

The Impact of Fingerprints on BPJS Patient Registration Speed and Identity Accuracy

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ABSTRACT

Outpatient services are a service unit with a high volume of visits, thus demanding a fast and accurate registration system. Manual registration still often results in long queues, service delays, and the risk of patient identification errors, potentially opening up opportunities for fraud in BPJS Kesehatan services. As an effort to improve service effectiveness, the BLUD RSUD dr. T.C. Hillers Maumere has implemented a fingerprint biometric verification system in all outpatient polyclinics since 2021. This study aims to assess the impact of fingerprint use on service speed and identity accuracy of outpatient BPJS patients. The study used a descriptive quantitative design with a population of all outpatient BPJS patients and a sample of 154 respondents determined using the Slovin formula. The sampling technique was accidental sampling. The research instrument was a Guttman scale questionnaire that measured registration speed, ease of use, and perceptions of identity accuracy. Data analysis was conducted descriptively using frequency distributions and percentages. The results showed that 96 percent of respondents stated that fingerprints accelerated the registration process, 97 percent considered this system to prevent identity errors, and 91 percent felt it reduced queues. The majority of users were from the productive age group and housewives, indicating good acceptance of the technology among non-digital natives. Thus, fingerprints have proven to be an effective innovation in supporting the acceleration of services and increasing the accuracy of outpatient BPJS patient administration.

Keywords: fingerprint, BPJS, outpatient, patient registration, biometrics

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INTRODUCTION

Outpatient services are one of the service units with the highest visit load in healthcare facilities, thus demanding a fast and accurate process (Fitriyani & Wolor, 2023). Manual-based registration systems often result in queues, service delays, and errors in patient identity recording, potentially disrupting service effectiveness (Triutomo & Pradana, 2022). Mismatched identities are also a potential source of fraud in BPJS Kesehatan services, especially during the registration process (Amabi et al., 2024). BPJS Kesehatan is the largest health insurance program in Indonesia, covering more than 263 million people, requiring an accurate, fast, and secure participant verification system (Chumaida et al., 2020). Therefore, biometric technologies such as fingerprints have begun to be implemented to ensure the accuracy of participant data by matching fingerprints with the BPJS database (Mahadini et al., 2023). Fingerprints not only function as a verification tool but also play a role in preventing identity fraud and duplicate claims (Sari & Pujilestari, 2025). The implementation of fingerprints is in line with the principles of the outpatient service system, namely speed, accuracy, ease of access, and certainty of service (Arna, 2024). A study at Bandung City Hospital (2024) showed that the fingerprint system has the potential to shorten patient waiting times, although its implementation is still influenced by network readiness and staff competence. This is in line with conditions at the BLUD RSUD dr. T.C. Hillers Maumere, which still faces

registration queues during peak hours. BLUD RSUD Dr. T.C. Hillers Maumere has implemented fingerprint recording for BPJS patients in all outpatient polyclinic services since 2021. Based on the results of interviews with three patients regarding the use of fingerprints, two patients said that when they first used fingerprints, the patient was a bit confused, but after trying it, it turned out to be easy. Patients only need to place their finger on the machine and the patient data immediately appeared. Patients also stated that if the device is functioning properly, registration is faster, but if the device is having problems, it actually makes the queue longer. And one of them said that they feel fingerprints are very helpful because it is faster and there is no need to carry a BPJS card or show identification every time they seek treatment. So far, I have not experienced any significant problems. Given the above context, this study aims to assess the impact of fingerprints as a BPJS patient registration innovation on the speed of service and accuracy of patient identity, so that it can become a basis for strengthening the digitalization of hospital administration.

METHOD

This research is quantitative with a descriptive design. The population was all BPJS outpatients at the BLUD RSUD dr. T.C. Hillers Maumere, with an estimated average of 250 visits per day. The sample was determined using the Slovin formula with a five percent margin of error, resulting in 154 respondents. The sampling technique used was accidental sampling based on patients found at the study site and meeting the inclusion criteria.

The research instrument was a Guttman scale questionnaire (yes/ no answers) that assessed registration speed, identity verification experience, and perceived accuracy of data matching. Data processing was carried out through editing, coding, scoring, tabulation, and data entry. Analysis was conducted descriptively using frequency distributions and percentages.

