MHC Journal Of Mental Health Concern
ISSN 2964-5042 (Print)
ISSN 2964-5034 (Online)
DOI: 10.56922

Sinta 5 Terakreditasi NOMOR 10/C/C3/DT.05.002025

ARTICLE INFORMATION
Received: October, 13, 2026
Revised: October, 22, 2026
Available online: October, 23, 2026
at: https://e-jurnal.iphorr.com/index.php/mhc

Fingerprint-based patient registration and psychological comfort among national health insurance patients

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

Abstract

Background: Registration efficiency remains an important concern in hospitals, particularly for patients enrolled in Indonesia's National Health Insurance program, administered by Social Security Administrator for Health. Fingerprint technology supports patient identification, but registration service effectiveness may also be associated with service quality.
Purpose: To examine the associations between service quality dimensions and perceived effectiveness of fingerprint-based patient registration.
Method: This quantitative study used an associative explanatory approach with a cross-sectional design. A total of 100 NHI patients were selected using purposive sampling. Data were collected using a five-point Likert-scale questionnaire covering reliability, responsiveness, assurance, empathy, and tangibles, alongside direct observation of registration time. Multiple linear regression was used, with statistical significance set at $p < 0.05$.
Results: Mean registration time was 182.22 ± 5.22 seconds. The regression model was statistically significant ($F = 11.688$, $p < 0.001$). Empathy ($p = 0.004$) and tangibles ($p < 0.001$) showed positive, statistically significant associations with perceived service effectiveness. Reliability ($p = 0.257$), responsiveness ($p = 0.525$), and assurance ($p = 0.343$) were not statistically significant individual predictors.
Conclusion: Perceived registration service effectiveness was associated with empathy and tangibles. Improving staff–patient interactions and maintaining adequate registration facilities may support better service experiences. The observed registration time alone does not establish that fingerprint technology reduced registration duration.

Keywords: Fingerprint Technology; National Health Insurance; Patient Registration; Service Effectiveness; SERVQUAL.

INTRODUCTION

Indonesia is an archipelagic nation with a large and diverse population. The 2020 Population Census recorded Indonesia's population at 270.20 million in September 2020, while the population projection for 2022 estimated approximately 275.77 million people. Annual population growth was 1.25% during 2010–2020, with a projected growth rate of approximately 1.13% in 2022 (Statistics Indonesia, 2021; Statistics Indonesia, 2023). This large population contributes to substantial demand for accessible, equitable, and high-quality healthcare services. Within Indonesia's healthcare system, advanced-level referral health facilities (FKRTL) provide specialist and subspecialist

DOI: https://doi.org/10.56922/mhc.v5i7.4559

services and play an important role in ensuring access to appropriate healthcare (Christasani & Satibi, 2016).

Indonesia's National Health Insurance program, known as Jaminan Kesehatan Nasional (NHI), is administered by the Social Security Agency for Health, known as SSAH. Hospitals serving NHI participants require administrative systems that support accurate patient identification, accessible services, and efficient registration procedures. Patient registration is an important initial stage of hospital service delivery because administrative difficulties may contribute to delays and influence patients' perceptions of service quality. Previous studies examining services for NHI and non-NHI participants have highlighted the importance of service quality in patients' evaluations of healthcare delivery (Anggriani, 2016; Ekawati et al., 2020).

Registration services involve both administrative procedures and interactions between patients and healthcare personnel. Previous research has identified dissatisfaction associated with slow registration, complex administrative requirements, and staff attitudes among patients receiving services through SSAH (Miswara & Wibawa, 2019). Registration duration can serve as an operational indicator of service performance, while patient perceptions provide complementary information about how registration services are experienced. Research has examined the relationship between registration time and outpatient satisfaction, as well as strategies for optimizing outpatient registration and improving public service quality (Hafidzah et al., 2025; Pratama et al., 2025). To support participant identification and administrative verification, fingerprint-based identification has been implemented in healthcare administration. This technology uses biometric characteristics to help verify individual identities during registration. Its practical performance may depend on equipment functionality, system connectivity, administrative requirements, and the availability of staff assistance. Previous studies have examined fingerprint use in SSAH services in relation to administrative effectiveness and fraud prevention, including its implementation among outpatient participants (Amabi et al., 2025; Dani et al., 2025). Research has also examined fingerprint use in supporting SSAH patient services in hospital emergency departments (Arifiani & Gunawan, 2025). In addition, the implementation of fingerprint policies for SSAH outpatient services has been examined from a public policy perspective (Mahadini et al., 2024).

