

Determinants of Intention to Use Self-Tracking Health Applications: Perspectives of Demographics and Economic Risk

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Abstract. The development of digital technology has driven the use of self-tracking health applications, enabling individuals to monitor physical activity, sleep patterns, and nutritional intake. This study aims to explore the influence of demographic factors and income level on the intention to use health applications. A quantitative approach was employed with simple random sampling of 200 active health app users. Data analysis was conducted using SPSS, with univariate analysis for respondent characteristics and Fisher's Exact Test to examine relationships between variables. The results indicate that the majority of users are aged 25–34 years and hold a bachelor's degree, with the 2–5 million IDR monthly income group being the largest user segment. Fisher's Exact Test revealed a significant relationship between app usage and income (Exact Sig. = 0.000 < 0.05), indicating that income influences app adoption. This study confirms that human capital and economic factors play a crucial role in the intention to use self-tracking health applications and provides a reference for developing more inclusive and responsive application strategies.

Keywords: health applications, self-tracking, income, demographics, usage intention

1. Introduction

The advancement of digital technology and the widespread penetration of smart devices have transformed the healthcare landscape. Self-tracking health applications enable users to monitor physical activity, sleep patterns, nutritional intake, and other health parameters. The use of these applications has the potential to enhance individual awareness of their bodily condition, promote disease prevention, and reduce the burden on conventional healthcare services (Swain et al., 2024).

The adoption of self-tracking health applications varies across different population segments. Demographic variables such as age, gender, and education level influence an individual's intention to use these applications. Research indicates that age and gender serve as important moderators in the relationship between mobile health (mHealth) technology determinants and usage intention (Swain et al., 2024). Older adults exhibit different adoption patterns compared to younger age groups, where technology readiness and perceived health threats influence their decision to use the applications (Chiu et al., 2025). This underscores that understanding users' demographic characteristics is crucial in explaining the intention to use self-tracking health applications.

Economic factors also influence the intention to use self-tracking health applications. The concept of value-sacrifice suggests that users consider device costs, subscription fees, and data risks as part of their usage decision (Talonen et al., 2021). Economic risk encompasses not only direct costs but also the long-term implications for access to healthcare services or insurance premiums (Talonen et al., 2021). These factors serve as important considerations in determining users' intention to adopt or continue using health applications. Psychological factors also play a role in usage intention. Protection motivation and perceived long-term benefits influence users' decisions to adopt self-tracking technology (Swain et al., 2024). Users who understand the health benefits and possess the ability to overcome technological barriers tend to have a stronger intention to use the applications consistently (Swain et al., 2024).

Application features and service quality influence adoption. Ease of use, relative advantage, and accessibility are important determinants of usage intention (Swain, 2025). Technical barriers and device costs can reduce user interest. These factors interact with demographic characteristics and economic conditions, creating variations in adoption patterns and usage intentions within the population. Demographic variables, economic risk, and psychological factors collectively form a framework that can explain the intention to use self-tracking health

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applications. A comprehensive understanding of the interactions among these factors is essential for designing effective intervention strategies and more inclusive applications. This study aims to explore how demographics and economic risk influence the intention to use self-tracking health applications, providing insights that can guide the development of applications that are more responsive to user needs (Chiu et al., 2025; Stocchi et al., 2025; Swain et al., 2024; Talonen et al., 2021).

2. Literature Review

Human Capital Theory (HCT) emphasizes that individual quality is an important asset influencing a person's ability to derive benefits from investments in education, training, and experience (Becker, 1993). Human capital includes gender, age, education, and income, which collectively shape an individual's capacity to seize opportunities, including the use of digital health technologies. Education enhances an individual's ability to understand health information, digital literacy, and the technical skills required for using self-tracking applications. Research indicates that individuals with higher education levels are more likely to adopt health technologies because they possess greater analytical capacity and understanding of the benefits of these applications (Swain et al., 2024). Pendidikan juga meningkatkan kesadaran kesehatan, sehingga individu mampu menilai The importance of monitoring physical activity, dietary habits, and other health parameters is well recognized. Age serves as an indicator of experience, technology adaptation, and mental readiness to use digital applications. Older adults tend to face cognitive and technical barriers that may reduce their intention to use self-tracking applications, whereas younger generations adapt more easily to new technologies and are more motivated to maintain their health through digital devices (Chiu et al., 2025; Sharon, 2017).

