JURNAL MANAJEMEN INFORMASI KESEHATAN (HEALTH INFORMATION MANAGEMENT)
Volume 11, Issue 1, 2026 | Page 71-84
E-ISSN: 2622-0423 | P-ISSN: 2503-5118
https://ojs.stikessaptabakti.ac.id/jmis
https://doi.org/10.51851/jmis.v11i1.983

Association Between the Use of the Sahabat Hipertensi Self-Assessment Application and Preventive Lifestyle Behavior Among Adults at Risk of Hypertension

Bobi Handoko[1*], Asep Marzuki[2], Anastasya Shinta Yuliana[3], Sherly Mutiara[4]

[1,3] Hospital Administration Study Program, Faculty of Health Science, Awal Bros University
[2] Informatics Study Program, Faculty of Creative Technology and Economy, Awal Bros University
[4] Fisioteraphy Study Program, Faculty of Health Science, Awal Bros University

bobihandoko.bh@gmail.com[1*]
asep@univawalbros.ac.id[2]
anastasyasyuliana@gmail.com[3]
sherly9391@gmail.com[4]

ARTICLE INFO

Keywords:
Hypertension; Mobile Health; Self-Assessment; Technology Acceptance; Health Behavior;

Article History:
Received: 4/24/2026
Revised: 5/18/2026
Accepted: 5/19/2026

ABSTRACT

Background of study: Hypertension is a major public health issue because it often goes unnoticed until complications arise. Mobile health applications offer a practical way to support self-assessment, risk awareness, and behavior change. This study examines whether the Sahabat Hipertensi app influences preventive lifestyle behavior among adults at risk of hypertension, using the combined perspectives of the TAM and the HBM.

Methods: A quantitative explanatory study was conducted with 200 adults aged 25-60 years who had at least one risk factor for hypertension. Participants completed a 30-item Likert questionnaire measuring perceived usefulness, susceptibility, severity, an intention to use, actual use, and preventive lifestyle behavior. Structural relationships were analyzed using SmartPLS 4.

Results: The model measurement demonstrated satisfactory validity and reliability. Structural analysis showed that perceived usefulness (beta value 0.612, p less than 0.001), perceived usefulness influenced the intention to use (beta value 0.351, p less than 0.001), perceived susceptibility impacted the intention to use (beta value 0.214, p value 0.003), and perceived severity affected the intention to use (beta value 0.197, p value 0.008). Actual use was significantly linked to preventive lifestyle behavior (beta value 0.762, p less than 0.001). The model explained 58% of the variance in healthy behavior.

Conclusion: The Sahabat Hipertensi app plays a significant role in promoting preventive lifestyle behavior among adults at risk of hypertension. Combining TAM and HBM offers an effective framework for understanding the adoption of hypertension self-assessment technology in community health settings.

How to cite this article:
Handoko, B. Marzuki, A Yuliana, A.S. Mutiara, S (2026). Association Between the Use of the Sahabat Hipertensi Self-Assessment Application and Preventive Lifestyle Behavior Among Adults at Risk of Hypertension, 11(1). 71-84. https://doi.org/10.51851/jmis.v11i1.983

INTRODUCTION

Hypertension is worldwide and remains a most public health concern due to its high prevalence and serious long-term complications (Dharmawan et al., 2024; Putri et al., 2024). It is commonly referred to as a "silent killer" because many individuals experience no clear symptoms until the condition has progressed to an advanced stage(DeRubertis et al., 2008; Khasanah, 2022). Uncontrolled hypertension is strongly associated with severe health outcomes some of them include desease looks like stroke, heart failure, chronic kidney disease, even early death. According to global and national health reports, the burden of hypertension continues to rise as a result of population aging, sedentary lifestyles, unhealthy diets, obesity, tobacco use, and stress-related factors (Amalia et al., 2023; Rumaf et al., 2023; Siregar et al., 2024).

In community settings, awareness of hypertension is often low. Many adults do not know their blood pressure status because they rarely undergo routine screening or medical examinations. (Aryantiningsih et al., 2023; Pratiwi, 2023). As a result, hypertension is frequently detected only after symptoms appear or complications occur. This condition needs an urgent solution for accessible early-detection methods and sustainable health promotion initiatives in addition to screening, lifestyle are considered key preventive measures (Alzahrani et al., 2022; Halim & Sutriyawan, 2022; Luke Halpern, 2024).

The rapid development of mobile technology offers new opportunities to support public health interventions. Smartphone-based health applications can provide self-assessment tools, health education, reminders, and behavior-tracking features, enabling users to manage their health more actively. The Sahabat Hipertensi application was designed as a self-assessment platform to help users identify hypertension risk factors and encourage healthier daily habits (Ariyani et al., 2022; Faridah et al., 2022; Korzun et al., 2015; Kuusik et al., 2018; Minasari et al., 2022).

Literature review: The TAM is one of the most widely used frameworks for explaining why individuals adopt or reject new technology (Al-Musawi & Alghatrifi, 2021; Alsyouf et al., 2023; Health & Journal, 2025). The TAM explains that an individual's willingness to adopt a technology is mainly influenced by two key factors Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). Users who consider a system easy to understand and operate, as well as valuable in meeting their needs, are more likely to form favorable attitudes and stronger intentions to use the technology (Ariyani et al., 2022; Faridah et al., 2022; Korzun et al., 2015; Kuusik et al., 2018; Minasari et al., 2022)

However, technology acceptance alone may not fully explain health-related behavior. Therefore, the Health Belief Model HBM is relevant to complement TAM (Alaiad et al., 2019; Paganin et al., 2023). The HBM states that people are more inclined to adopt preventive health behaviors when they feel at risk of experiencing a disease (Perceived Susceptibility), understand the seriousness of its potential impacts (Perceived Severity), acknowledge the advantages of taking preventive measures, and receive triggers or encouragement that support behavioral change.