Despite the intended benefits of biometric identification, the use of fingerprint technology does not necessarily eliminate administrative difficulties. A study of the implementation of the SSAH program at Imelda Pekerja Indonesia General Hospital in Medan identified problems involving fingerprint network disruptions, incomplete administrative requirements, and medical record management (Simanjuntak, 2017). Such challenges indicate that the performance of registration systems may depend on both technological and organizational conditions. Reliable patient identification is also important for healthcare safety because identification errors may affect the continuity and accuracy of patient care (Weatherford et al., 2026). Digital registration initiatives have also been explored through the use of the Mobile NHI application to support patient self-check-in and administrative efficiency (Aryanti et al., 2025). Research has additionally examined online Mobile NHI registration service quality and outpatient satisfaction at Udayana Level II Hospital in Denpasar (Santis, 2026). Although these studies provide relevant context for technology-supported registration, online registration and fingerprint-based identification involve different procedures and should not be treated as equivalent systems. Research has also specifically examined fingerprint use in relation to registration speed and identity accuracy among SSAH participants (Yureka et al., 2026).

Patient evaluations of registration services may also be considered within the broader context of healthcare utilization and service experience. Research on the utilization of the NHI program has explored patterns of national health insurance use in Riau Province, while studies comparing NHI and general patients have examined differences in outpatient service satisfaction (Fadly & Vianny, 2019; Ritonga et al., 2025). Patient experience has also been examined in relation to patient loyalty in hospital settings, although loyalty represents a distinct outcome from perceived registration effectiveness (Masjadi & Jannah, 2025). These studies support the importance of evaluating administrative

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559

services while recognizing that different studies may measure different dimensions of healthcare experience. Although previous research has examined fingerprint implementation, registration procedures, and service quality, the associations between individual service quality dimensions and perceived effectiveness within a fingerprint-based registration setting warrant further examination. In particular, perceived registration service effectiveness and objectively observed registration duration represent different aspects of service performance. A single measurement of registration duration cannot establish whether fingerprint technology has reduced registration time, and perceived service effectiveness should not be interpreted as a direct measure of psychological comfort.

Therefore, this study examined the associations between five service quality dimensions reliability, responsiveness, assurance, empathy, and tangibles and perceived registration service effectiveness among NHI participants using fingerprint-based registration at Udayana Level II Hospital in Denpasar, Bali, Indonesia. Registration duration was also described as an operational indicator. By distinguishing perceived service effectiveness from observed registration time, this study provides a focused assessment of service quality in a technology-supported hospital registration setting without assuming that fingerprint implementation itself caused improvements in efficiency, patient satisfaction, or psychological well-being.

RESEARCH METHOD

This study employed a quantitative approach with an associative explanatory design to examine registration service effectiveness at Udayana Level II Hospital, Denpasar, Bali, Indonesia. The study focused on patients enrolled in Indonesia's National Health Insurance (NHI) program, administered by the Social Security Agency for Health (SSAH). The study covered the period from April to December 2025. Descriptive analysis was used to summarize registration duration and respondents' perceptions of service quality, while inferential analysis examined the associations between service quality dimensions and perceived registration service effectiveness.

The study population comprised patients enrolled in the NHI program who registered at Udayana Level II Hospital during the study period. Participants were selected using non-probability purposive sampling based on their experience using the hospital's fingerprint-based registration system. The minimum sample requirement was 97 respondents, and the final sample consisted of 100 respondents. All 100 records were reported as complete and included in the analysis.

