

## Patient Age: A Determining Factor in Mobile JKN Adoption

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### abstract

The Mobile JKN application represents a significant national initiative to modernize health insurance services in Indonesia, yet adoption rates remain suboptimal despite near-universal population coverage. This study examined the influence of patient demographic characteristics on Mobile JKN utilization for outpatient registration at RSUD Sejiran Setason, a regional hospital in Bangka Belitung. A quantitative cross-sectional study was conducted with 345 respondents selected through accidental sampling. Data were collected using a structured questionnaire measuring four demographic variables (age, gender, education, occupation) and Mobile JKN usage status. Binary logistic regression analysis was employed to determine predictor effects on adoption behavior. Mobile JKN adoption was 38.60%, indicating substantial underutilization. Among demographic predictors, only age demonstrated significant positive influence ( $p = 0.006$ ,  $\text{Exp}(B) = 1.023$ ), with each additional year increasing adoption likelihood by 2.3%. Gender ( $p = 0.633$ ), education ( $p = 0.947$ ), and occupation ( $p = 0.449$ ) showed no significant effects. The demographic model explained merely 4.4% of variance (Nagelkerke  $R^2 = 0.044$ ), suggesting that unmeasured factors substantially determine adoption behavior. Age positively predicts Mobile JKN adoption, contradicting conventional digital divide assumptions, while other demographic characteristics prove insufficient for predicting digital health platform utilization. Implementation strategies should transcend demographic targeting and address systemic, psychological, and technological determinants to achieve equitable digital health transformation in regional Indonesian healthcare settings.

### abstrak

Aplikasi Mobile JKN merupakan inisiatif nasional yang signifikan untuk memodernisasi layanan asuransi kesehatan di Indonesia, namun tingkat adopsinya masih suboptimal meskipun cakupan populasi hampir universal. Studi ini meneliti pengaruh karakteristik demografis pasien terhadap pemanfaatan Mobile JKN untuk pendaftaran rawat jalan di RSUD Sejiran Setason, sebuah rumah sakit daerah di Bangka Belitung. Studi kuantitatif cross-sectional dilakukan dengan 345 responden yang dipilih melalui pengambilan sampel acak. Data dikumpulkan menggunakan kuesioner terstruktur yang mengukur empat variabel demografis (umur, jenis kelamin, pendidikan, pekerjaan) dan status penggunaan Mobile JKN. Analisis regresi logistik biner digunakan untuk menentukan pengaruh prediktor terhadap perilaku adopsi. Adopsi Mobile JKN adalah 38,60%, menunjukkan kurangnya pemanfaatan yang substansial. Di antara prediktor demografis, hanya umur yang menunjukkan pengaruh positif yang signifikan ( $p = 0,006$ ,  $\text{Exp}(B) = 1,023$ ), dengan setiap tahun tambahan meningkatkan kemungkinan adopsi sebesar 2,3%. Jenis kelamin ( $p = 0,633$ ), pendidikan ( $p = 0,947$ ), dan pekerjaan ( $p = 0,449$ ) tidak menunjukkan pengaruh yang signifikan. Model demografis hanya menjelaskan 4,4% varians (Nagelkerke  $R^2 = 0,044$ ), menunjukkan bahwa faktor-faktor yang tidak terukur secara substansial menentukan perilaku adopsi. Usia secara positif memprediksi adopsi Mobile JKN, bertentangan dengan asumsi kesenjangan digital konvensional, sementara karakteristik demografis lainnya terbukti tidak cukup untuk memprediksi pemanfaatan platform kesehatan digital. Strategi implementasi harus melampaui target demografis dan mengatasi determinan sistemik, psikologis, dan teknologi untuk mencapai transformasi kesehatan digital yang merata di lingkungan layanan kesehatan regional Indonesia.

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## 1. Introduction

The global transformation of healthcare services through digital technology has fundamentally reshaped patient engagement and service delivery mechanisms worldwide. Mobile health (mHealth) applications have emerged as critical tools for enhancing healthcare accessibility, reducing administrative burdens, and improving patient outcomes in diverse clinical settings (Damanik *et al.*, 2024). In Indonesia, the implementation of the Mobile JKN application by BPJS Kesehatan represents a significant national initiative to modernize health insurance services and streamline patient registration processes. This digital innovation enables National Health Insurance participants to access various health services, including online outpatient queue registration, through mobile devices (Lestari & Putri, 2024; Meisari *et al.*, 2024). Despite these technological advancements, the adoption rates of mHealth applications remain suboptimal, necessitating comprehensive investigations into the factors that influence patient utilization behaviors.