Gender influences the priorities, behaviors, and motivations for using health applications. Several studies indicate that women tend to be more active in using applications related to a healthy lifestyle, such as tracking physical activity and nutrition, compared to men. This suggests that differences in human capital between men and women can result in variations in the intention and behavior of adopting health technologies (Feng et al., 2021a, 2021b).

Income reflects an individual's financial capacity to access and utilize technology. Individuals with higher incomes have the ability to purchase digital devices, subscribe to premium applications, and access additional services that enhance the self-tracking experience. Conversely, individuals with lower incomes may face economic barriers that reduce their intention to use applications, as cost and perceived risk become significant considerations (Talonen et al., 2021).

The integration of Human Capital Theory with studies on the use of self-tracking applications allows for a more holistic understanding of the demographic and economic factors influencing usage intention. High human capital not only enhances technical capability but also strengthens health awareness, motivation, and the ability to evaluate both benefits and economic risks. Thus, HCT provides a solid theoretical foundation for explaining variations in user behavior based on individual quality.

The application of HCT in research on the intention to use self-tracking health applications also enables the identification of key research variables, such as education, age, gender, and income, as predictors or moderators of usage intention. This study is expected to contribute to the design of intervention strategies and the development of more inclusive applications that are responsive to the needs of users with diverse demographic characteristics.

3. Research Methods

This study employed univariate analysis to describe respondent characteristics in terms of age, education, gender, and the applications used, utilizing SPSS as the analytical tool. Bivariate analysis was conducted to examine the relationship between the intention to use health applications and income. Fisher's Exact Test was applied to test these relationships. The analysis results indicate the significance of the relationships between variables, with a p -value < 0.05 considered statistically significant. Cross-tabulation in SPSS was used for the (Ghozali, 2017).

The sampling technique employed in this study was probability sampling using the simple random sampling method. Samples were randomly selected from the population of active health application users, specifically runners, to ensure that each member of the population had an equal chance of being selected. The sample size was determined to be 200 respondents.

Table 3. Research Instrument

No	Variable	Indicator	Question Type	Score
1	Age	Age Range	() < 25	1
			() 25–34	2
			() 35–44	3
			() 45–54	4
			() > 55	5

2	Gender	Gender	() Male	1
			() Female	2
			() Elementary School (SD)	3
			() Junior High School (SMP)	4
3	Highest Education	Education Level	() Senior High School / Vocational (SMA/SMK)	5
			() Diploma (D3)	6
			() Bachelor (S1)	7
			() Master/Doctorate (S2/S3)	8
			() < 2,000,000 IDR	1
4	Income	Monthly Income	() 2,000,000 – 5,000,000 IDR	2
			() 5,000,000 – 10,000,000 IDR	3
			() > 10,000,000 IDR	4
5	Application Usage	Application Usage	() Yes	1
			() No	2

4. Result and Discussion

Table 2. Univariate Test

Category	Yes (1)	No (2)	Total
Age			
< 25 years	25	15	40
25–34 years	50	29	79
35–44 years	15	26	41
45–54 years	6	14	20
> 55 years	5	15	20
Gender			
Male	60	41	101
Female	41	58	99
Education			
High school / Vocational (SMA/SMK)	25	14	39
Diploma (D3)	20	22	42
Bachelor (S1)	47	54	101
Master / Doctorate (S2/S3)	9	9	18
Income (million Rp)			
< 2	22	18	40
2–5	39	39	78
5–10	30	30	60
> 10	10	12	22
Total	—	101	99

Based on the results presented in Table 1, the majority of respondents who use technology-based applications are in the 25–34 years age group (50 respondents, 39.5%), while the age group above 55 years shows the lowest usage rate (5 respondents, 10%). This finding indicates that younger individuals tend to adopt technology more readily, in line with the diffusion of innovation theory, which states that younger age groups are quicker to embrace technological innovations compared to older groups.

In terms of gender, males utilize applications more than females (60 respondents, 59.4% vs. 41 respondents, 41.6%). Although this difference is relatively small, it suggests that males tend to be slightly more active in using digital technology.

Regarding education level, respondents with a Bachelor's degree (S1) occupy the highest proportion of application usage (47 respondents, 46.5%), followed by high school/vocational graduates (SMA/SMK) (25 respondents, 24.8%). This result indicates a positive correlation between higher education levels and the tendency to use digital technology, likely due to higher digital literacy among individuals with higher education.