FINDING AND DISCUSSION

Finding

The results of the study show that the fingerprint system has a significant impact on the effectiveness of registration services:

Table 1. Respondent Characteristics by Age and Gender

Variables	Category	Frequency (n)	Percentage (%)
Age	17-25 years	12	8 %
	26-35 years	48	31%
	36-45 years	94	61%
Variables	Male	62	40%
	Female	92	60%

Table 2. Respondent Characteristics Based on Education Level

Variables	Category	Frequency (n)	Percentage (%)
E ducation	Not in School	2	1%
	Elementary School	6	4%
	Middle School	22	14%
	High School/ Vocational School	85	55%
	University	39	25%

Table 3. Respondent Characteristics Based on Type of Work

Variables	Category	Frequency (n)	Percentage (%)
Work	Housewife	62	40%
	Civil Servant	11	7%
	Honorary	9	6%

Self-Employed	23	15%
Student	21	14%
Private Employee	17	11%
Other	11	7%

The majority of respondents were aged 36–45 years (61 percent), female (60 percent), had a high school/ vocational high school education (55 percent), and worked as housewives (40 percent), which shows that acceptance of this technology is widespread among non-digital native groups.

Table 4. Impact of Fingerprints on Service Speed and Identity Accuracy

Statement	Yes	No
Fingerprints speed up the registration process	148 (96%)	6 (4%)
Fingerprint verification prevents identity theft	150 (97%)	4 (3%)
Fingerprint system is easy to use	132 (86%)	22 (14%)
Fingerprints reduce queues	140 (91%)	14 (9%)

Discussion

Respondent Characteristics

Respondent characteristics are one factor that potentially influences technology acceptance and fingerprint user experience. The majority of respondents were aged 36–45 years (61%). Late adulthood tends to access outpatient healthcare more frequently due to the increasing need for chronic disease control (Ministry of Health of the Republic of Indonesia, Indonesian Health Profile 2022). WHO research (2023) also states that healthcare users in the productive age group are quicker to adopt digital technology when the benefits are immediate, such as reduced waiting times. Gender is predominantly female (60%). This is consistent with research by Dinda Fitriyani et al. (2023), which found that women more frequently utilize healthcare services as part of their family's role in managing household health. Therefore, the dominance of women as fingerprint users indicates that this system is used by social groups that are key decision-makers in family healthcare. The majority of respondents had a high school/ vocational high school education (55%). Education level is one determinant of technological literacy, with secondary education considered sufficient to understand digital service innovations (Angelita et al., 2021). These results support the argument that ease of digital access in public services is strongly influenced by education level. Respondents' occupations showed that the largest group consisted of housewives (40%). Research by the Bali Medika Journal (2023) found that the usability of outpatient care technology is often influenced by the family's social role, particularly housewives, who manage their family's healthcare needs. This means that the biometric fingerprint registration system is accepted and used not only by the formal workforce but also by users focused on domestic functions.

Impact of Fingerprint on Registration Speed

The study results showed that 96 percent of respondents stated that fingerprints speeded up the registration process. Conventional patient registration procedures generally involve queuing, checking physical cards, and signing, potentially taking 5–10 minutes per patient (Triutomo & Pradana, 2022). Through fingerprints, the identity verification process is carried out digitally, reducing the time per patient to 2–4 minutes (Amabi et al., 2024). Furthermore, administrative digitization is a national strategy for improving service quality, as stated in the National Hospital Accreditation Standards (SNARS) Edition 1 of the Indonesian Ministry of Health (2022). From a public service perspective, speed is the primary indicator influencing patient satisfaction and staff workload. Therefore, these findings support the use of biometric technology to address service bottlenecks at outpatient registration counters.

The Impact of Fingerprints on Identity Accuracy

Ninety-seven percent of respondents stated that fingerprints prevent mistaken identity. This reinforces the effectiveness of biometrics as a patient verification tool, which has a low error rate (WHO, Biometric ID Guidelines, 2021). Misidentification often leads to administrative fraud, such as the use of BPJS cards by other family members or duplicate claims (Amabi et al., 2024). With fingerprints, patient identities are directly matched with the BPJS database, thus reducing the risk of data falsification and duplicate claims. This also aligns with the WHO (2021) recommendation that biometrics is the most appropriate technology for authentication in healthcare services in developing countries with a high risk of fraud.

CONCLUSIONS

This study shows that the use of fingerprints in the BPJS outpatient registration process at the BLUD RSUD dr. T.C. Hillers Maumere has brought about noticeable changes in service practices. Fingerprints help expedite the registration process, which previously took time and resulted in long queues. Identity verification is more accurate because the system directly matches data with the BPJS database, thus reducing the chance of errors and identity duplication. The majority of fingerprint users are productive-age patients and housewives who actively take care of their families' health needs, resulting in high acceptance of this technology. Despite its many benefits, the smooth use of fingerprints still depends on the readiness of the network, equipment, and the knowledge of staff and patients regarding the process. Overall, fingerprints deserve to be considered an innovation that supports faster, more accurate, and more trusted healthcare administration among users.

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