Previous studies have shown that mobile health (mHealth) applications can improve self-monitoring, medication adherence, health literacy, and healthy lifestyle practices (Lin et al., 2019; Mamidi, 2022). Applications targeting chronic disease management, including diabetes and obesity, have demonstrated positive outcomes. Nevertheless, empirical evidence regarding hypertension self-assessment applications, particularly in the Indonesian context, remains limited.

Gap analysis: Most previous studies have examined either general mHealth technology adoption or health education interventions separately (Anindya Nurhafid & Afriyani, 2017; García et al., 2019). Studies focusing on digital health often emphasize usability and user satisfaction without exploring whether the application can stimulate meaningful health behavior change. Conversely, studies on hypertension prevention frequently focus on educational counseling or clinical management without incorporating digital technology adoption factors.

Furthermore, the studies have applied an integrated framework combining TAM and HBM to evaluate self-assessment applications for hypertension prevention is limited (Alaiad et al., 2019). This solution finds research gap, especially in developing countries where smartphone penetration is rapidly increasing, and community-based preventive solutions are urgently needed.

Rationale of the Study: An integrated TAM-HBM model is appropriate because successful health applications depend on two interconnected dimensions: technology acceptance and health motivation. A user may install an application because it is easy to use and convenient (Alsyouf et al., 2023; Salma et al., 2024); however, sustained engagement and behavioral impact require stronger awareness of personal health risk and the perceived benefits of preventive action.

For example, individuals who believe they are at risk of hypertension and understand the seriousness of its complications may be more motivated to use an application consistently. At the same time, if the application is difficult to use or lacks practical value, adoption may decline. Therefore, combining TAM and HBM provides a more comprehensive explanation of user behavior and application effectiveness.

Purpose or Hypotheses of the study: This research seeks to evaluate the effect of the Sahabat Hipertensi application on preventive lifestyle behavior among individuals at risk of hypertension. The proposed hypotheses include: H1, perceived ease of use has a positive effect on usefulness; H2, ease of use positively influences intention to use; H3, usefulness positively affects intention to use; H4, susceptibility positively influences intention to use; H5, severity positively affects intention to use; H6, intention to use positively influences actual application use; and H7, actual use positively affects preventive lifestyle behavior..

METHOD

Research Design

The research employed a quantitative explanatory design, using a cross-sectional approach, to investigate the effect of the Sahabat Hipertensi self-assessment application on healthy lifestyle behaviors among adults with hypertension risk factors. The study combined the TAM-HBM as the theoretical framework to explore the determinants of technology acceptance and preventive health behavior (Alsyouf et al., 2023; Salma et al., 2024)

Participants and Sampling

The target population consisted of community adults at risk of hypertension in Pekanbaru and the surrounding areas. A total of 200 respondents aged 25–60 years who had at least one hypertension risk factor and had used the Sahabat Hipertensi application were recruited in this study. The purposive sampling was used to select respondents who met the inclusion criteria: adults who owned a smartphone, were willing to participate voluntarily, and had experience using the Sahabat Hipertensi application.

Figure 1 presents the overall research method diagram, including the population and sampling process, the research instrument, the research procedure, the integrated TAM–HBM framework, and the data analysis process used in this study

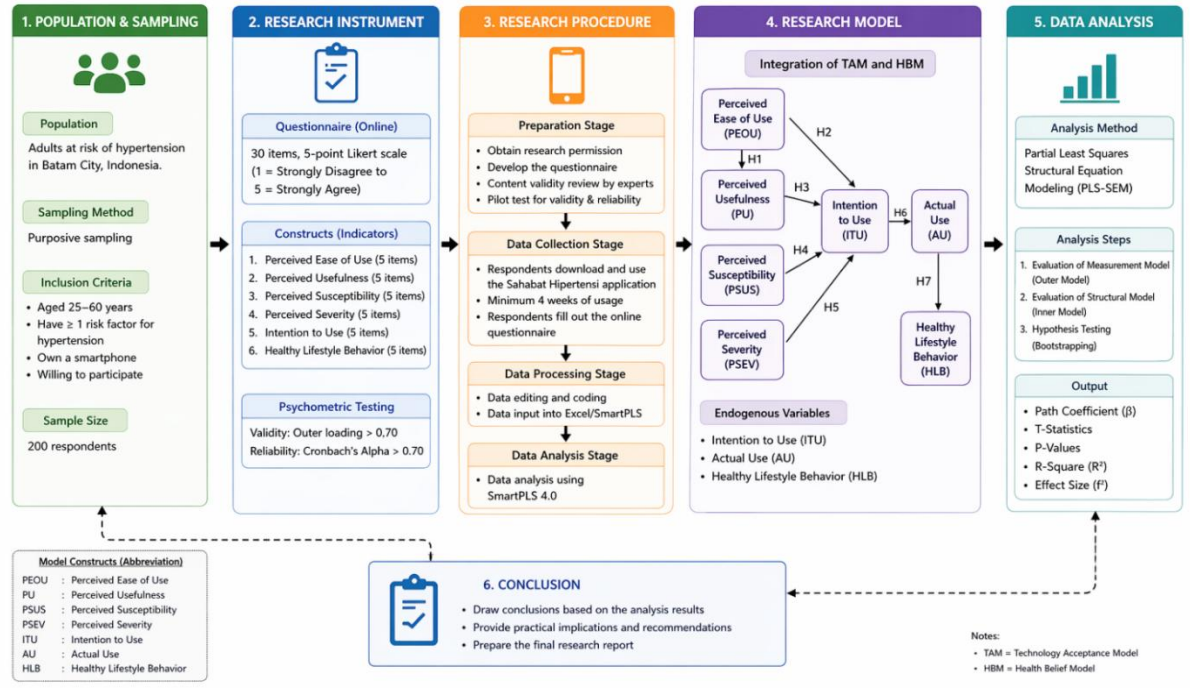

Figure 1. Research Method Diagram

The study procedure was carried out through several phases. The initial stage involved securing research approval, designing the questionnaire, and performing content validation. In the next phase, respondents were asked to use the Sahabat Hipertensi application for self-assessment and educational activities before completing the online questionnaire. Finally, the data obtained were coded and analyzed statistically using PLS-SEM.