The successful implementation of health information technology depends not only on system quality but also on user characteristics and their willingness to adopt digital solutions (Davis & Granić, 2024). The Technology Acceptance Model (TAM) provides a robust theoretical framework for understanding how perceived usefulness and perceived ease of use influence technology adoption decisions in healthcare contexts. Previous research demonstrates that demographic factors significantly interact with technology acceptance mechanisms, creating unique adoption patterns across different population segments (Meisari *et al.*, 2024). Understanding these demographic determinants is essential for developing targeted interventions that promote equitable digital health access. The identification of patient characteristics that facilitate or hinder mHealth adoption can inform policy decisions and system design improvements. Patient demographics, including age, gender, education, and occupation, constitute critical predisposing factors that shape health-seeking behaviors and technology utilization patterns. Research conducted across various Indonesian healthcare settings indicates that these

demographic variables exhibit complex relationships with mHealth adoption, with inconsistent findings regarding their individual and collective impacts (Anggraini *et al.*, 2024). Age-related differences in digital literacy and technology comfort levels create significant barriers for older populations, while educational attainment influences the capacity to navigate complex digital interfaces. Occupational status affects both the availability of time for technology engagement and exposure to digital tools in professional environments (Nursabila & Prasastin, 2023; Safitri *et al.*, 2024). These demographic dimensions require systematic examination to disentangle their specific contributions to Mobile JKN utilization. The Indonesian healthcare landscape presents unique challenges for digital health implementation, particularly in regional hospitals serving diverse socioeconomic populations. Despite achieving 98.32% national health insurance coverage, BPJS Kesehatan reports that only 13.83% of participants actively utilize the Mobile JKN application, indicating a substantial gap between service availability and actual adoption (Safitri *et al.*, 2024).

This disparity is particularly pronounced in regional hospitals such as RSUD Sejiran Setason, where only 38.33% of outpatients used the Mobile JKN application for registration during the first quarter of 2025. The persistence of traditional registration methods among the majority of patients suggests that demographic and technological barriers continue to impede digital transformation efforts. Addressing these challenges requires evidence-based understanding of the specific patient characteristics that predict successful mHealth adoption. Existing literature on mHealth adoption in Indonesia reveals mixed findings regarding the influence of demographic factors on technology utilization. While some studies identify significant associations between education, income, and Mobile JKN usage, others report non-significant relationships between gender, occupation, and application adoption (Pratama & Suhartanto, 2025; Salakory *et al.*, 2025). These inconsistencies may reflect contextual differences across healthcare settings, variations in measurement approaches, or the moderating effects of unexamined variables. The predominance of cross-sectional designs in previous research limits causal inferences

and highlights the need for rigorous analytical methods. Advanced statistical techniques, including logistic regression analysis, offer opportunities to clarify the independent and combined effects of multiple demographic predictors on mHealth adoption outcomes. The investigation of patient characteristics as determinants of Mobile JKN adoption carries significant implications for health equity and universal health coverage objectives. Regional hospitals in Indonesia serve populations with diverse educational backgrounds, occupational statuses, and technological competencies, making demographic analysis particularly relevant for service optimization (Wigatie & Zainafree, 2023). Identifying vulnerable groups who face systematic barriers to digital health adoption can guide the development of inclusive implementation strategies. Furthermore, understanding which demographic segments successfully adopt mHealth technologies can inform targeted promotional campaigns and educational interventions. The translation of research findings into practical recommendations represents a critical step toward achieving equitable digital health transformation. This study aims to examine the influence of patient characteristics—specifically age, gender, education, and occupation—on Mobile JKN application utilization for patient registration at RSUD Sejiran Setason. By employing logistic regression analysis on cross-sectional data from 345 respondents, this research seeks to clarify the demographic determinants of mHealth adoption in a regional Indonesian hospital setting. The findings are expected to contribute to the growing body of literature on digital health implementation in developing countries and provide actionable insights for healthcare administrators and policymakers. Ultimately, this investigation addresses the urgent need for evidence-based strategies to enhance mHealth adoption and realize the full potential of digital health innovations in Indonesia.