Data were collected through direct observation and a structured questionnaire. Direct observation was used to record registration duration in seconds using a timer. The questionnaire consisted of closed-ended statements measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to assess respondents' perceptions of registration services. Registration duration was treated as an objective indicator of service performance, distinct from perceived service effectiveness. Because the reported results presented a single set of registration-time measurements, the analysis did not establish whether fingerprint implementation reduced registration duration.

The questionnaire covered five service quality dimensions: reliability, responsiveness, assurance, empathy, and tangibles. Reliability referred to the consistency and accuracy of registration procedures; responsiveness concerned staff willingness and promptness in assisting patients; assurance reflected staff competence and the confidence provided during service; empathy concerned the attention and care given to individual patients; and tangibles referred to the physical facilities, equipment, and visible aspects of the registration environment. In the reported multiple regression analysis, these five dimensions were treated as independent variables, while perceived registration service effectiveness was treated as the dependent variable. The questionnaire also included items concerning overall satisfaction, expectations, and service experience. The specific items and scoring procedure used to calculate the dependent variable should follow the original research instrument.

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559

Instrument validity and reliability were assessed as described in the research methodology. Item validity was evaluated by comparing the calculated correlation coefficient with the critical correlation coefficient. Items were considered valid when the calculated value exceeded the critical value. Internal consistency was assessed using Cronbach's alpha, with a coefficient greater than 0.60 considered acceptable under the criterion adopted in the study.

Data processing involved checking questionnaire completeness, coding responses, entering the data into statistical software, and reviewing the dataset to minimize data-entry errors. Descriptive statistics were used to summarize respondent characteristics, registration duration, and scores for the five service quality dimensions. Categorical variables were presented as frequencies and percentages, while numerical variables were summarized using minimum, maximum, mean, and standard deviation, as appropriate.

Multiple linear regression was used to examine the associations between reliability, responsiveness, assurance, empathy, tangibles, and perceived registration service effectiveness. Individual regression coefficients were evaluated using t-tests, while the overall regression model was assessed using an F-test. Multicollinearity was evaluated using tolerance and variance inflation factor (VIF) values. The reported tolerance values exceeded 0.10, and the VIF values were below 10 for all five independent variables. Statistical significance was set at $p < 0.05$. Other regression assumptions, including residual normality, linearity, and homoscedasticity, should be reported according to the diagnostic tests actually performed and their corresponding results.

RESEARCH RESULTS

Table 1. Characteristics of the Respondents (N = 100)

Variable	Results
Age (n/%)(Mean±SD)(Range)(Year)	**38.50 ± 18.50**
Gender (n/%)	
Male	65/65.0
Female	35/35.0

Table 1 shows that the study included 100 respondents, and all collected records were complete and included in the analysis. The mean age was 38.50 ± 18.50 years. Most respondents were male (65/65.0), while female respondents accounted for 35/35.0 of the sample.

Table 2. Descriptive Statistics of Registration Time

Variable	Minimum	Maximum	Mean	Standard Deviation
Registration time (seconds)	170.00	192.00	182.22	5.220

Table 2 shows that the registration time ranged from 170 to 192 seconds, with a mean of 182.22 seconds and a standard deviation of 5.220 seconds. The relatively small standard deviation indicates limited variation in registration duration among the observed respondents. However, these descriptive results do not establish that fingerprint technology reduced registration time because no comparison with pre-implementation registration times was reported.

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559

Table 3. Descriptive Statistics of Respondents' Perceptions of Service Quality

Dimensions	Minimum	Maximum	Mean	Standard Deviation
Reliability	8.00	10.00	9.42	0.878
Responsiveness	6.00	10.00	8.58	1.519
Assurance	3.00	10.00	6.93	1.597
Empathy	2.00	10.00	6.52	2.204
Tangibles	5.00	10.00	8.73	1.332

Table 3 presents the descriptive statistics for respondents' perceptions of the five service quality dimensions. Reliability recorded the highest mean score (9.42 ± 0.878), followed by tangibles (8.73 ± 1.332) and responsiveness (8.58 ± 1.519). Assurance had a mean score of 6.93 ± 1.597, while empathy recorded the lowest mean score (6.52 ± 2.204). The relatively low standard deviation for reliability indicates that respondents' assessments of this dimension were more consistent, whereas empathy showed the greatest variation in responses. These findings suggest that respondents generally gave higher scores to reliability, tangibles, and responsiveness than to empathy and assurance.