Research Instrument

Data were gathered through a structured self-administered questionnaire consisting of 34 items measured on a five-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire evaluated seven key constructs, including Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Perceived Susceptibility (PSUS), Perceived Severity (PSEV), Intention to Use (ITU), Actual Use (AU), and Healthy Lifestyle Behavior (HLB) (Alaiad et al., 2019).

The questionnaire items were adapted from earlier studies based on theTAM-HBM, then adjusted to fit the context of hypertension prevention and the use of mobile health applications. Examples of the statements included: The application is easy to use, The application improves my understanding of hypertension risk, and I have reduced my intake of salty foods after using the application (Li et al., 2026).

The Actual Use (AU) construct was assessed using four self-reported items measuring the frequency, regularity, and intensity of application use. Instrument alidity was assessed by analyzing outer loading values (more than0.70), Average Variance Extracted (AVE more than 0.50), and discriminant validity measures. Meanwhile, reliability was evaluated using Cronbach's alpha and composite reliability to assess the instrument's internal consistency (Alaiad et al., 2019).

Table 1. Research Questionnaire Instrument

No	Code	Statement Item	Scale
1	PEOU1	The Sahabat Hipertensi application is easy to learn.	1–5
2	PEOU2	The application menu is easy to understand.	1–5
3	PEOU3	The application's features are easy to use.	1–5
4	PEOU4	I can use the application without assistance.	1–5
5	PEOU5	The application navigation is simple and clear.	1–5
6	PU1	The application helps me understand my hypertension risk.	1–5
7	PU2	The application improves my knowledge about hypertension.	1–5
8	PU3	The application helps me monitor my health condition.	1–5
9	PU4	The application is useful for preventing hypertension.	1–5
10	PU5	The application supports healthier lifestyle decisions.	1–5
11	PSUS1	I believe I am at risk of developing hypertension.	1–5
12	PSUS2	My current lifestyle increases my risk of hypertension.	1–5
13	PSUS3	My family history increases my risk of hypertension.	1–5
14	PSUS4	My age increases my risk of hypertension.	1–5
15	PSUS5	My body weight may increase my risk of hypertension.	1–5
16	PSEV1	Hypertension is a serious health problem.	1–5
17	PSEV2	Hypertension can lead to stroke or heart disease.	1–5
18	PSEV3	Hypertension can reduce the quality of life.	1–5
19	PSEV4	Untreated hypertension may cause severe complications.	1–5
20	PSEV5	I am concerned about the consequences of hypertension.	1–5
21	ITU1	I intend to continue using the application regularly.	1–5
22	ITU2	I plan to use the application in the future.	1–5
23	ITU3	I will recommend the application to others.	1–5
24	ITU4	I am interested in exploring more features of the application.	1–5
25	ITU5	I am willing to depend on this application for health monitoring.	1–5
26	AU1	I use the application regularly.	1–5
27	AU2	I frequently access the application features.	1–5
28	AU3	I consistently use the health monitoring application.	1–5
29	AU4	I spend time using the application to assess my health condition.	1–5
30	HLB1	I reduce salty food consumption.	1–5
31	HLB2	I exercise regularly.	1–5
32	HLB3	I check my blood pressure regularly.	1–5
33	HLB4	I maintain a healthy body weight.	1–5
34	HLB5	I try to live a healthier lifestyle after using the application.	1–5

Table 1 presents the detailed questionnaire items used in this study, including construct dimensions, indicator codes, statement items, and measurement scales. The instrument covered technology acceptance variables, health belief variables, behavioral intention, actual use, and healthy lifestyle behavior related to hypertension prevention.

Sahabat Hipertensi Application

The Sahabat Hipertensi application is a mobile-based self-assessment platform designed to help users identify hypertension risk factors, monitor personal health conditions, and improve preventive lifestyle behavior. The application provides several features, including blood pressure risk screening, symptom self-check, body mass index calculation, lifestyle assessment, health education, and personalized recommendations.

Most respondents had regularly used the application before participating in this study, thereby becoming familiar with its functions and benefits. Through continuous use, respondents were able to access health information more easily, monitor their risk status, and receive reminders about healthy lifestyle practices, such as reducing salt intake, exercising regularly, and checking blood pressure.