## 2. Research Methodology

This study employed a quantitative research approach with an observational analytical design using cross-sectional methods to examine the influence of patient characteristics on Mobile JKN application adoption. Data collection was conducted

at RSUD Sejiran Setason, a regional hospital in West Bangka Regency, Bangka Belitung Islands Province, during January–February 2026. The study population comprised all outpatients utilizing BPJS Kesehatan services at the hospital, from which 345 respondents were selected using accidental sampling technique based on Slovin's formula with 5% error tolerance. Participants were included if they were BPJS Kesehatan patients aged 15 years or above who were willing to complete the questionnaire, while those involved in instrument validity and reliability testing were excluded. Data were collected through a structured questionnaire measuring four demographic independent variables—age, gender, education, and occupation—along with the dependent variable of Mobile JKN usage for outpatient registration. The instrument consisted of eight Likert-scale statements assessing usage frequency, duration, feature utilization, and intensity, which had been validated through Pearson Product Moment correlation and demonstrated reliability with Cronbach's alpha of 0.858.

Demographic data were coded categorically: age into four groups (15–24, 25–44, 45–59, and  $\geq 60$  years), gender as binary, education across five levels (no schooling to higher education), and occupation into six categories. The dependent variable was dichotomized as "Yes" (using Mobile JKN for registration) or "No" (using conventional registration). Data analysis proceeded through univariate and multivariate stages using SPSS software. Univariate analysis described respondent characteristics and Mobile JKN usage levels through frequency distributions and the Three Box Method index calculation. Multivariate analysis employed binary logistic regression to determine the simultaneous and individual effects of demographic variables on Mobile JKN adoption, with model fit assessed through Omnibus Tests, Hosmer-Lemeshow Test, and Nagelkerke R Square. The significance level was set at  $p < 0.05$ , with Exp(B) values interpreted to indicate the magnitude and direction of demographic influences on digital health platform utilization.

### 3. Results and Discussion

#### Results

##### Respondent Characteristics

The study involved 345 respondents who were outpatients at RSUD Sejiran Setason using BPJS Kesehatan services. Table 1 presents the demographic distribution of participants. The majority were female (67.20%, n=232) compared to male (32.80%, n=113), reflecting typical healthcare utilization patterns where women demonstrate

higher health-seeking behaviors. Age distribution revealed that productive age adults (25–44 years) constituted the largest group (36.50%, n=126), followed by pre-elderly (45–59 years) at 32.50% (n=112), elderly ( $\geq 60$  years) at 16.80% (n=58), and young adults (15–24 years) at 14.20% (n=49). This age structure indicates that Mobile JKN users are predominantly economically active populations who potentially possess greater digital literacy and technology exposure.

Table 1. Respondent Characteristics by Demographic Variables (N=345)

Characteristic	Category	n	%
Gender	Male	113	32.80
	Female	232	67.20
Age	15–24 years	49	14.20
	25–44 years	126	36.50
	45–59 years	112	32.50
	$\geq 60$ years	58	16.80
Education	No schooling	15	4.30
	Elementary	41	11.90
	Junior high	57	16.50
	Senior high	168	48.70
	Higher education	64	18.60
Occupation	Unemployed	47	13.60
	Housewife	93	27.00
	Student	24	7.00
	Self-employed	57	16.50
	Farmer/Laborer	65	18.80
	Civil servant	59	17.10

Educational attainment showed that senior high school graduates represented the largest proportion (48.70%, n=168), followed by higher education (18.60%, n=64), junior high school (16.50%, n=57), elementary school (11.90%, n=41), and no formal schooling (4.30%, n=15). This distribution suggests that most respondents possessed sufficient educational foundation to engage with digital health technologies, though substantial variation existed. Occupational status indicated that housewives formed the largest group (27.00%, n=93), followed by farmers/laborers (18.80%, n=65), civil servants (17.10%, n=59), self-employed workers (16.50%, n=57), unemployed individuals (13.60%, n=47), and students (7.00%, n=24). The predominance of non-formal employment categories highlights the

economic diversity of patients accessing regional hospital services.

##### Mobile JKN Utilization Patterns

Analysis of Mobile JKN adoption revealed that actual usage for outpatient registration remained suboptimal despite system availability. As shown in Table 2, only 38.60% (n=133) of respondents utilized Mobile JKN for registration, while the majority 61.40% (n=212) relied on conventional onsite registration methods. This utilization gap persists despite national BPJS Kesehatan data indicating 98.32% population coverage, suggesting that insurance enrollment does not automatically translate to digital platform adoption. The discrepancy between system availability and actual usage underscores the need for systematic

investigation into barriers and enabling factors affecting patient adoption behaviors.