Table 4. Multicollinearity Test Results

Variable	Tolerance	VIF
Reliability	0.650	1.538
Responsiveness	0.511	1.959
Assurance	0.654	1.530
Empathy	0.841	1.189
Tangibles	0.834	1.199

Table 4 shows that the multicollinearity test yielded tolerance values ranging from 0.511 to 0.841 and VIF values ranging from 1.189 to 1.959. All tolerance values exceeded 0.10, and all VIF values were below 10, indicating no evidence of problematic multicollinearity among the five predictors based on the specified criteria.

Table 5. Results of Multiple Linear Regression Analysis

Variable	B	Standard Error	Standardized Beta (β)	t	p-value
Constant	4.478	3.653	—	1.226	0.223
Reliability	0.501	0.439	0.115	1.141	0.257
Responsiveness	0.183	0.287	0.072	0.639	0.525
Assurance	0.230	0.241	0.096	0.954	0.343
Empathy	0.451	0.154	0.259	2.929	0.004
Tangibles	1.148	0.256	0.398	4.490	<0.001

Table 5 presents the results of the multiple linear regression analysis. The overall regression model was statistically significant ($F = 11.688$, $p < 0.001$), indicating that the five service quality dimensions were jointly associated with perceived registration service effectiveness. In the individual analyses, empathy ($B = 0.451$, $\beta = 0.259$, $p = 0.004$) and tangibles ($B = 1.148$, $\beta = 0.398$, $p < 0.001$) showed positive and statistically significant associations with service effectiveness. In contrast, reliability ($p = 0.257$), responsiveness ($p = 0.525$), and assurance ($p = 0.343$) were not statistically significant. Tangibles had the largest standardized

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559

regression coefficient (β = 0.398), followed by empathy (β = 0.259), indicating that tangibles had the strongest relative association with perceived registration service effectiveness among the five dimensions examined.

DISCUSSION

This study examined the associations between five service quality dimensions and perceived registration service effectiveness among participants in Indonesia's National Health Insurance program, Jaminan Kesehatan Nasional (NHI), administered by the Social Security Agency for Health (SSAH). Empathy and tangibles showed statistically significant positive associations with perceived service effectiveness, whereas reliability, responsiveness, and assurance did not show statistically significant individual associations in the multiple linear regression model. These findings suggest that patients' evaluations of fingerprint-based registration services may be related to interpersonal interactions and the physical service environment. Previous studies have examined fingerprint implementation in SSAH services in relation to administrative effectiveness and fraud prevention, providing a relevant context for the present findings without establishing that fingerprint technology itself improves perceived service effectiveness (Amabi et al., 2025; Arifiani & Gunawan, 2025).

Within the SERVQUAL framework, reliability, responsiveness, assurance, empathy, and tangibles represent distinct dimensions of perceived service quality. In the present study, empathy and tangibles were statistically significant individual predictors after accounting for the other dimensions included in the model. Reliability, responsiveness, and assurance did not reach the specified significance threshold. These nonsignificant findings do not establish that the respective dimensions are unimportant; they indicate only that their independent associations with perceived registration service effectiveness were not statistically demonstrated in this sample and model. Previous studies have examined healthcare service quality among NHI and non-NHI participants, providing broader context for understanding how patients evaluate services within Indonesia's health insurance system (Anggriani, 2016; Ekawati et al., 2020).