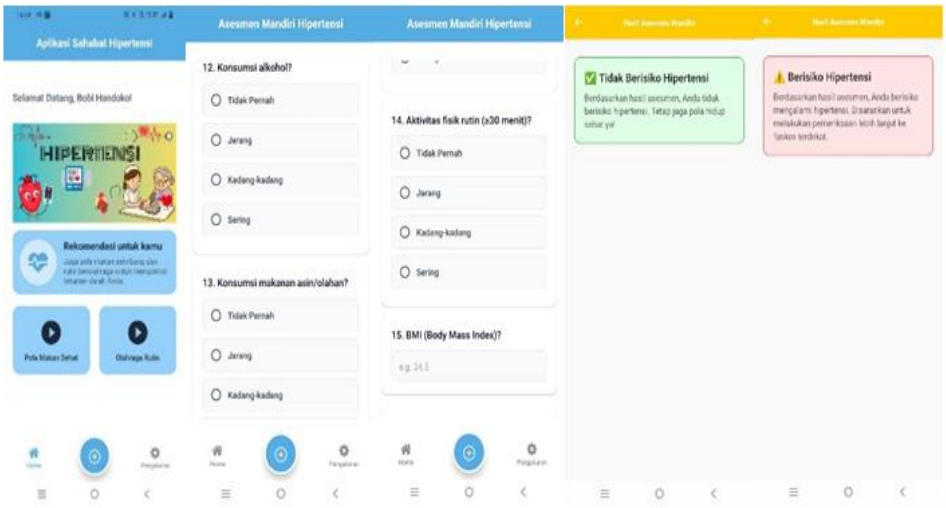

Figure 2. Sahabat Hipertensi Application Interface

Figure 2 illustrates several interface displays of the Sahabat Hipertensi application used by respondents during the study. The interface demonstrates the self-assessment process, lifestyle evaluation features, and hypertension risk screening results provided by the application.

Data Collection

Data collection was conducted over four weeks. Respondents first used the Sahabat Hipertensi application for self-assessment and educational purposes before completing the questionnaire either online or with assistance from trained enumerators. All respondents volunteered after receiving information about the study objectives and procedures.

Data Analysis

Descriptive statistics were utilized to summarize the demographic characteristics of the respondents. The measurement and structural models were analyzed using PLS-SEM with SmartPLS 4. The assessment of the measurement model included evaluating outer loadings,AVE,DV, CA, and CR (Lin et al., 2019; Mamidi, 2022).

The structural model analysis aimed to assess path coefficients, t-statistics, p-values, and R-square values to test the proposed hypotheses. In addition, bootstrapping techniques were used to assess the significance of relationships among constructs within the integrated TAM–HBM framework. Since this research adopted a cross-sectional design and relied on self-reported data, the findings could not fully confirm causal relationships and may have been influenced by response bias. Furthermore, the study concentrated on behavioral intention and preventive lifestyle behavior rather than direct clinical measurements of blood pressure (Lin et al., 2019; Mamidi, 2022).

Ethical Consideration

Ethical approval for this research was obtained from the Research Ethics Committee of Awal Bros University No. 0122/UAB1.20/SR/KEPK/04.26 before the data collection was began. Furthermore, the confidentiality, anonymity, and privacy of all participants were carefully maintained throughout the entire research process.

RESULTS AND DISCUSSION

Results

The sample included 118 males (59%) and 82 females (41%). Most respondents were aged 41-60 years (62%). The measurement model met common PLS-SEM thresholds. Reliability was strong across all constructs, with Cronbach's alphas above 0.84.

Table 2. Respondent Characteristics

Variable	Frequency	Percentage
Male	118	59%
Female	82	41%
Age 25--40	76	38%
Age 41--60	124	62%

Table 2 illustrates the characteristic demography of the respondents involved in this study. By gender, most participants were male (118, 59%), whereas female respondents accounted for 82 (41%). This indicates that male participants were more dominant in the sample. The higher proportion of male respondents may reflect greater exposure to hypertension risk factors such as smoking, occupational stress, and lower health-seeking behavior, which are commonly reported among adult men. By age category, respondents aged 41–60 years were the largest group, with 124 participants (62%), whereas respondents aged 25–40 years totaled 76 participants (38%). This finding shows that middle-aged adults were the dominant participants in the study. Individuals in the age range of 41–60 years are generally more vulnerable to hypertension due to age-related physiological changes, declining vascular elasticity, sedentary lifestyle, and accumulated metabolic risk factors (Lin et al., 2019; Mamidi, 2022)

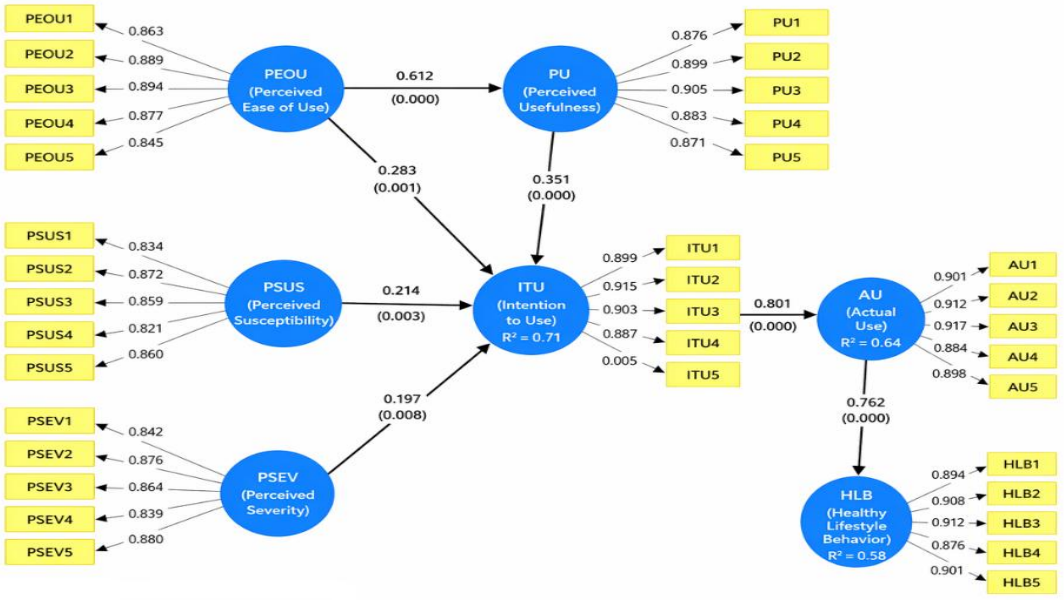

Figure 3. Structural Model of Sahabat Hipertensi Application Adoption and Healthy Lifestyle Behavior

The presents the structural model results of the integrated TAM-HBM at figure 3, analyzed using SmartPLS. The model demonstrates significant relationships among the latent variables influencing the adoption of the Sahabat Hipertensi self-assessment application and healthy lifestyle behavior.

