

Research Paper



Technology Acceptance Model Toward Pandawa Service at the Social Security Administrative Body for Health Depok

Crefinda Hanna Ananda Yoam^{1*}, Pujiyanto¹, Atik
Nurwahyuni¹, Laksmi Damaryanti²

¹Universitas Indonesia, Depok, Indonesia

²BPJS Kesehatan, Jakarta, Indonesia

Abstract: Digital transformation has become a prominent topic in the era of globalization. Despite the growing digital transformation trend, many health service users in Indonesia still prefer face-to-face interactions, indicating a gap in digital literacy and service adoption. In response to this issue, the Social Security Administrative Body for Health launched a digital administrative service called Pandawa (Administrative Service via WhatsApp). This study aims to explore the perceptions of National Health Insurance participants who visited Social Security Administrative Body for Health Depok in 2025, focusing on the perceived ease of use and usefulness of the Pandawa service. The research employs a quantitative approach using the Technology Acceptance Model (TAM) through a cross-sectional study design. The secondary data used in this study consists of participant visits to the agency in 2024. Primary data will also be needed through distributed questionnaires. The sample consists of 109 National Health Insurance participants who are users of the Pandawa service and visited the agency during the study, conducted in February 2025. The analysis techniques of the research used the Chi-Square Test and the Binary Logistic Regression Test. The multivariate analysis shows that age, education, perceived ease of use, perceived usefulness, and attitude are significantly related to the intention to use the Pandawa service, with attitude being the dominant factor. Meanwhile, sex does not show a significant relationship to the intention to use the Pandawa service. Overall, user acceptance of the Pandawa service is relatively good, although further improvements in service quality are necessary to optimize its implementation.

Keywords: Acceptance; Digital Services; Pandawa; Perception; Technology Acceptance Model (TAM)

Introduction

The Social Security Administrative Body for Health has developed a digital administrative service called Pandawa. After the COVID-19 pandemic, digital health services have grown rapidly (Naresh et al., 2023). Based on data from APJII (2024), the percentage

of the population accessing the Internet has reached 79.5%. However, according to the Digital Literacy Index by the Ministry of Communication and Information, high Internet penetration is not aligned with the community's digital literacy level (3.49/5). Based on the 2025 Indonesian Digital Data, WhatsApp is one of the social media platforms with the highest penetration in Indonesia, reaching 90.9% of the population. Given the high number of WhatsApp users, especially during the COVID-19 pandemic when digital access became essential, Pandawa was expected to provide efficient digital administration services.

Despite the potential and accessibility offered by WhatsApp-based services, the number of Pandawa users in 2023 showed a declining trend. In January, there were 263,082 users; in February, 219,659 users; and in March, the number decreased to 172,957 users. This decline may be attributed to several factors, such as users having difficulties accessing or understanding the service, unstable network signals from providers, and limited access to gadgets among some participants. Therefore, optimization efforts are needed to improve the effectiveness of Pandawa services. Currently, Pandawa offers several types of services, including administrative services, information services, and complaint handling. Since administrative services can be completed through Pandawa, it is expected to reduce long queues and improve service efficiency.

To explore how users perceive and accept this innovation, this study adopts the Technology Acceptance Model (TAM) as its theoretical framework. TAM is an approach used to understand the extent to which individuals accept and use technology. The model includes five dimensions: Perceived Ease of Use, which refers to the extent to which a person believes that technology is easy to use; Perceived Usefulness, which is the extent to which a person believes that technology improves their performance; Attitude, which reflects the user's evaluation of using technology; Behavioral Intention to Use, which refers to the extent to which a person intends to use the technology; and Actual Use, which represents the final stage of technology adoption.

Based on TAM as the theoretical foundation for examining the perceived ease of use and perceived usefulness of the Pandawa service, this study utilizes four key dimensions: Perceived Ease of Use, Perceived Usefulness, Attitude, and Behavioral Intention to Use as its conceptual framework. The research examines the relationships between demographic characteristics, perceived ease of use, perceived usefulness, attitude, and behavioral intention to use the Pandawa service among National Health Insurance participants who visited the agency in 2025, using a quantitative approach. Furthermore, it seeks to identify the dominant factors influencing participants' behavioral intention to use the Pandawa service.

Method

This study uses a quantitative approach with a cross-sectional design, utilizing both primary and secondary data from the Social Security Administrative Body for Health.