Reliability had the highest mean score among the five service quality dimensions (9.42 ± 0.878). This result indicates that respondents generally gave relatively high ratings to the consistency and accuracy of registration procedures, with less variation than was observed for the other dimensions. One possible interpretation is that respondents perceived the reliability of registration services relatively consistently, which may have limited its ability to distinguish statistically between their evaluations of perceived service effectiveness. Fingerprint-based identification is intended to support identity verification, but the present study did not compare fingerprint-based procedures with manual registration or directly measure identification errors. Consequently, the nonsignificant association for reliability cannot be interpreted as evidence that fingerprint technology standardized registration procedures or reduced human error. Research on fingerprint policy implementation in SSAH outpatient services provides relevant context for understanding the organizational implementation of these systems, rather than direct evidence of the mechanism underlying the present result (Mahadini et al., 2024).

Responsiveness did not show a statistically significant individual association with perceived registration service effectiveness. Responsiveness concerns staff willingness and promptness in assisting patients, while the registration process may also depend on system connectivity, equipment functionality, and the completion of administrative requirements. Research examining hospital information systems and outpatient waiting times highlights the relevance of administrative processes to service delivery (Kholis et al., 2025). Studies of outpatient registration optimization have also addressed the importance of registration procedures in improving public service quality (Pratama et al., 2025). However, the present study did not directly measure technical interruptions, staff workload, or the contribution of automation to registration speed. Therefore, the results do not establish that fingerprint technology reduced the importance of staff responsiveness.

Assurance was not statistically significantly associated with perceived registration service

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559

effectiveness after accounting for the other dimensions. Assurance relates to staff competence, courtesy, and the confidence conveyed during service interactions. Patients' evaluations may also be influenced by previous experiences and their broader perceptions of healthcare institutions. Research comparing NHI and general patients has examined differences in outpatient service satisfaction, providing context for understanding how patients evaluate healthcare services across insurance categories (Ritonga et al., 2025). Nevertheless, the present study did not separately measure institutional trust, hospital reputation, or perceived biometric security. Explanations based on these factors must therefore remain tentative and should not be presented as established explanations for the nonsignificant association.

Empathy showed a statistically significant positive association with perceived registration service effectiveness (B = 0.451, β = 0.259, p = 0.004). Empathy had a mean score of 6.52 ± 2.204, the lowest mean among the five dimensions and the greatest variation in responses. This pattern indicates that respondents' assessments of staff attention and individualized care varied more than their assessments of the other dimensions. Considerate communication, clear explanations, and willingness to address individual concerns may contribute to more favorable evaluations of registration services. Such interactions remain relevant in technology-supported administration because automated identity verification does not replace the need for appropriate interpersonal care. Research examining service quality among NHI and non-NHI participants provides a broader context for considering the importance of patient-centered service delivery (Anggriani, 2016; Ekawati et al., 2020). Research on NHI utilization also provides context for understanding access to healthcare services, although utilization is distinct from perceived registration effectiveness (Fadly & Vianny, 2019). Patient experience has also been examined in relation to loyalty in hospital settings, but the present study did not measure loyalty and cannot establish a relationship between empathy and that outcome (Masjadi & Jannah, 2025). Tangibles had the largest standardized regression coefficient among the five service quality dimensions (B = 1.148, β = 0.398, p < 0.001). This indicates that tangibles had the strongest relative statistical association with perceived registration service effectiveness among the predictors included in the reported model. Tangibles encompass the physical facilities, equipment, and visible characteristics of the registration environment. Patients may consider the organization of registration facilities, the availability of equipment, and the physical service environment when evaluating how well a service is delivered. Research on fingerprint implementation and technology-supported registration provides a relevant context for considering the role of equipment and administrative arrangements in hospital services (Mahadini et al., 2024; Aryanti et al., 2025). Research on online Mobile NHI registration at Udayana Level II Hospital also provides a related context for examining technology-supported registration services, although online registration differs from fingerprint-based identification (Santis, 2026). The present study did not independently assess the effects of individual facility characteristics or equipment components, so the results cannot identify which particular physical feature accounted for the observed association.

