utilized telemedicine (Badan Pusat Statistik, 2022). Telemedicine in Indonesia requires support from the government, particularly from the Ministry of Health (Kemenkes RI), along with collaboration with health insurance providers (Kementerian Kesehatan Republik Indonesia, 2024). Innovations such as Garda Healthtech, supported by the Halodoc telemedicine app, exemplify the integration of digital health services (Rizwan et al., 2021). However, research is needed regarding public attitudes and behaviors related to telemedicine usage in the post-Covid-19 era (Priescu & Oncioiu, 2022).

This study aims to analyze the relationships between variables to identify factors influencing the public's intention to purchase online, alongside the positive impact of telemedicine usage, attitudes toward its adoption, and societal behaviors. This study contributes to the understanding of telemedicine adoption by identifying key factors influencing public intention to purchase online, exploring societal behaviors, and analyzing attitudes toward digital healthcare in the post-Covid-19 era. It provides evidence-based insights to address psychological and societal barriers, supports policymakers and healthcare providers in enhancing telemedicine strategies, and evaluates the role of government and insurance collaboration in overcoming adoption challenges. Additionally, the study employs robust methodological approaches, such as Structural Equation Modeling (SEM) and Partial Least Squares (PLS), offering valuable frameworks for future research while addressing the evolving healthcare landscape in Indonesia.

METHODS

This study is presented through a series of processes illustrated in Figure 1, involving several variables such as Perceived Ease of Use (PEU), Perceived Usefulness (PU), Attitude (A), Trust (T), Risk (R), Purchase Experience (PE), Perceived Behavioral Control (PBC), User Satisfaction (US), Subjective Norm (SN), and Online Purchase Intention (OPI). Additionally, it includes managerial implications using the Plan, Do, Check, Action (PDCA) approach (Moen, 2009). The questionnaire responses, which are predictive and exploratory in nature, were analyzed using Descriptive Statistics and Partial Least Squares (PLS), supported by Structural Equation Modeling (SEM) with a variance-based approach.

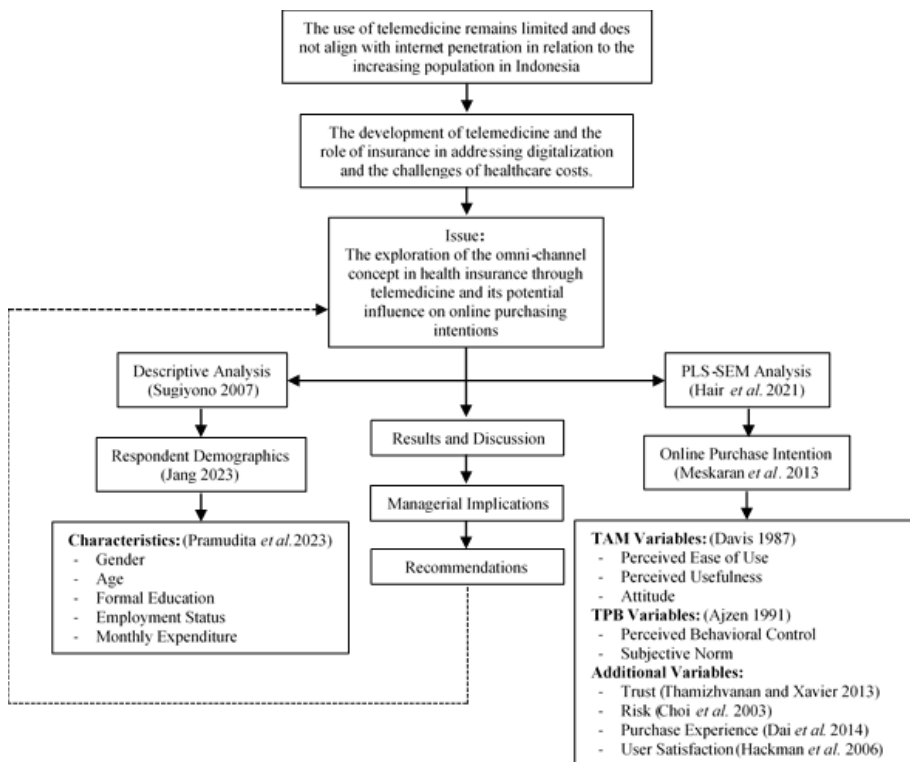


Figure 1. Conceptual Framework

The distribution category of the questionnaire, according to the Central Statistics Agency (BPS), includes the largest number of productive population, proximity between regions, and sample diversity. The research locations encompass DKI Jakarta, West Java, or Banten, with data collection occurring from June to July 2024. Primary data were gathered online via Google Forms in the form of a questionnaire featuring multiple-choice answers (4 options) and a Likert scale, which includes: Value 1 = Strongly Disagree; Value 2 = Disagree; Value 3 = Agree; Value 4 = Strongly Agree. Secondary data were collected through literature reviews, journals, and publications. Furthermore, the research attributes involve 9 independent variables, 1 dependent variable, and 30 manifest variables (indicators) aligned with publications related to the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and references for expanded variables. The Structural Equation Modeling concept serves as a structured research model to analyze the relationships among variables within the available research constructs, as illustrated in Figure 2.