The primary data, which were collected through a structured questionnaire, consisted of responses from National Health Insurance participants who visited the agency and used the Pandawa service. The data collection was conducted at the agency from February 17 to March 3, 2025.

Inclusion criteria: National Health Insurance participants in the Social Security Administrative Body for Health Depok who used Pandawa services for at least three months before data collection, who could speak Indonesian, and were aged ≥ 15 years. Exclusion criteria: Individuals who were visually impaired or blind, and those who declined or withdrew consent.

In determining the sample size, the researcher used the Lemeshow formula, which is appropriate for estimating the minimum sample in large populations with cross-sectional studies. Based on previous research, this method can adequately represent National Health Insurance participants when applying the TAM method.

The research instrument consisted of an informed consent form containing a description of the study, risks and benefits, data privacy and confidentiality, respondent consent, and a questionnaire (Google Forms) related to the TAM dimensions, with modifications from the original TAM instrument to fit the context of the Pandawa service.

The TAM dimensions include Perceived Ease of Use, which refers to the belief that using a technology would be free of effort; Perceived Usefulness, defined as the belief that using a technology will have a positive impact on improving productivity and effectiveness in completing tasks; Attitude, which represents the individual's evaluative orientation toward the target behavior of using a technology; and Behavioral Intention to Use, which reflects the individual's willingness to put effort into performing a behavior.

Based on theory, these four dimensions are interrelated. To form behavioral intention to use, perceived ease of use, perceived usefulness, and attitude are needed. Participants reported their perceptions using a 6-point Likert scale ranging from *strongly agree* to *strongly disagree*. Participants' responses were then dichotomized into two categories: *agree* (scores 4–6) and *disagree* (scores 1–3).

The researcher applied a Systematic Random Sampling technique, which is particularly useful and more efficient than simple random sampling. On average, 80 participants visited the Administrative Service of the agency per day. Over five days, the total number of participants was 400. Using the Lemeshow formula, the researcher obtained a sample size of 117 respondents, and the sampling interval was calculated as 3.41. The researcher randomly chose a starting point and then selected every third participant until 117 respondents were reached. The researcher arranged the list of participants to avoid patterns, ensuring data accuracy and minimizing bias. This method gives each participant an equal opportunity to be selected as a respondent.

In testing the validity of the questionnaire, the researcher used construct validity, which examines the correlation between each item and the total score. The analysis used

a significance level of 5% and an r -table value of 0,361 for 30 respondents. If the r -value of an item is greater than the r -table value, it indicates a statistically positive correlation between the item and the total score. Based on the results, the r -value was greater than the r -table value at the level of significance, indicating that the instrument items are valid.

Meanwhile, the reliability test of the questionnaire showed that Cronbach's alpha was greater than 0.7, confirming that the questionnaire is reliable.

Secondary data included participants' visit data, waiting time, and service time at each service point in the agency in 2024.

Data analysis in this study includes univariate, bivariate, and multivariate analyses. Univariate analysis shows the number and percentage of each variable (age, sex, education, perceived ease of use, perceived usefulness, attitude, and behavioral intention to use). Bivariate analysis was conducted using the Chi-Square test between variables (age, sex, education, perceived ease of use, perceived usefulness, attitude, and behavioral intention to use). The variables were first recoded into categorical forms, with each category clearly defined. For example, age was grouped by median; education level, gender, and other variables were also categorized based on predefined classifications. Multivariate analysis was performed using the Binary Logistic Regression test because the data are dichotomous (binary).

Results

After collecting data for 2 weeks, the researcher obtained 109 respondents who met the inclusion and exclusion criteria. In this study, 109 respondents were categorized based on several characteristics, including age, sex, education, and TAM variables (perceived ease of use, perceived usefulness, attitude, and behavioral intention to use). The frequency distribution of the research variables is presented in Table 1:

Table 1. Frequency Distribution of Research Variables

Variables	Category	Frequency	Percentage
Age	< 30 years old	54	49.5
	≥ 30 years old	55	50.5
Sex	Male	39	35.8
	Female	70	64.2
Education	Elementary to High School	70	64.2
	Higher Education	39	35.8
Perceived Ease of Use	Easy to Use	58	53.2
	Not Easy to Use	51	46.8
Perceived Usefulness	Useful	75	68.8
	Not Useful	34	31.2
Attitude	Positive	78	71.6
	Negative	31	28.4
Behavioral Intention to Use	Intend to Use	80	73.4
	Do Not Intend to Use	29	26.6