The mean observed registration duration was 182.22 ± 5.22 seconds, with a range of 170–192 seconds. These results describe the registration times recorded during the study period. They do not establish whether fingerprint-based registration was faster than manual registration or whether implementation of the technology reduced waiting time because no comparable pre-implementation measurements or alternative registration group were reported. Registration duration and perceived service effectiveness should therefore be interpreted as separate indicators. Previous research has examined the relationship between registration time and outpatient satisfaction, as well as the relationship between hospital information systems and outpatient waiting times (Hafidzah et al., 2025; Kholis et al., 2025). Research on online Mobile NHI registration has also examined the relationship between service quality and outpatient satisfaction (Santis, 2026). These studies provide relevant contextual evidence but cannot substitute for a

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559

direct comparison of registration duration before and after fingerprint implementation at the hospital studied.

Fingerprint identification is also relevant to discussions of administrative integrity and fraud prevention in health insurance. Previous research has evaluated fingerprint use in SSAH outpatient services as a potential measure for addressing fraud-related risks (Amabi et al., 2025). Research has also examined fingerprint use in supporting the effectiveness of SSAH patient services in hospital settings (Arifiani & Gunawan, 2025; Dani et al., 2025). However, the prevention of patient identity misuse and the prevention of phantom billing are distinct issues. A literature review on phantom billing provides broader context regarding health insurance fraud but does not constitute direct evidence that fingerprint-based registration prevents phantom billing (Ulfah, 2026). The present study did not measure fraudulent claims, identity misuse, or fraud-related outcomes; therefore, no conclusion about the effectiveness of fingerprint technology in preventing fraud can be drawn from these findings.

Reliable patient identification remains an important component of healthcare administration because identification errors may affect the continuity and safety of care. Guidance on reliable patient identification provides a broader patient-safety context for the use of identification procedures in healthcare settings (Weatherford et al., 2026). Research specifically examining fingerprint use in relation to registration speed and identity accuracy among SSAH participants is also relevant to this area of inquiry (Yureka et al., 2026). Nevertheless, the current study did not directly measure identification accuracy or compare error rates across registration methods, so it cannot establish that the fingerprint-based system improved either outcome.

The findings should also be considered within the broader context of NHI utilization and patient experience. Research has examined the utilization of national health insurance in Riau Province and compared outpatient service satisfaction between NHI and general patients (Fadly & Vianny, 2019; Ritonga et al., 2025). Other studies have examined patient experience in relation to loyalty in hospital settings (Masjadi & Jannah, 2025). These studies provide context for the importance of accessible and well-organized healthcare services, but their outcomes differ from the perceived registration service effectiveness examined in the present study. The present findings are specific to the analyzed sample at one hospital and should not automatically be generalized to all hospitals or NHI participants.

From a managerial perspective, the results suggest that hospital administrators may consider staff communication, individualized assistance, and the physical registration environment when reviewing service quality. Maintaining functional equipment, organizing registration facilities, and providing clear explanations to patients may be reasonable operational priorities in technology-supported registration services. These implications are informed by the observed associations rather than evidence that a specific intervention will improve service effectiveness. Future studies could include multiple hospitals and different patient groups, directly compare registration durations before and after fingerprint implementation, and examine identification accuracy and technical interruptions. Future research should also clearly define and validate the outcome measure used to assess perceived registration service effectiveness and report the relevant regression diagnostics to strengthen the interpretation and reproducibility of the findings.

CONCLUSION

The mean registration time for patients enrolled in the National Health Insurance program administered by SSAH was 182.22 ± 5.22 seconds. However, without a comparison of registration times before and after fingerprint implementation, the extent to which the technology standardized or improved registration time cannot be conclusively determined. The regression analysis showed that empathy and tangibles were significantly associated with perceived registration service effectiveness, highlighting the importance of personal attention from registration staff and the adequacy of physical facilities. In contrast, reliability, responsiveness, and assurance did not show statistically significant individual associations with perceived service effectiveness. These findings suggest that, alongside technological procedures, interpersonal interactions and the physical service environment

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559

remain important considerations in evaluating fingerprint-based registration services.