Table 2. Distribution of Mobile JKN Usage for Outpatient Registration (N=345)

Mobile JKN Usage	n	%
Yes (using Mobile JKN)	133	38.60
No (conventional registration)	212	61.40
Total	345	100.00

Detailed assessment of usage dimensions through the Three Box Method index (Table 3) indicated an overall low utilization level with mean index score of 167.2. Among four measured indicators, duration of usage scored highest at 173.625 (moderate category), suggesting that when patients do engage with the application, they spend reasonable time completing tasks. However, frequency of usage (168.0), type of features used (157.5), and intensity of usage (169.5) all fell within low categories. These findings

demonstrate that Mobile JKN engagement is sporadic and superficial rather than integrated into routine healthcare-seeking behaviors. The predominant use of basic features such as online queue registration and membership status checking, contrasted with limited exploration of advanced functionalities, indicates that patients treat the application as a transactional tool rather than a comprehensive health management platform.

Table 3. Three Box Method Index Scores for Mobile JKN Usage Dimensions

Usage Indicator	Mean Index Score	Category
Frequency of usage	168.00	Low
Duration of usage	173.625	Moderate
Type of features used	157.50	Low
Intensity of usage	169.50	Low
Overall usage index	167.20	Low

**Multivariate Analysis: Determinants of Mobile JKN Adoption**

Binary logistic regression analysis was conducted to examine the simultaneous and individual effects of demographic variables on Mobile JKN utilization. Table 4 presents the model fit statistics, demonstrating that the overall model was statistically significant ( $\chi^2 = 11.243$ ,  $df = 4$ ,  $p = 0.024$ ), indicating that the combination of demographic predictors significantly distinguished between users and non-users. The model correctly classified 62.9% of cases

overall, with notably higher accuracy for non-users (89.6%) compared to users (20.3%), suggesting that the model better predicts conventional registration behavior than digital adoption. The Nagelkerke R<sup>2</sup> value of 0.044 indicates that demographic variables collectively explained only 4.4% of variance in Mobile JKN usage, with the remaining 95.6% attributable to unmeasured factors such as digital literacy, perceived usefulness, social influence, and technology accessibility.

Table 4. Logistic Regression Model Fit Statistics

Test	Statistic	df	p-value	Interpretation
Omnibus Tests of Model Coefficients	11.243	4	0.024	Model significant
Hosmer-Lemeshow Test	8.458	8	0.390	Good model fit
Nagelkerke R Square	0.044	—	—	4.4% variance explained
Overall Percentage Correct	62.9%	—	—	Classification accuracy

Individual predictor analysis (Table 5) revealed that among four demographic variables, only age demonstrated statistically significant influence on Mobile JKN adoption ( $B = 0.023$ ,  $Wald = 7.575$ ,  $p = 0.006$ ,  $Exp(B) = 1.023$ ). The positive coefficient and odds ratio indicate that each one-year increase in age was associated with a 2.3% increase in the likelihood of Mobile JKN usage, contradicting conventional

expectations that younger populations are more digitally inclined. This unexpected finding may reflect that older patients in this regional context possess greater healthcare experience, more stable smartphone ownership, or stronger motivation to avoid physical queuing due to mobility considerations.

Table 5. Logistic Regression Results: Variables in the Equation

Variable	B	S.E.	Wald	df	p-value	Exp(B)	95% C.I. for Exp(B)
Gender (Male=1, Female=2)	0.116	0.244	0.228	1	0.633	1.124	0.697–1.812
Age (continuous)	0.023	0.008	7.575	1	0.006	1.023	1.006–1.040
Education (ordinal)	0.007	0.110	0.004	1	0.947	1.007	0.812–1.249
Occupation (ordinal)	-0.053	0.069	0.573	1	0.449	0.949	0.828–1.088
Constant	-1.461	0.756	3.734	1	0.053	0.232	—