Table 3. Structural Model Results

Relationship	Beta	T-value	P-value
PEOU → PU	0.612	8.11	0.000
PEOU → ITU	0.283	3.45	0.001
PU → ITU	0.351	4.88	0.000
PSUS → ITU	0.214	2.97	0.003
PSEV → ITU	0.197	2.65	0.008
ITU → AU	0.801	14.10	0.000
AU → HLB	0.762	11.90	0.000

Table 3 displays the results of hypothesis testing obtained from the structural model analysis conducted using SmartPLS. The associations among constructs were evaluated based on path coefficients (β), t-statistics, and p-values. A relationship was regarded as statistically significant when the t-statistic was greater than 1.96 and the p-value was below 0.05. The analysis revealed that PEOU had a significant positive effect on PU (β equal 0.612; p less than 0.001).

These findings indicate that respondents who considered the application easy to operate were more likely to view it as useful for hypertension prevention and self-monitoring activities. Furthermore, PEOU was also found to have a significant positive effect on ITU (β equal 0.283; p equal 0.001). This suggests that intuitive navigation, user-friendly interfaces, and easily accessible features can encourage users to continue utilizing the application.

In addition, The PU significantly affected ITU (β equal 0.351; p less than 0.001). This means that individuals who believed the application could enhance health awareness and support hypertension risk monitoring tended to show a stronger willingness to use the application.

The constructs derived from the Health Belief Model also demonstrated significant effects. The PSUS positively influenced ITU (β equal 0.214; p equal 0.003), indicating that respondents who felt more at risk of hypertension were more motivated to adopt the application. Similarly, PSEV significantly influenced ITU (β equal 0.197; p equal 0.008), suggesting that individuals who regarded hypertension as a serious medical condition were more likely to utilize preventive health technology.

Moreover, ITU showed a very strong positive relationship with Actual Use (AU) (β equal 0.801; p less than 0.001). This was identified as the strongest path in the model, emphasizing that behavioral intention plays a crucial role in determining actual application usage (Lin et al., 2019; Mamidi, 2022).

Lastly, Actual Use (AU) significantly influenced Healthy Lifestyle Behavior (HLB) (β equal 0.762; p less than 0.001). This result suggests that regular use of the Sahabat Hipertensi application supports healthier lifestyle behaviors, including routine blood pressure checks, healthier eating patterns, reduced salt intake, increased physical exercise, and improved awareness of hypertension prevention.

Table 4. Measurement Reliability

Construct	Cronbach Alpha
PEOU	0.881
PU	0.903
PSUS	0.844
PSEV	0.872
ITU	0.918
HLB	0.891

Table 4 presents the results of the reliability analysis for all study constructs using Cronbach's Alpha. This statistical indicator is commonly utilized to assess the internal consistency of questionnaire items within each construct. In general, Cronbach's Alpha values above 0.70 indicate acceptable reliability, values greater than 0.80 represent good reliability, and values exceeding 0.90 indicate excellent reliability.

The Perceived Ease of Use (PEOU) construct obtained a Cronbach's Alpha value of 0.881, indicating that the items used to evaluate the ease of operating the Sahabat Hipertensi application demonstrate strong internal consistency and a high level of reliability.

Meanwhile, the Perceived Usefulness (PU) construct achieved a Cronbach's Alpha value of 0.903, reflecting excellent reliability. This finding indicates that the questionnaire items designed to measure the perceived usefulness of the application consistently represent respondents' views regarding its benefits.

The Perceived Susceptibility (PSUS) construct produced a Cronbach's Alpha value of 0.844, which indicates good reliability. This result suggests that the items assessing respondents' perceived vulnerability to hypertension are stable and consistent. Likewise, the Perceived Severity (PSEV) construct showed a Cronbach's Alpha value of 0.872, demonstrating good reliability and indicating that the indicators measuring perceptions of hypertension severity are dependable.

In addition, the Intention to Use (ITU) construct recorded the highest Cronbach's Alpha value, namely 0.918, which indicates excellent internal consistency. This suggests that the items used to evaluate respondents' intention to continue using the application are highly reliable and consistent. (Alfita et al., 2025).

Finally, Healthy Lifestyle Behavior (HLB) had a Cronbach's Alpha of 0.891, indicating strong reliability. This confirms that the items used to assess respondents' healthy behavior, such as physical activity, healthy diet, and regular monitoring, are reliable measures.

Table 5. R-Square Values

Variable	R^2
Intention to Use	0.71
Actual Use	0.64
Healthy Lifestyle Behavior	0.58

Table 5 shows the R-square (R^2) values of the endogenous constructs within the structural model. The coefficient of determination reflects how much variance in each dependent variable can be explained by its predictor variables. In PLS-SEM, R^2 values of 0.75, 0.50, and 0.25 are generally interpreted as indicating substantial, moderate, and weak explanatory power, respectively. (Manogna et al., 2025)

The Intention to Use (ITU) construct achieved an R^2 value of 0.71, indicating substantial explanatory power. This finding suggests that 71% of the variation in users' intention to utilize the Sahabat Hipertensi application can be explained by the predictor variables, including Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Perceived Susceptibility (PSUS), and Perceived Severity (PSEV). The remaining 29% of the variance may be associated with other external factors not examined in this study, such as social influence, user trust, or levels of digital literacy.

The Actual Use (AU) construct produced an R^2 value of 0.64, reflecting moderate to substantial explanatory power. This indicates that 64% of the variance in actual application usage behavior is explained by Intention to Use (ITU). In other words, behavioral intention serves as a strong predictor of whether users genuinely engage with the application.