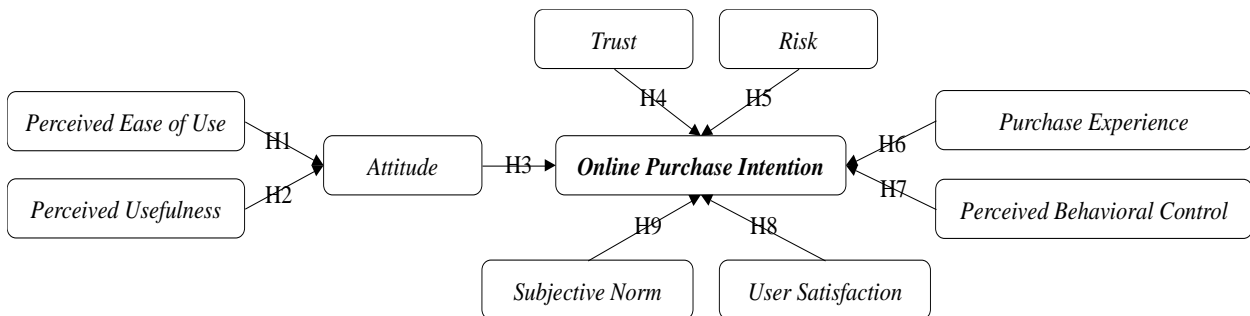


Figure 2. Concept of Structural Equation Modeling

The type of hypothesis relevant to this study is a two-tailed hypothesis, which does not specify a positive or negative direction. Thus, the hypotheses involved are represented using the null hypothesis symbol (H_0) and the alternative hypothesis (H_a). The following are some of the hypotheses used:

- 1) $H_1 = H_0$: PEU does not significantly affect A.
 H_a : PEU significantly affects A.
- 2) $H_2 = H_0$: PU does not significantly affect A.
 H_a : PU significantly affects A.
- 3) $H_3 = H_0$: A does not significantly affect OPI.
 H_a : A significantly affects OPI.
- 4) $H_4 = H_0$: T does not significantly affect OPI.
 H_a : T significantly affects OPI.
- 5) $H_5 = H_0$: R does not significantly affect OPI.
 H_a : R significantly affects OPI.
- 6) $H_6 = H_0$: PE does not significantly affect OPI.
 H_a : PE significantly affects OPI.
- 7) $H_7 = H_0$: PBC does not significantly affect OPI.
 H_a : PBC significantly affects OPI.
- 8) $H_8 = H_0$: US does not significantly affect OPI.
 H_a : US significantly affects OPI.
- 9) $H_9 = H_0$: SN does not significantly affect OPI.
 H_a : SN significantly affects OPI.

The sample for this study was determined based on criteria that included having previously used telemedicine, planning to have health insurance, and being residents of DKI Jakarta, West Java, or Banten. A purposive sampling technique was employed to ensure a minimum sample size of 100 respondents, with questionnaires distributed to 150 individuals to account for the questionnaire design, distribution pattern, and data collection methods. Descriptive analysis was conducted using LibreOffice Calc, while SEM analysis was performed utilizing the SmartPLS 4 instrument. The SEM analysis encompassed the evaluation of the Outer Model (Cronbach's Alpha, Composite Reliability, Discriminant Validity, Average Variance Extracted), the Inner Model (R-Square and Q-Square), and the Path Diagram.

RESULTS

Descriptive Analysis

The data obtained from the respondents in this study were analyzed descriptively, with the expectation that it can be used for interpreting the results in accordance with the data presented in Tables 1, 2, 3, and 4.

Table 1. Number of Respondents Based on Sample Criteria

Sample Criteria	Details	Number of Respondents	Percentage (%)
Telemedicine Usage Duration	>2 Years	43	43.00
Residency Status	West Java	49	49.00

Source: Processed Data (2024)

Data in Table 1 shows that the use of telemedicine is predominantly observed among respondents who have utilized it for more than 2 years, with a total of 43 individuals (43.00%). This is followed by the dominant status of respondents from West Java, totaling 49 individuals (49.00%). Therefore, the use of telemedicine by the community tends to have occurred during the Covid-19 pandemic, and residents of West Java dominate its utilization, showing a tendency to intend to purchase health insurance online, as advancements in digital technology are viewed positively. This information should be further supported by the respondent characteristics presented in Table 2.