As shown in Table 1, most respondents reported high perceived ease of use (53.2%), high perceived usefulness (68.8%), a positive attitude (71.6%), and a high intention to use

(73.4%). Then, the relationship between the dependent and independent variables using the Chi-Square test is presented in Table 2:

Table 2. Relationship between Dependent and Independent Variables

Variables	Behavioral Intention to Use						p value
	Intend to Use		Don't Intend to Use		Total		
	n	%	n	%	n	%	
Age							
< 30 years old	43	79.6	11	20.4	54	100	0.14
≥ 30 years old	37	67.3	18	32.7	55	100	
Sex							
Male	31	79.5	8	20.5	39	100	0.28
Female	49	70	21	30	70	100	
Education							
Elementary to High School	54	77.1	16	22.9	70	100	0.23
Higher Education	26	66.7	13	33.3	39	100	
Perceived Ease of Use							
Ease to Use	56	96.6	2	3.4	58	100	<0.001
Not Easy to Use	24	47.1	27	52.9	51	100	
Perceived Usefulness							
Useful	70	93.3	5	6.7	75	100	<0.001
Not Useful	10	29.4	24	70.6	34	100	
Attitude							
Positive	73	93.6	5	6.4	78	100	<0.001
Negative	7	22.6	24	77.4	31	100	

As shown in Table 2, the bivariate analysis using the Chi-Square test revealed no significant relationship between age and behavioral intention to use Pandawa services (p-value = 0.14). However, the proportion of younger respondents (<30 years old) who intended to use Pandawa was relatively higher (79.6%) compared to those aged ≥30 years old (67.3%). Similarly, sex had no significant relationship with behavioral intention to use Pandawa services (p-value = 0.28), although a slightly higher proportion of male respondents (79.5%) reported intention compared to females (70%). Education also had no significant relationship with behavioral intention to use the Pandawa service (p-value = 0.23). However, the proportion of respondents with an elementary to high school education showed a higher intention to use (77.1%) compared to those with a higher education background (66.7%).

In the analysis of TAM variables, there is a significant relationship between perceived ease of use and behavioral intention to use Pandawa services (p-value < 0.001). Among respondents who perceived Pandawa as easy to use, 96.6% intended to use Pandawa, compared to only 47.1% of those who perceived it as not easy. Hence, the easier the Pandawa service is, the higher the user's intention to use the Pandawa service. Users who feel that the Pandawa service is easy are 31.5 times more likely to intend to use the Pandawa service than those who feel that it is not easy. Because the 95% Confidence Interval (CI) is 6.93–143.1, it can be concluded that there is a significant relationship between perceived ease of use and behavioral intention to use the Pandawa service.

Furthermore, there is a relationship between perceived usefulness and behavioral intention to use Pandawa services (p -value < 0.001). Among respondents who perceived the Pandawa as useful, 93.3% intended to use it, compared to those who perceived the Pandawa as not useful (29.4%). The more useful Pandawa services are perceived to be, the higher the user's intention to use them. Users who find Pandawa services useful are 33.6 times more likely to intend to use Pandawa services than those who do not. Since the 95% Confidence Interval (CI) is 10.43–108.1, we can conclude that there is a significant relationship between perceived usefulness and behavioral intention to use Pandawa services.

Additionally, there is a relationship between attitude and behavioral intention to use Pandawa services (p -value < 0.001). Among respondents who have a positive attitude, 93.6% intended to use Pandawa, compared to those who have a negative attitude (22.6%). The more positive the attitude of the participants toward Pandawa services, the higher their intention to use those services. Users with a positive attitude toward Pandawa services are 50.05 times more likely to intend to use them than those with a negative attitude. Since the 95% Confidence Interval (CI) is 14.53–172.4, it can be concluded that there is a significant relationship between attitude and behavioral intention to use Pandawa services. The analysis of dominant factors on the intention to use Pandawa service is presented in Table 3:

Table 3. Analysis of Dominant Factors on The Intention to Use Pandawa Services

Variables	B	Exp(B)	SE	95% CI	p value
Age	2.58	13.22	1.14	1.40–124.2	0.02
Sex	-0.35	0.70	0.91	0.11–4.18	0.69
Education	-2.02	0.13	1.00	0.01–0.94	0.04
Perceived Ease of Use	2.26	9.63	1.01	1.32–70.37	0.02
Perceived Usefulness	2.63	13.93	1.06	1.72–112.7	0.01
Attitude	3.87	47.99	1.09	5.57–412.9	<0.001

Table 3 shows the results of a multivariate logistic regression analysis to identify the dominant factors influencing participants' behavioral intention to use the Pandawa service. In the multivariate logistic regression analysis, the researcher used the Binary Logistic Regression test because the data are dichotomous (binary). The variables included in the model were age, sex, education, perceived ease of use, perceived usefulness, and attitude.