Furthermore, the Healthy Lifestyle Behavior (HLB) construct obtained an R^2 value of 0.58, which indicates moderate explanatory power. This result means that 58% of the variance in healthy lifestyle behavior can be explained by Actual Use (AU) of the application. Therefore, consistent

use of the Sahabat Hipertensi application contributes meaningfully to the improvement of preventive health behaviors, including regular physical exercise, reduced salt consumption, and routine blood pressure monitoring. (Manogna et al., 2025).

Discussion

The present study examined the influence of the Sahabat Hipertensi self-assessment application on healthy lifestyle behavior by integrating the Technology Acceptance Model (TAM) and the Health Belief Model (HBM) (Adnan et al., 2025; Salma et al., 2024). The findings indicate that all hypothesized relationships were statistically significant, suggesting that both technological and psychological factors are important determinants of mobile health application adoption and preventive behavior.

First, the significant effect of Perceived Ease of Use (PEOU) on Perceived Usefulness (PU) demonstrates that users are more likely to perceive a health application as beneficial when it is simple, understandable, and easy to operate. This finding is consistent with the original TAM framework, which emphasizes that usability is a key factor shaping users' perceptions of usefulness (Alsyouf et al., 2023; Al-Musawi & Alghatrifi, 2021). In the context of the Sahabat Hipertensi application, clear navigation, user-friendly menus, and simple self-assessment procedures likely enhanced users' confidence and satisfaction.

Second, both PEOU and PU significantly influenced Intention to Use (ITU). These results confirm that respondents are more willing to use the application when they perceive it as easy to use and capable of delivering meaningful health benefits. This is particularly relevant for preventive healthcare applications, where sustained engagement depends on practical value and convenience (Alaiad et al., 2019; Alzahrani et al., 2022). Users may continue using the application if it helps them identify hypertension risk factors, understand symptoms, and monitor healthy habits.

Third, the findings also support the role of Health Belief Model constructs. Perceived Susceptibility (PSUS) significantly influenced intention to use, indicating that individuals who believe they are personally at risk of hypertension are more motivated to adopt preventive technology. Likewise, Perceived Severity (PSEV) significantly affected intention to use, suggesting that people who recognize hypertension as a serious disease with possible complications are more likely to seek digital support. These findings align with previous health behavior studies, which show that perceived threat is a strong motivator for preventive action (Paganin et al., 2023; Alfita et al., 2025).

The strongest relationship in the structural model was found between Intention to Use (ITU) and Actual Use (AU). This result confirms that behavioral intention is a direct predictor of real technology usage. Individuals who express willingness and commitment to use the Sahabat Hipertensi application are highly likely to translate that intention into actual behavior. This finding strengthens TAM's explanatory power in predicting digital health adoption (Adnan et al., 2025; Health & Journal, 2025).

Furthermore, Actual Use (AU) significantly influenced Healthy Lifestyle Behavior (HLB). This indicates that regular interaction with the application contributes to healthier behavior patterns, such as reducing salt intake, increasing physical activity, regularly checking blood pressure, and maintaining a healthy body weight. The application may function not only as a screening tool but also as a behavioral intervention platform that continuously reminds users about healthy practices (Faridah et al., 2022; Minasari et al., 2022; Mamidi, 2022).

The R-square values further support the robustness of the model. The model explained 71% of the variance in intention to use, 64% in actual use, and 58% in healthy lifestyle behavior, indicating moderate to strong predictive capability. These results suggest that integrating TAM and HBM provides a comprehensive framework for understanding both technological acceptance and health-related motivation (Salma et al., 2024; Adnan et al., 2025).

From a practical perspective, the findings imply that mobile health developers should focus on improving usability, delivering personalized risk information, and increasing user

awareness regarding hypertension severity. Public health institutions may also integrate self-assessment applications into community health promotion programs to increase early detection and encourage lifestyle modification (García et al., 2019; Lin et al., 2019; Korzun et al., 2015).

Despite these promising findings, several limitations should be acknowledged. This study used self-reported data, which may be subject to response bias. In addition, the cross-sectional design limits the ability to infer long-term causal relationships. Future studies are recommended to employ longitudinal or experimental designs, involve larger and more diverse populations, and integrate objective clinical indicators such as measured blood pressure outcomes (Adnan et al., 2025; Putri et al., 2024).

Overall, the findings demonstrate that the Sahabat Hipertensi application has strong potential as an accessible and effective digital tool for hypertension prevention. By combining technology acceptance factors with health belief constructs, the application can support sustainable behavior change among populations at risk of hypertension (Alaiad et al., 2019; Alzahrani et al., 2022).

Research contribution: This study presents an integrated TAM-HBM framework to understand hypertension self-assessment adoption in a community context and provides a model linking technology acceptance to preventive health behavior.

Limitations: The study did not include longitudinal follow-up or objective blood pressure readings. Self-reported behavior may be subject to response bias.

Suggestions: Future studies should use a longitudinal design, recruit a larger multi-site sample, and combine questionnaire data with clinical blood pressure measurements or wearable devices.

CONCLUSION

This study investigated the influence of the Sahabat Hipertensi self-assessment application on healthy lifestyle behavior by integrating the Technology Acceptance Model (TAM) and the Health Belief Model (HBM). The findings revealed that all proposed relationships in the structural model were statistically significant, indicating that both technology acceptance factors and health perception factors play important roles in encouraging the adoption of digital health applications.

Perceived Ease of Use significantly increased Perceived Usefulness and Intention to Use, showing that users are more likely to adopt the application when it is simple, practical, and easy to navigate. Perceived Usefulness also positively influenced Intention to Use, indicating that users value applications that provide meaningful health benefits such as risk detection and health monitoring.