Table 2. Number of Respondents Based on Characteristics

Respondent Characteristics	Details	Number of Respondents	Percentage (%)
Gender	Male	51	51.00
Age	25-34 Years	55	55.00
Formal Education	Bachelor's Degree (S1/D4)	59	59.00
Employment Status	Private Sector Employee	55	55.00
Monthly Expenditure	>Rp6,500,000	44	44.00

Source: Processed Data (2024)

Data in Table 2 shows that the dominant characteristics of respondents include 51 individuals (51.00%) who are male, 55 individuals (55.00%) aged 25-34 years, 59 individuals (59.00%) with a bachelor's degree (S1/D4), 55 individuals (55.00%) employed in the private sector, and 44 individuals (44.00%) with monthly expenditures above Rp6,500,000. Thus, the respondents who have specifically used telemedicine and plan to obtain health insurance online are primarily young working males with good educational and financial capabilities. Additionally, the cross-tabulation of sample criteria against respondent characteristics is available in Table 3.

Table 3. Cross-tabulation of Sample Criteria and Respondent Characteristics

Characteristics of Respondents	Residency Status	Telemedicine Usage Duration
25-34 Years	DKI Jakarta, West Java, or Banten	Less than 6 months to over 2 years
Private Sector Employee	DKI Jakarta, West Java, or Banten	Less than 6 months to over 2 years
>Rp6,500,000	DKI Jakarta, West Java, or Banten	Less than 6 months to over 2 years

Source: Processed Data (2024)

Data in Table 3 regarding the cross-tabulation of sample criteria against respondent characteristics indicates that the relevant population sample consists of individuals aged 25-34 years, employed in the private sector, with monthly expenditures exceeding Rp6,500,000. Additionally, the sample criteria are aligned with the respondents' locations, such as DKI Jakarta, West Java, or Banten. Respondents fitting these characteristics and residency status tend to have used telemedicine within a

timeframe ranging from less than 6 months to over 2 years. Those who have used telemedicine for less than 6 months indicate that they are still actively utilizing these services. Therefore, active telemedicine users are primarily individuals aged 25-34 years, working in the private sector, and spending over Rp6,500,000 per month, corresponding to their respective regions, including DKI Jakarta, West Java, or Banten. The data shows that those who have utilized telemedicine for less than 6 months are actively purchasing medications and consulting on health matters, while those who have used it for over 2 years primarily engaged with the services during the Covid-19 pandemic. Information regarding the assessment of variables and indicators is available in Table 4.

Table 4. Evaluation of Variables and Indicators Based on the Highest Number of Respondents

Assessment Attribute	Description
Variable	Risk
Indicator	The personal data of telemedicine users must be kept confidential
Agreement Category	Strongly Agree
Number of Respondents	79 out of a total of 100 respondents
Percentage	79.00%

Source: Processed Data (2024)

Data obtained from Table 4 shows respondents' evaluations of the indicators within the research variables, supported by a dominant response of "Strongly Agree." This indicates that the variable relevant to the topic of telemedicine usage and the intention to purchase health insurance online is "Risk," with an indicator highlighting that users' personal data must be kept confidential. Overall, the respondents' views reveal a higher response rate of 79 individuals (79.00%) out of a total of 100 respondents. Therefore, the confidentiality of users' personal data is urgent and essential, reflecting public perceptions of advancements in digital technology in healthcare, and can be considered a form of risk management.

Structural Equation Modeling Analysis

The data obtained from the respondents in this study were also analyzed using Partial Least Squares (PLS) with the Structural Equation Modeling (SEM) method, as illustrated in Figure 3, supported by the fulfillment of the minimum value requirements (Wardhani *et al.* 2023).