The analysis indicates that age (p -value = 0.02, OR = 13.22), education (p -value = 0.04, OR = 0.13), perceived ease of use (p -value = 0.02, OR = 9.63), perceived usefulness (p -value = 0.01, OR = 13.93), and attitude (p -value < 0.001 , OR = 47.99) had a relationship with behavioral intention to use the Pandawa service. It was found that the attitude variable has the most significant relationship with the behavioral intention to use the Pandawa service. This is proven by the OR value of attitude, which is greater than that of other variables.

The OR value of attitude is 47.99, meaning that users who have a positive attitude will have a 47.99 times higher chance of intending to use Pandawa compared to users who have a negative attitude. Each increase in the user's attitude score towards Pandawa will increase the behavioral intention to use Pandawa services by 3.87 ($B = 3.87$; $SE = 1.09$; $p < 0.001$; $95\% \text{ CI} = 5.57\text{--}412.9$). However, sex was not a significant predictor ($p\text{-value} = 0.69$), indicating no difference between males and females regarding their behavioral intention to use the Pandawa service.

Education has an $\text{Exp}(B)$ value less than 1, specifically 0.13, indicating a negative association. It means that higher education levels are less likely to intend to use the Pandawa service compared to those in the reference group. Although sex has an $\text{Exp}(B)$ value less than 1, specifically 0.70, it does not meaningfully indicate a difference between males and females in their intention to use the Pandawa service. The model summary of the -2 Log Likelihood value, Cox and Snell R Square, and Nagelkerke R Square is presented in Table 4:

Table 4. Model Summary

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
38.55	0.55	0.81

Table 4 shows that the model summary indicated that logistic regression model has a good explanatory power. The -2 Log Likelihood value was 33.55, indicating an adequate model fit compared to the model without the predictor (null model). The Cox & Snell R Square value was 0.55 and the Nagelkerke R Square value was 0.81, indicating explanatory power of the model compared to a baseline model. Specifically, the value of Nagelkerke indicates that 80.6% of the variance in behavioral intention to use the Pandawa service can be explained by the independent variable in this logistic regression model.

Discussion

Based on the research, the demographic characteristics studied (age, gender, and education) have no relationship with the intention to use Pandawa services ($p\text{-value} > 0.05$). Similar research is also discussed in the findings of a study related to its application to Virtual Reality in Trainees using the TAM method, where it was found that age had no relationship with a person's intention to use technology (Wang et al., 2024). Other studies have highlighted the role of age as a moderating variable, such as research related to its application to m-banking using the UTAUT method and studies showing that age was not a moderator in the relationship between attitudes and intentions (Intan & Riyanarto, 2021). However, in studies, it was stated that age has a significant relationship with intention, but age is controlled in a model that is not strong enough to change other variables in the research model (Abdullah, 2022; Shamsi et al., 2021). These differences in results may be caused by differences in theoretical models and age treatment in the analysis (Wang et al., 2024; Intan & Riyanarto, 2021; Abdullah, 2022; Shamsi et al., 2021).

This study shows that there is no relationship between sex and intention to use Pandawa services. Similar research was found regarding its application to the Zoom Meeting application and its application to e-training using the UTAUT method, which found that there was no relationship between sex and behavioral intention to use (Alfadda et al., 2021; Alghamdi et al., 2021). However, this is not in line with findings regarding its application to mHealth and e-commerce, where it was found that there was a significant relationship between gender and behavioral intention to use (van Elburg et al., 2022; Värzaru et al., 2021). These differences are likely due to variations in technology and theoretical models (Alfadda et al., 2021; Alghamdi et al., 2021; van Elburg et al., 2022; Värzaru et al., 2021).

The study also found that there was no relationship between education level and behavioral intention to use, which is in line with findings regarding its application to m-banking and e-commerce, stating that there was no relationship between education level and a person's acceptance of using technology (Abdullah, 2022; Abbas et al., 2022). However, this study is not in line with the study on m-banking using the UTAUT method, which found that the level of education has a significant relationship with a person's intention to use technology (Abu-Taieh et al., 2022). The differences in research results may be due to variations in technology and factors influencing the level of education (Abdullah, 2022; Abbas et al., 2022; Abu-Taieh et al., 2022).