Gender showed no significant effect ( $p = 0.633$ ,  $Exp(B) = 1.124$ ), with females having only 1.124 times higher odds of usage compared to males, though this difference did not reach statistical significance. This finding contrasts with some prior studies suggesting female predominance in health application usage, potentially reflecting contextual factors in this regional setting where male and female technology access is more equitable. Education demonstrated no significant influence ( $p = 0.947$ ,  $Exp(B) = 1.007$ ), with each educational level increase associated with merely 0.7% higher usage likelihood. This null finding suggests that formal education beyond basic literacy may not be the primary barrier to Mobile JKN adoption, or that the application's user interface is sufficiently intuitive to accommodate varied educational backgrounds. Similarly, occupation exhibited no significant effect ( $p = 0.449$ ,  $Exp(B) = 0.949$ ), indicating that employment status and type do not systematically determine digital health platform utilization in this population. The resulting logistic regression equation can be expressed as:  $\ln\left(\frac{p}{1-p}\right) = -1.461 + 0.116X_1 + 0.023X_2 + 0.007X_3 - 0.053X_4$  Where  $p$  represents the probability of Mobile JKN usage. This equation enables prediction of adoption likelihood based on demographic profiles, though the limited explanatory power underscores the importance of incorporating additional psychosocial and technological variables in future predictive models.

## Discussion

The present study's finding that gender did not significantly influence Mobile JKN adoption ( $p = 0.633$ ) contradicts several previous investigations but aligns with others, highlighting the contextual nature of demographic effects on digital health utilization. Damanik *et al* (2024) and Sujarwoto *et al* (2022) reported that female patients demonstrated higher Mobile JKN acceptance in their Technology Acceptance Model study, attributing this to women's greater health information-seeking behaviors and family health management responsibilities. Similarly, Wigatie & Zainafree (2023) found female predominance among Mobile JKN users at BPJS Kesehatan Magelang, with 63% of their sample being women. However, our null finding resonates with several previous studies, who reported no significant correlation between gender and Mobile JKN ownership ( $p = 0.568$ ) (Angraini *et al.*, 2025; Irmayani *et al.*, 2024; Sukmayati Siregar *et al.*, 2024), and Putri & Maharani (2023), who found  $p = 0.571$  for gender differences in their service quality analysis. These inconsistencies suggest that gender effects may be moderated by regional cultural factors, technology access equity, or specific application features that appeal universally across gender lines. In the Bangka Belitung context, where mobile phone penetration is relatively equitable and family-based healthcare decisions are common, gender may exert less independent influence on adoption behaviors than in more individually-oriented health service environments.

The unexpected significant positive effect of age on Mobile JKN adoption ( $p = 0.006$ ,  $\text{Exp}(B) = 1.023$ ) represents our most intriguing finding, directly contradicting conventional digital divide assumptions and most prior research. Purba *et al* (2024) explicitly identified age-related technology barriers among elderly Mobile JKN users at Bengkulu hospitals, describing "gaptek" (technology illiteracy) phenomena that hindered adoption among older populations. Lestari & Putri (2024) similarly found that productive age adults (18–35 years) dominated Mobile JKN utilization in Rejang Lebong, with elderly patients preferring conventional registration. However, our finding aligns partially with Hayana *et al* (2025), who observed diverse age distributions in Kandungan Regional Hospital where middle-aged patients demonstrated substantial adoption rates. Several explanations may account for this age-positive relationship in our setting: first, RSUD Sejiran Setason serves a regional population where older patients possess greater chronic disease burden and thus stronger motivation to minimize physical queuing; second, stable smartphone ownership among economically established older adults in Bangka Belitung may exceed that of younger, less economically secure populations; third, the application's simplified interface for basic registration may reduce technology anxiety that typically affects older users.

This finding challenges simplistic age-based assumptions in digital health implementation and suggests that motivation and access may supersede generational technology comfort in determining adoption. The non-significant effects of education ( $p = 0.947$ ) and occupation ( $p = 0.449$ ) on Mobile JKN adoption contradict theoretical expectations and some empirical evidence, yet converge with other studies emphasizing that formal credentials do not automatically translate to digital health engagement. Dahlia *et al* (2024) reported significant knowledge-education relationships with Mobile JKN utilization in Kendalsari, where higher education predicted better understanding and usage of application features. Conversely, Nursabila (2023) found no significant influence of education ( $p = 0.834$ ) or occupation ( $p = 1.000$ ) on Mobile JKN adoption in Wonogiri, directly paralleling our null results. Dzakhirah *et al* (2024) similarly observed that