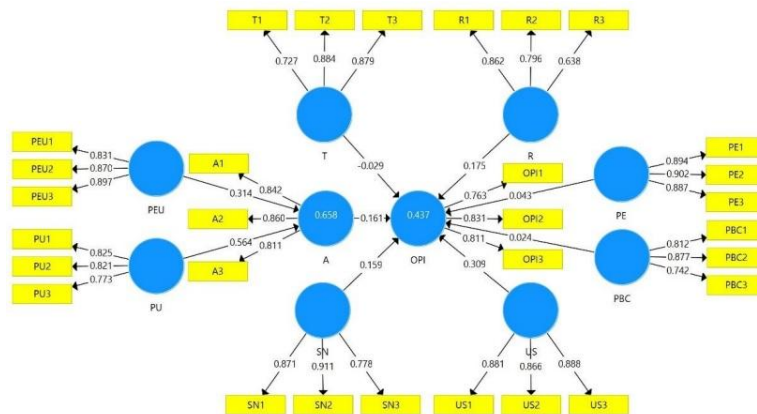


Figure 3. PLS-SEM Path Diagram

The results obtained from PLS-SEM begin with a path analysis (Path Diagram) that indicates all research indicators have Loading Factor values above 0.600 (Hair *et al.* 2012), effectively explaining the relationships between variables. The Path Coefficient value for the variable Trust is -0.029, which indicates that Trust does not significantly influence Online Purchase Intention, as the value is below 0 (Hair *et al.* 2021). Therefore, the relevance of independent variables is essential in determining their impact on dependent variables, as this involves respondents' perspectives.

The Goodness of Fit (GoF) for the Outer Model is expected to meet minimum values, such as a Cronbach's Alpha above 0.600, Composite Reliability above 0.600, Discriminant Validity above 0.500,

and Average Variance Extracted above 0.500 (used for Convergent Validity). Additionally, the Goodness of Fit (GoF) for the Inner Model is also expected to meet minimum values, with R-Square above 0.330 and Q-Square above 0. The analysis table for the variables based on Goodness of Fit for both the Outer and Inner Models is available in Table 5.

Table 5. Variable Analysis Based on Goodness of Fit for the Outer Model and Inner Model

Variable	GoF for Outer Model				GoF for Inner Model	
	Cronbach's Alpha	Composite Reliability	Discriminant Validity	Average Variance Extracted*	R-Square	Q-Square
PEU	0.834	0.900	0.867	0.751	-	0.810
PU	0.731	0.848	0.807	0.651	-	
A	0.788	0.876	0.838	0.702	0.658	
R	0.648	0.812	0.771	0.594	-	
PE	0.875	0.923	0.894	0.800	-	
PBC	0.742	0.853	0.812	0.660	-	
US	0.853	0.910	0.879	0.772	-	
SN	0.814	0.891	0.855	0.732	-	
OPI	0.729	0.844	0.802	0.643	0.437	

Source: Processed Data (2024); * = used for Convergent Validity

Data in Table 5 provides information on the Goodness of Fit for the Outer Model based on Cronbach's Alpha, where the lowest value is for the Risk variable at 0.648, categorized as Moderate. This is followed by other variables that exceed 0.700, indicating that the research variables are reliable. The Composite Reliability values for each variable are above 0.600, and the Discriminant Validity values for each variable are above 0.500, falling within the Strong category, which demonstrates that all research variables are both reliable and valid. The Average Variance Extracted for Convergent Validity indicates that the Risk variable has the lowest result among the research variables at 0.594, categorized as Moderate, while the other variables are above 0.600, confirming the reliability of both the Risk variable and the others. Furthermore, the results based on Goodness of Fit for the Inner Model reveal an R-Square value of 0.658 for Attitude and an R-Square value of 0.437 for Online Purchase Intention, both categorized as Moderate, indicating that the independent variables influence the dependent variables. The Q-Square value obtained is 0.81, classified as Strong, indicating that the research model has predictive relevance concerning the dependent variables. Thus, the reliability and validity of the data within the predictive research constructs are essential for achieving consistency and the capability to test the relationships between research variables, as supported by the hypothesis testing results in Table 6.

Table 6. Results of Hypothesis Testing

Hypothesis	Measurement Results					Description
	Original Sample	Sample Mean	Standard Deviation	T-Statistics	P-Values	
H1: PEU->A	0.314	0.314	0.097	3.242	0.001	Reject Ho
H2: PU->A	0.564	0.549	0.094	6.014	0.000	Reject Ho
H3: A->OPI	0.151	0.138	0.116	1.302	0.193	Accept Ho
H5: R->OPI	0.172	0.179	0.081	2.111	0.035	Reject Ho
H6: PE->OPI	0.038	0.038	0.145	0.265	0.791	Accept Ho
H7: PBC->OPI	0.021	0.057	0.136	0.151	0.880	Accept Ho
H8: US->OPI	0.304	0.286	0.156	1.946	0.052	Reject Ho
H9: SN->OPI	0.160	0.175	0.099	1.615	0.107	Accept Ho

Source: Processed Data (2024)