The perceived ease of use in this study has a positive and significant relationship with a person's intention to use Pandawa services. The findings are in line with results examining the relationship between perceived ease of use and behavioral intention to use mobile wallets, where researchers used the TAM development method, namely UTAUT (To & Trinh, 2021; Siagian et al., 2022; Dwivedi et al., 2019). However, this contrasts with findings in e-learning, where perceived ease did not have a significant relationship with behavioral intention to use ($p > 0.05$) (Alassafi, 2022). These differences are likely due to variations in technology, external variables, and theoretical models (To & Trinh, 2021; Siagian et al., 2022; Dwivedi et al., 2019; Alassafi, 2022). To maintain perceived ease of use, researchers suggest prioritizing the perception of convenience by promptly addressing potential technical issues. In conveying information to participants, it is necessary to utilize social media that is most widely accessed by the public.

The perceived usefulness in this study has a positive and significant relationship with a person's intention to use Pandawa services. The findings are consistent with results on the Zoom Meeting application, digital healthcare, and e-learning, which show a significant relationship between perceived usefulness and behavioral intention to use (Alfadda & Mahdi, 2021; Dhagarra, 2020; Sukendro et al., 2020). The researchers suggest that the Social Security Administrative Body for Health continue to pay attention to the speed of Pandawa services so that respondents feel they do not have to wait a long time to resolve administrative problems. In addition, the agency can increase the number of service officers who specifically handle administrative problems, especially during peak hours. To prevent users from feeling uncertain while waiting, there should be a feature to track the

progress of handling (e.g., “message delivered,” “in process,” “completed,” and “assessment”).

The attitude in this study has a positive and significant relationship with a person’s intention to use Pandawa services. The findings are consistent with results on Zoom Meeting, AI-based technologies in construction firms, and VR, which explain that there is a positive and significant relationship between attitude and behavioral intention to use (Alfadda & Mahdi, 2021; Nnaji, 2021; Na et al., 2022; Fussell et al., 2022). However, different findings were reported for AI in e-commerce, where there was no relationship between attitude and behavioral intention to use ($p > 0.05$) (Wang et al., 2023). This difference may be due to technological variations. There should be visible positive experiences through community testimonials, as seeing testimonials from participants can reduce public distrust. These testimonials can be shared not only directly through socialization but also through social media (Alfadda & Mahdi, 2021; Nnaji, 2021; Na et al., 2022; Fussell et al., 2022; Wang et al., 2023).

Looking at the dominant factors of this study, the results are in line with research on AI-based technologies, which show that attitude is the dominant factor in behavioral intention to use technology (Na et al., 2022). Meanwhile, research on e-commerce and e-learning shows that perceived usefulness is the dominant factor in behavioral intention to use technology (Wang et al., 2023; Sukendro, 2020). These differences may be caused by variations in the context of the services provided. In e-commerce and e-learning, users tend to focus on efficiency and the practical benefits of the system, making perceived usefulness more dominant in behavioral intention to use technology. In AI-based technology, general attitudes are more dominant because users are still in the early stages of building perceptions of the technology (Na et al., 2022; Wang et al., 2023; Sukendro, 2020). Similarly, in this study, attitude is the dominant factor in behavioral intention to use Pandawa services because users consider convenience, trust, and personal perceptions of their initial use of Pandawa services. Therefore, attitude is an important component in forming intentions.

The limitations of this research are that it was conducted over a relatively short period. The results may have been influenced by specific conditions or situations at the time of the research. Likert scales and participants’ perceptions, which tend to be subjective, may introduce potential bias into the data. Further research can use advanced methods such as SEM for this topic.

Conclusion

This study was conducted to see how participants accepted Pandawa services at Social Security Administrative Body for Health (BPJS Kesehatan) Depok in 2025. In this study, 109 respondents were National Health Insurance participants and had experience using Pandawa services. Based on the findings that have been discussed previously, the researcher concluded that the respondents who dominated with the criteria were female, having graduated from elementary school to high school. In the multivariate analysis, the

variables that had a significant relationship with intention were the demographic variables of age and education, as well as the variables of perceived ease of use, perceived usefulness, and attitudes. The variable that had no relationship with intention was the sex variable. Attitude variable is the dominant factor in behavioral intention to use Pandawa services.

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