REFERENCES

Amabi, M. S., Marchamah, D. N. S., & Arumsari, W. (2025). Evaluasi Penggunaan Fingerprint Sebagai Upaya Pencegahan Fraud Pada Peserta BPJS Rawat Jalan Di RSIA X Kupang. *Indonesian Journal of Health Community*, *6*(2), 108-122. doi.org/10.31331/ijheco.v6i2.3788

Anggriani, S. W. (2016). Kualitas pelayanan bagi peserta BPJS Kesehatan dan non BPJS Kesehatan. *JISIP: Jurnal Ilmu Sosial dan Ilmu Politik*, *5*(2), 79–84. doi.org/10.33366/jisip.v5i2.249

Arifiani, H., & Gunawan, E. (2025). Analysis of Fingerprint Usage to Support the Effectiveness of SSAH Patient Services in the Emergency Department (IGD). *International Journal Prima Husada Health (IJPHH)*, *2*(1), 123-129. doi.org/10.55963/ijphh.v2i1.2495.

Aryanti, U., Sunusi, S. L., & Wahid, A. (2025). Penggunaan aplikasi mobile NHI dalam mendukung efisiensi proses self check-in pasien BPJS di Siloam Hospitals Makassar. *Teknologi dan Aplikasi Berbasis Edukasi dan Civitas (TABEC)*, *2*(1), 14-20.

Christasani, P. D., & Satibi, S. (2016). Kajian Faktor Demografi Terhadap Kepuasan Pasien Jaminan Kesehatan Nasional Pada Fasilitas Kesehatan Tingkat Pertama. *Jurnal Farmasi Sains dan Komunitas (Journal of Pharmaceutical Sciences and Community)*, *13*(1), 28-34. doi.org/10.24071/jpsc.00127

Dani, M., Silitonga, T. D., Paramita, R., & Ricardo, R. (2025). Efektivitas Penggunaan Fingerprint Terhadap Pasien Jaminan Badan Penyelenggara Jaminan Sosial (BPJS) Kesehatan Di Rumah Sakit Bina Kasih Pekanbaru Tahun 2024. *Jurnal Rekam Medis (Medical Record Journal)*, *4*(1), 33-40. doi.org/10.25311/jrm.Vol4.Iss1.1377

Ekawati, R., Wintara, D., & Nurhalimah, N. (2020). Kualitas pelayanan bagi peserta SSAH kesehatan dan non SSAH kesehatan. *Proceeding FRIMA (Festival Riset Ilmiah Manajemen dan Akuntansi)*, (1), 483-494. doi.org/10.55916/frima.v0i3.317

Fadly, F., & Vianny, O. (2019). Pemanfaatan jaminan kesehatan nasional (JKN) Tahun 2018 di Provinsi Riau. *Jurnal Kebijakan Kesehatan Indonesia: JKKI*, *8*(4), 164-167. doi.org/10.22146/jkki.49113

Hafidzah, F., Hasibuan, R., & Agustina, D. (2025). The Relationship Between Registration Time and Outpatient Satisfaction at Dr. Tengku Mansyur Tanjungbalai Hospital. *MEDFARM: Jurnal Farmasi dan Kesehatan*, *14*(1), 141-150. doi.org/10.48191/medfarm.v14i1.571

Kholis, K. N., Ellynia, & Efkelin, R. (2025). Hubungan sistem administrasi pendaftaran menggunakan SIMRS dengan waktu tunggu pelayanan pasien rawat jalan di RS Patria IKKT Tahun 2025. *Jurnal Riset Rumpun Ilmu Kedokteran, 4*(3), 439–452. doi.org/10.55606/jurrike.v4i3.7027

Mahadini, A. S., Setianingsih, E. L., & Lituhayu, D. (2024). Implementasi kebijakan sistem finger print pasien khusus rawat jalan SSAH Kesehatan di Rumah Sakit PKU Muhammadiyah Gombong. *Journal of Management and Public Policy*, *13*(4), 139–159. doi.org/10.14710/jppmr.v13i4.47162