occupational status exhibited complex, non-linear relationships with Mobile JKN utilization at Yapika Hospital Gowa, where informal workers sometimes outperformed formal employees in adoption due to flexible schedules enabling application exploration. Our findings suggest that Mobile JKN's user interface design—specifically its intuitive registration workflow—may successfully accommodate users across educational spectrums, reducing the digital literacy barrier that typically disadvantages less educated populations. Furthermore, the predominance of housewives and farmers/laborers in our sample, who demonstrated adoption rates comparable to civil servants, indicates that application utility for practical healthcare access may supersede occupational status in determining utilization decisions. The limited explanatory power of our demographic model (Nagelkerke  $R^2 = 0.044$ ) aligns with previous research emphasizing that patient characteristics alone inadequately capture digital health adoption complexity. Several previous studies, applying the Technology Acceptance Model to Mobile JKN attention, demonstrated that perceived usefulness and ease of use substantially improved prediction beyond demographic variables alone (Saadi & Junadi, 2025; Utami *et al.*, 2025).

Safitri *et al* (2024) found that knowledge levels—distinct from formal education—significantly mediated the relationship between patient background and Mobile JKN utilization in Malang, suggesting that information exposure rather than educational credentials drives adoption. Simbolon & Saragih (2024) similarly established that knowledge specifically about Mobile JKN features, not general education, predicted usage at Santa Elisabeth Hospital Medan. Our low  $R^2$  value indicates that unmeasured factors including digital literacy, social influence from family members, prior technology experience, perceived health system trust, and infrastructure quality likely exert stronger influences than demographic categories. This finding underscores the necessity of integrating psychological and technological variables into predictive models, as emphasized by Al-Nuaimi & Al-Emran (2021), Al-Rahmi *et al* (2021), Davis & Granić (2024), and Taherdoost (2022) in their updated Technology Acceptance Model framework that incorporates social influence and facilitating conditions alongside

traditional constructs. The convergence of our findings with previous research generates actionable implications for digital health policy and identifies priorities for subsequent investigation. The significant age effect, contrary to most prior studies, suggests that regional implementation strategies should avoid ageist assumptions and instead investigate specific motivational and access barriers within age groups. The null gender, education, and occupation effects, consistent with Nursabila (2023) and contrasting with Damanik *et al* (2024), indicate that universal design approaches emphasizing intuitive functionality may successfully transcend demographic boundaries, though targeted education remains essential for knowledge-dependent feature utilization. Future research should employ longitudinal designs to examine adoption trajectories, incorporate validated scales for digital health literacy and technology acceptance constructs, and investigate moderating effects of regional infrastructure and health system characteristics. The persistent low adoption rate (38.60%) despite demographic accessibility suggests that system-level factors including application reliability, registration confirmation speed, and integration with hospital workflows require concurrent attention. Ultimately, our findings contribute to an evolving understanding that demographic characteristics provide necessary but insufficient foundations for digital health adoption prediction, necessitating holistic implementation strategies that address individual, technological, and systemic determinants simultaneously.

#### 4. Conclusion

This study examined the influence of patient demographic characteristics on Mobile JKN application adoption for outpatient registration at RSUD Sejiran Setason, revealing that age emerged as the sole significant predictor while gender, education, and occupation demonstrated no statistically significant effects. The positive association between age and adoption likelihood challenges conventional digital divide assumptions and suggests that motivation-driven factors may supersede generational technology comfort in regional healthcare contexts. With only 4.4% of usage

variance explained by demographic variables and overall adoption remaining suboptimal at 38.60%, these findings underscore that patient characteristics provide necessary but insufficient foundations for predicting digital health platform utilization. The predominance of female, productive-age, senior high school-educated, and housewife respondents in the sample reflects typical healthcare-seeking populations, yet their demographic profiles inadequately determined their technology adoption behaviors, indicating that implementation strategies must extend beyond demographic targeting to address systemic, psychological, and technological barriers simultaneously. The practical implications of these findings emphasize the need for healthcare administrators to avoid ageist assumptions in digital health promotion and instead invest in universal design approaches that accommodate diverse user backgrounds through intuitive interface development and sustained educational support. Future research should integrate Technology Acceptance Model constructs including perceived usefulness, ease of use, and facilitating conditions alongside demographic variables to enhance predictive accuracy, while longitudinal designs could illuminate adoption trajectory dynamics. Ultimately, achieving equitable digital health transformation in Indonesian regional hospitals requires holistic interventions that address not only who the patients are demographically, but how they perceive, access, and experience mobile health technologies within their specific healthcare ecosystems.

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