The Original Sample values in Table 6 indicate that the hypotheses used can determine the influence on latent variables, supported by low variance, as evidenced by the Sample Mean being greater than the Standard Deviation. This is seen in the results for each variable: Perceived Ease of Use and Perceived Usefulness towards Attitude, as well as Risk, User Satisfaction, and Subjective Norm towards Online Purchase Intention, indicating that the data distribution is close to the average. The hypothesis testing results show that for H1, H2, H5, and H8, the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted. Conversely, for H3, H4, H6, H7, and H9, the null hypothesis is accepted while the alternative hypothesis is rejected. Thus, the influences of Perceived Ease of Use and Perceived Usefulness on Attitude are significant, although these two variables do not support Attitude in adopting telemedicine related to Online Purchase Intention for health insurance. The influences of Risk and User Satisfaction on Online Purchase Intention also yield significant results. Therefore, the hypothesis testing for the research variables uses a significance level of 10% and a confidence level of 90%, supported by T-Statistics values greater than the T-Table value (1.66). This indicates that the acceptance of the hypotheses can be empirically tested, providing an alternative for simplifying the research problem through the significance of the influences among the variables.

Managerial Implications

This study requires managerial implications, which are presented in Table 7, to assess the significance of the results in relation to community social activities, supported by a PDCA (Plan-Do-Check-Act) approach.

Table 7. Managerial Implications Using the PDCA Approach

Plan (Strategy)	Do (Trial)	Check (Review)	Action (Implementation)
Risk			
Users' personal data in telemedicine must be kept confidential			
Data Policy Plan: Develop a plan to protect users' personal data by implementing encryption and strict access controls	Data Protection: Access to users' personal data should only be permitted for authorized staff, supported by data protection measures in accordance with privacy policies	Regular Security Reviews: Conduct regular audits and assessments to ensure proper encryption and access control	Security System Improvements: Update systems and policies to address issues affecting users
User Satisfaction			
Telemedicine services can provide satisfaction for users			
Satisfaction Measurement Plan: Conduct digital surveys related to telemedicine usage to gather information on user satisfaction	Satisfaction Survey: Collect feedback from users through surveys based on their experiences with telemedicine	Feedback Analysis: Review the survey results to identify liked aspects as well as problematic areas	Service Improvement: Address the identified issues according to the information obtained from the feedback
Online Purchase Intention			
The motivation for healthcare through insurance is enhanced by the use of telemedicine			
Marketing Campaign Plan: Prepare a digital campaign highlighting the benefits of health insurance integrated with telemedicine	Marketing Campaign: Raise awareness and engagement through social media and email regarding health insurance	Marketing Campaign Evaluation: Review digital campaign activities, assessing online registrations for health insurance	Marketing Strategy: Implement effective promotions and user appeal to enhance user appeal

Source: Processed Data (2024)

The data presented in Table 7 provides insights into managerial implications using the PDCA approach, which involves Plan, Do, Check, and Action for each manifest variable (indicator). The "Plan" phase is used to outline a series of processes for addressing issues based on findings obtained from data processing according to respondents' perspectives. This is followed by "Do," which represents the trial phase in accordance with research needs to generate output related to plans for simplifying and improving issues. The "Check" phase serves as an examination stage to rectify problems identified during the planning and evaluation processes, based on information gathered from the Plan and Do stages. Finally, "Action" involves taking steps to provide solutions and alternatives for resolving issues based on insights obtained during the Check process. The findings from the research analysis can be supported by the PDCA approach to fulfill both theoretical and practical benefits, serving as recommendations within the managerial scope. Moreover, the PDCA approach can concisely present information related to the implementation of each indicator within the variables of Risk, User Satisfaction, and Online Purchase Intention, aligning with conditions generally acceptable to the public. Therefore, the research findings play a crucial role in addressing issues, supported by information from the PDCA approach, which has implications for the managerial significance of factors influencing the intention to purchase health insurance online.

CONCLUSION

The study identifies Risk and User Satisfaction as key factors influencing the public's intention to purchase health insurance online through telemedicine platforms. While telemedicine positively impacts personal data confidentiality and enhances user motivation for healthcare, it was found that adoption behavior and telemedicine usage have no significant effect on purchase intention. Managing data security risks and improving user satisfaction are therefore critical for motivating consumers to adopt telemedicine-integrated health insurance, particularly in Indonesia, where concerns over data breaches persist. Recommendations emphasize enriching the literature with advanced frameworks like TAM and TPB, integrating cybersecurity measures, and exploring demographic and behavioral segmentation to refine marketing strategies. Future research should investigate variables like trust, usability, and personalization, analyze long-term user satisfaction, and conduct cross-cultural studies to develop adaptable strategies for integrating telemedicine and health insurance effectively.

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