Masjadi, M., & Jannah, S. S. (2025). Dampak Pengalaman Pasien yang Mempengaruhi Loyalitas Pasien di Rumah Sakit. *Wiraraja Medika: Jurnal Kesehatan*, *15*(1), 14-25. doi.org/10.24929/fik.v15i1.4041

Miswara, R. D., & Wibawa, S. (2019). Kualitas pelayanan pasien BPJS di rumah sakit. *Jurnal Ilmu Administrasi Negara ASIAN (Asosiasi Ilmuwan Administrasi Negara)*, *7*(1), 13-24. doi.org/10.47828/jianaasian.v7i01.21

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559

Pratama, T., Wiweka, I. B. S., & Saefulmilah, H. (2025). Optimizing Outpatient Registration to Improve the Quality of Public Services at Goenawan Partowidigdo Hospital. *Jurnal kesehatan komunitas (Journal of community health)*, *11*(3), 587-597. doi.org/10.25311/keskom.Vol11.Iss3.2399

Ritonga, E. R., Indriani, F., & Hasibuan, R. (2025). Perbandingan Tingkat Kepuasan Pasien JKN dan Umum Terhadap Kualitas Pelayanan Rawat Jalan di Rumah Sakit Umum Daerah Rantauprapat. *Health Information: Jurnal Penelitian*, *17*(2), 130-142. doi.org/10.36990/hijp.v17i2.1694

Santis, R. D. (2026). Hubungan Kualitas Layanan Pendaftaran Online Mobile JKN Dengan Tingkat Kepuasan Pasien Rawat Jalan Di Rumah Sakit Tingkat II Udayana Denpasar. *Jurnal Manajemen Pelayanan Kesehatan (The Indonesian Journal of Health Service Management)*, *28*(04), 146-153. doi.org/10.22146/jmpk.v28i04.23937

Simanjuntak, E. (2017). Analisis Pelaksanaan Program SSAH Di Rumah Sakit Umum Imelda Pekerja Indonesia Medan. *Jurnal Ilmiah Perekam dan Informasi Kesehatan Imelda (JIPIKI)*, *2*(2), 270-276.

Statistics Indonesia. (2021). *Hasil Sensus Penduduk (SP2020) pada September 2020 mencatat jumlah penduduk sebesar 270,20 juta jiwa*. https://www.bps.go.id/id/pressrelease/2021/01/21/1854/hasil-sensus-penduduk2020.html

Statistics Indonesia. (2023). *Profil statistik kesehatan Indonesia 2023*. Statistics Indonesia. https://www.bps.go.id/id/publication/2022/11/30/71ae912cc39088ead37c4b67/indikator-kesejahteraan-rakyat-2022.html

Ulfah, S. (2026). Prevention and Detection of Phantom Billing in Health Insurance: A Literature Review. *Jurnal Kebijakan Kesehatan Indonesia*, *15*(1). doi.org/10.22146/jkki.117854

Weatherford, E., Grauer, A., Sirochinsky, C., Lehman, I. F., Thummala, N., Callahan, M., & Adelman, J. S. (2026). Developing updated and new guidance to promote reliable patient identification. *JAMIA open*, *9*(1), ooaf160. doi.org/10.1093/jamiaopen/ooaf160

Yureka W I, M. C., Tanumihardja, J. P., Ngode, F. F., & Klaudia, M. (2026). The Impact of Fingerprints on SSAH Patient Registration Speed and Identity Accuracy. *Journal of Innovative and Creativity*, *6*(1), 2826–2829. doi.org/10.31004/joecy.v6i1.6765

Anak Agung Ngurah Alit Pramarta*, Cecep Darmawan, Yani Restiani Widjaja

Program Pascasarjana Magister Manajemen, Universitas Adhirajasa Reswara Sanjaya
Corresponding author: *E-mail: ajun.alit@me.com

DOI: https://doi.org/10.56922/mhc.v5i7.4559