In addition, Perceived Susceptibility and Perceived Severity significantly affected Intention to Use, demonstrating that individuals who feel vulnerable to hypertension and recognize its serious consequences are more motivated to utilize preventive digital tools. Intention to Use strongly influenced Actual Use, while Actual Use significantly improved Healthy Lifestyle Behavior.

These results confirm that regular use of the Sahabat Hipertensi application can encourage healthier behaviors, including routine blood pressure monitoring, healthier dietary patterns, increased physical activity, and greater awareness of hypertension prevention. The model also showed strong predictive capability, explaining substantial variance in intention, usage behavior, and healthy lifestyle outcomes.

In conclusion, the Sahabat Hipertensi application has strong potential as an effective mobile health intervention for early detection and prevention of hypertension. Future studies are recommended to evaluate long-term effectiveness, integrate real-time clinical monitoring features, and expand implementation across broader populations and healthcare settings.

ACKNOWLEDGMENT

The authors would like to express their sincere gratitude to Universitas Awal Bros for the institutional support provided throughout the study. The authors also deeply appreciate all respondents who participated in this research, as their cooperation and valuable contributions played an important role in the successful completion of the study.

AUTHOR CONTRIBUTION STATEMENT

AM was responsible for conceptualizing the study, developing the research methodology, performing the data analysis, and drafting the original manuscript. A2 contributed to data collection, coordinated respondents, and conducted data validation. A3 supervised the overall research implementation, critically reviewed the manuscript, and provided academic direction throughout the study. All authors have reviewed and approved the final version of the manuscript..

REFERENCES

Adnan, A., Irvine, R. E., Williams, A., Harris, M., & Antonacci, G. (2025). Improving Acceptability of mHealth Apps---The Use of the Technology Acceptance Model to Assess the Acceptability of mHealth Apps: Systematic Review. J Med Internet Res, 27, e66432. https://doi.org/10.2196/66432

Al-Musawi, A. S., & Alghatrifi, I. (2021). Examining the factors affecting the adoption of IoT platform services based on the flipped learning model in higher education. In Studies in Systems, Decision and Control (Vol. 335, pp. 135–157). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/978-3-030-64987-6_9

Alaiad, A., Alsharo, M., & Alnsour, Y. (2019). The Determinants of M-Health Adoption in Developing Countries: An Empirical Investigation. Applied Clinical Informatics, 10(5), 820–840. https://doi.org/10.1055/s-0039-1697906

Alfita, A. N., Juniarti, N., Windani, C., & Sari, M. (2025). The Role of Perception in Medication Adherence among Elderly Patients with Diabetes Mellitus : A Health Belief Model Approach. 10(2), 262–273.

Alsyouf, A., Lutfi, A., Alsubahi, N., Alhazmi, F. N., & Al-mugheed, K. (2023). The Use of a Technology Acceptance Model (TAM) to Predict Patients ' Usage of a Personal Health Record System : The Role of Security, Privacy, and Usability. International Journal of Environmental Research and Public Health.

Alzahrani, S. A., Muammar, M. F. Bin, Muammar, A. F. Bin, Alolah, A., & Almutawa, M. (2022). The Adoption and Acceptance of mHealth Interventions for Self-Management of Hypertension Among Adult Patients : A Systematic Review. Cureus, 14(11). https://doi.org/10.7759/cureus.31584

Amalia, D., Sahabuddin, L., & Atikah, S. (2023). Karakteristik Demografi Penderita Hipertensi Di Wilayah Kerja Puskesmas Kawatuna, Palu, Tahun 2022. Medika Alkhairaat : Jurnal Penelitian Kedokteran Dan Kesehatan, 5(1), 40–44. https://doi.org/10.31970/ma.v5i1.118

Anindya Nurhafid, S., & Afriyani, T. (2017). Penggunaan mobile health dalam usaha monitorin hipertensi. Nursing Current, 5(1), 14–22.

Ariyani, H., Gazali, M., Fitriah, A., & Anshari, M. (2022). Pengembangan Modul dan Desain Aplikasi Konseling Farmasi untuk Hipertensi Berbasis Android. Jurnal Pharmascience, 9(1), 60. https://doi.org/10.20527/jps.v9i1.12899

Aryantiningsih, D. S., Parlin, W., & ... (2023). Program Pencegahan Penyakit Hipertensi di Wilayah Kerja Puskesmas. Jurnal Ilmiah …, 13, 207–220. http://journal2.stikeskendal.ac.id/index.php/PSKM/article/view/635

DeRubertis, B. G., Pierce, M., Ryer, E. J., Trocciola, S., Kent, K. C., & Faries, P. L. (2008). Reduced primary patency rate in diabetic patients after percutaneous intervention results from more frequent presentation with limb-threatening ischemia. Journal of Vascular Surgery, 47(1), 101–108. https://doi.org/10.1016/j.jvs.2007.09.018

Dharmawan, R. L., Nurarifah, U., Singkali, D. P., & Wahyurianto, Y. (2024). Faktor Yang Berhubungan Dengan Kekambuhan Hipertensi. Faktor Yang Berhubungan Dengan Kekambuhan Hipertensi, 6(2), 324–330. http://jurnal.ensiklopediaku.org

Faridah, I., Afiyanti, Y., & Huriyanah, H. (2022). Pengaruh Monitoring Hipertensi Berbasis Aplikasi Terhadap Kepatuhan Melakukan Terapi Jus Pada Pasien Hipertensi. Nusantara Hasana Journal, 1(8), 96–100.