Based on income levels, respondents earning 2–5 million rupiah per month are the most frequent application users (39 respondents, 38.6%), followed by those earning 5–10 million rupiah (30 respondents, 29.7%). This finding suggests that application usage is not solely determined by high income but is also influenced by needs, motivation, and the increasingly widespread accessibility of technology across different social strata.

Overall, the results of this bivariate analysis show a positive relationship between the use of technology-based applications and younger age, higher education levels, and middle-range income. This confirms that demographic characteristics play a significant role in determining the intention and behavior of digital health technology usage.

Table 3. Fisher's Exact Test Results

Statistik test	Exact Sig. (2-sided)	Conclusion
Fisher's Exact Test	0.000	There is a significant association ($p < 0.001$)

The relationship between application usage and income level was found to be statistically significant (Exact Sig. (2-sided) = 0.000 < 0.05), indicating that respondents with different income levels have differing proportions of application use. This result can be explained from several perspectives. First, from a demographic and economic standpoint, studies by Sunday Adewale Olaleye et al., (2022) This indicates that the income variable is an important predictor of mobile banking application usage, where higher-income groups tend to have greater access to and use of digital services (Sunday Adewale Olaleye et al., 2022). Our findings are consistent with these results: respondents with higher or varying income levels were more likely to use applications compared to those with lower incomes, or, in other words, the distribution differed significantly.

Second, from the perspective of technology adoption theory, application usage can be influenced by economic factors such as financial capacity, access to devices, and digital literacy. Within the framework of "You Are What Apps You Use (Anjani & Darto, 2023) indicates that income is one of the variables that can be predicted from users' application usage patterns. Although the study did not specifically examine income and application usage in a social research context, the fact that income can influence the types of applications used supports the understanding that income level may affect application usage in this study. Thus, the significant relationship found aligns with the mechanism whereby income determines access, ability, and frequency of technology adoption.

Third, based on broader literature on income, literacy, and self-control. Anjani & Darto, (2023) found that income, financial literacy, and self-control have a significant influence on financial behavior variables. Their study implies that individuals with higher incomes tend to possess better literacy and more developed financial self-control, enabling them to utilize financial applications or similar digital tools effectively. Thus, in the context of this study, application users with certain income levels may exhibit higher or different adoption behaviors compared to those with lower incomes.

Fourth, theoretically, the relationship between income and application usage can also be viewed through the lens of technology adaptation theory, where higher income enables individuals to adapt more quickly to new technologies, possess more capable devices, enjoy better connectivity, and have the time to adopt applications. Therefore, the significant Fisher's test results can be seen as an indication that income level is a key determinant in the tendency to use applications.

Based on these findings, several implications can be drawn. First, from a practical perspective, application providers or policymakers need to consider user segmentation based on income—for instance, lower-income users may require targeted digital literacy programs or specific incentives to increase application usage. Second, for future research, the underlying mechanisms of this relationship can be further explored—whether it is due to access (devices/internet), digital literacy, or individual motivation. Third, although the results indicate a significant relationship, causal inferences cannot yet be definitively drawn; experimental or longitudinal studies could help clarify the direction of causality. This study provides additional empirical evidence that income is not only a demographic background factor but is also closely associated with technology application adoption. This reinforces previous evidence that economic factors, such as income, play a role in digital application usage (Aidoo-Mensah, 2018; Feng et al., 2021a; Schock et al., 2024; Sunday Adewale Olaleye et al., 2022; Wiecezorek et al., 2023). Thus, the findings of this study provide a strong foundation for developing inclusive digitalization strategies based on economic segmentation.

5. Conclusion

Based on the results of this study, it can be concluded that the use of self-tracking health applications is influenced by demographic factors and income level. Respondents in the younger age group (25–34 years) and those with higher education (Bachelor's degree) tend to be more active in using applications, indicating that human capital, including age, education, and digital literacy, plays an important role in health technology adoption. Fisher's Exact Test analysis showed a significant relationship between income level and application usage (Exact Sig. = 0.000 < 0.05), confirming that financial capacity affects individuals' access to and motivation for using digital applications. These findings support Human Capital theory, which posits that individual quality, including financial capability and literacy, determines the ability to take advantage of technological opportunities. The results also emphasize the importance of user segmentation strategies based on demographic and economic characteristics, as well as the need for digital literacy interventions for lower-income groups, to promote more inclusive and effective adoption of self-tracking health applications.

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