García, L., Tomás, J., Parra, L., & Lloret, J. (2019). An m-health application for cerebral stroke detection and monitoring using cloud services. International Journal of Information Management, 45, 319–327. https://doi.org/10.1016/j.ijinfomgt.2018.06.004

Halim, R., & Sutriyawan, A. (2022). Studi Retrospektif Gaya Hidup Dan Kejadian Hipertensi Pada Usia Produktif. Journal Of Nursing And Public Health, 10(1), 121–128. Https://Doi.Org/10.37676/Jnph.V10i1.2376

Health, M., & Journal, S. (2025). Analisis Faktor Yang Mempengaruhi Implementasi Aplikasi Mobile Health Untuk Telemedicine Pada Dewasa Awal Di Kota Mataram: Pendekatan Technology Acceptance Model (Tam). Mahesa : Malahayati Health Student Journal, 5, 5177–5193.

Khasanah, D. N. (2022). The Risk Factors of Hypertension in Indonesia (Data Study of Indonesian Family Life Survey 5). Journal of Public Health Research and Community Health Development, 5(2), 80. https://doi.org/10.20473/jphrecode.v5i2.27923

Korzun, D. G., Borodin, A. V., Timofeev, I. A., Paramonov, I. V., & Balandin, S. I. (2015). Digital assistance services for emergencies in personalized mobile healthcare: Smart space-based approach. Proceedings - 2015 International Conference on Biomedical Engineering and Computational Technologies, SIBIRCON 2015, 62–67. https://doi.org/10.1109/SIBIRCON.2015.7361852

Kuusik, A., Alam, M. M., Kask, T., & Gross-Paju, K. (2018). Wearable m-assessment system for neurological disease patients. IEEE World Forum on Internet of Things, WF-IoT 2018 - Proceedings, 2018–January, 201–206. https://doi.org/10.1109/WF-IoT.2018.8355165

Li, S., Marketing, T. H. E., Mechanism, E., Of, P., Health, M., For, A., With, P., & Diseases, C. (2026). Research On The Marketing Effectiveness Mechanism Path Of Mobile Health Applications For Patients With Chronic Diseases.

Lin, T. S., Liu, P. Y., & Lin, C. C. (2019). Home Healthcare Matching Service System Using the Internet of Things. Mobile Networks and Applications, 24(3), 736–747. https://doi.org/10.1007/s11036-018-1087-y

Luke Halpern. (2024). Digital Health Interventions Can Reduce Hypertension Among Disadvantaged Populations.

Mamidi, S. (2022). Mobile Health Apps for Chronic Disease Management. Journal of Health Statistics Reports, 1(1), 1–3. https://doi.org/10.47363/jhsr/2022(1)e104

Manogna, R. L., Dharmaji, V., & Sarang, S. (2025). Enhancing agricultural commodity price forecasting with deep learning. Scientific Reports, 15(1), 1–24. https://doi.org/10.1038/s41598-025-05103-z

Minasari, S., Azam, M., & Rahayu, S. R. (2022). Pengembangan Aplikasi Monitoring Penyakit Hipertensi dan Diabetes Mellitus Terintegrasi. Jurnal Manajemen Kesehatan Indonesia, 10(1), 28–42. https://doi.org/10.14710/jmki.10.1.2022.28-42

Paganin, G., Margheritti, S., Farhane-medina, N. Z., Simbula, S., & Mazzetti, G. (2023). Health, Stress, and Technologies : Integrating Technology Acceptance and Health Belief Models for Smartphone-Based Stress Intervention. Healthcare.

Pratiwi, F. (2023). Penyuluhan Promosi Kesehatan Penyakit Menahun pada Lansia di RW XI Jogokaryan, Mantrijeron, Yogyakarta. Pengabdian Masyarakat Mulia Madani Yogyakarta, 1(1), 7–11.

Putri, L. R., Azam, M., Nisa, A. A., Fibriana, A. I., Kanthawee, P., & Shabbir, S. A. (2024). Prevalence and Risk Factors of Hypertension among Young Adults: An Indonesian Basic Health Survey. The Open Public Health Journal, 18(1), 1–10. https://doi.org/10.2174/0118749445361291241129094132

Rumaf, F., Tutu, C. G., Talamati, B. H., Putabuga, R., & Nugroho, C. W. (2023). PEMETAAN PENDERITA HIPERTENSI PADA LANSIA (Studi Di Wilayah Kerja Puskesmas Sangkub, Kabupaten Bolaang Mongondow Utara). Jurnal Ilmiah Mahasiswa Fakultas Hukum Universitas Malikussaleh, 6(1), 27–40. Https://Doi.Org/10.29103/Jimfh.V6i1.10411

Salma, S. A., Widyanti, A., Muslim, K., & Wijayanto, T. (2024). The Influence of Trust, Health Beliefs, and Technology Acceptance on the Intent to Use an mHealth in Indonesia : An Empirical Study of Users and Non-Users. International Journal of Technology, 15(February 2023), 1247–1257. https://doi.org/10.14716/ijtech.v15i5.5291

Sheila Amalia Salma Ari Widyanti, K. M. T. W. F. T. H. M. A. A. D. W. (2024). The Influence of Trust, Health Beliefs, and Technology Acceptance on the Intent to Use an mHealth in Indonesia: An Empirical Study of Users and Non-Users. International Journal of Technology, 15(5), 1247–1257. https://doi.org/https://doi.org/10.14716/ijtech.v15i5.5291

Siregar, F. G. G., Theo, D., Syafitri, R., Fitrianti, A. D., & Yuniati. (2024). Analisis faktor yang memengaruhi kejadian hipertensi pada lansia di Puskesmas Rasau, Kab. Labuhanbatu Selatan. Jurnal Ilmiah Ilmu Kesehatan Dan Kedokteran , 2(1), 247–263. doi: https://doi.org/10.55606/termometer.v2i1.2864