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# The Effect of Implementing an Outpatient Registration Strategy at the Elderly Clinic on the Speed of Quality Service at RSUD Welas Asih

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**Abstract:** The digitalization of healthcare services through the Mobile JKN application aims to improve service efficiency; however, it still faces challenges among elderly patients due to low digital literacy. This study aimed to analyze the effect of the outpatient registration strategy for the elderly clinic on the speed and quality of healthcare services at RSUD Welas Asih. This study employed a quantitative method with an explanatory research approach and a cross-sectional design. The sample consisted of 214 elderly patients aged ≥60 years, selected using the purposive sampling technique. Data were collected through observation, structured interviews, and patient visit reports, and were analyzed using the Chi-Square test with SPSS version 25. The results showed that most respondents successfully completed the check-in process through Mobile JKN and received faster healthcare services. The Chi-Square test results showed a Pearson Chi-Square value of 205.748 with a significance value of 0.000 ($p<0.05$), indicating a significant relationship between Mobile JKN check-in status and the speed of outpatient services. The implemented solutions included staff assistance, use of Mobile JKN, and manual service options for patients experiencing difficulties. These strategies were shown to support improved efficiency and quality of healthcare services for elderly patients.

**Keywords:** Elderly Patients, Registration, Service Quality, Mobile JKN.

## INTRODUCTION

Under Article 1 of Law of the Republic of Indonesia Number 17 of 2023 concerning Health, a hospital is defined as a health service facility that provides comprehensive individual health services through promotive, preventive, curative, rehabilitative, and palliative care by offering inpatient, outpatient, and emergency services. Furthermore, Article 189 paragraph (1) stipulates that hospitals are required to ensure service accessibility for all levels of society and to provide health services that are safe, high-quality, non-discriminatory, and effective, prioritizing patients' interests in accordance with established health service standards (Rahmattuhan et al., 2023).

Ministry of Health Regulation No. 24 of 2022, Article 3 paragraph (1), stipulates that all health service facilities are required to implement electronic medical records no later than 31 December 2024. Article 3 paragraph (2) further explains that hospitals are among the health service facilities referred to in paragraph (1), while Article 10 specifies that patient registration constitutes one of the activities involved in implementing an electronic medical record (EMR) system (PERMENKES, 2022).

According to Ministry of Health Regulation No. 24 of 2022, Article 11 paragraphs (1) (2), patient registration is defined as the process of registering patients to receive health services at a health service facility by recording their personal identity data (social data) and the purpose of their visit to the hospital. One of the services provided within patient registration is outpatient registration, where outpatient care represents the patient's first point of contact with the hospital service system, beginning with registration, examination, and medical record documentation for patients who are not hospitalized, whether general patients, privately insured patients, or BPJS Kesehatan participants (Adiningsih, 2021). This has a substantial influence on the quality of health services, given that service quality refers to the extent to which health services are delivered in accordance with established ethics and standards so as to produce patient satisfaction. Quality service is essential because it constitutes a fundamental right of every service user and enables health facilities to compete with other health service providers (Istiqamah & Mujtahidah, 2024).

A study conducted by Asiam and Gunawan (2024), entitled “Implementation of Mobile JKN Registration as an Electronic Medical Record Transformation at Hospital X in 2024,” found that many patients still experienced difficulty operating the Mobile JKN application. Although digital transformation through EMR provides convenience for users with adequate digital literacy, certain patient groups particularly the elderly continue to face obstacles in its use. To address this issue, the hospital has provided an online registration facility supported by assisting staff to help patients through the registration process (Asiam & Gunawan, 2024).

In line with this, another study conducted in 2025, entitled “The Effect of the Effectiveness of Online Registration Services via the Mobile JKN Application on Outpatient Satisfaction,” revealed that obstacles remain in the form of real-time information discrepancies within the application and low digital literacy, particularly among elderly patients. Within the national health system, Mobile JKN is a digital innovation developed by BPJS Kesehatan to improve service efficiency and reduce patient waiting times. Nevertheless, the implementation of this innovation has not yet been optimal across all health service facilities, a condition influenced by various factors such as infrastructure readiness, human resources, and users' digital literacy levels (Yunengsih & Elvin, 2025). To date, however, research that specifically analyzes outpatient registration strategies at elderly clinics in relation to service speed and service quality in hospitals remains limited.

Preliminary observations conducted in January 2026 at RSUD Welas Asih revealed conditions that differ from those reported in previous studies. Whereas earlier research indicated that registration systems tend to be complex and difficult for elderly patients to understand, RSUD Welas Asih has instead implemented a solution in the form of a dedicated registration service for the elderly clinic, catering to patients aged ≥60 years. Of the 1,000 total patient visits recorded, approximately 800 patients were BPJS Kesehatan participants. This program is considered capable of accelerating the service process and providing convenience for elderly patient groups, giving it the potential to serve as a model or reference for other hospitals, particularly within the West Java region. Based on the data above, the researchers were motivated to conduct a study entitled “The Effect of Implementing an Outpatient Registration Strategy at the Elderly Clinic on the Speed of Quality Service at RSUD Welas Asih.”

## METHODS

This study employed a quantitative descriptive analysis with an explanatory research approach aimed at describing and explaining the causal relationship between the independent and dependent variables through hypothesis testing. This study was non-experimental in nature, employing a cross-sectional study design (Sari et al., 2023), in which data were collected at a single point in time without intervention, allowing the relationships between variables to be observed under actual field conditions.

This study was conducted at RSUD Welas Asih, a referral hospital located in Kabupaten Bandung and managed by the local government. The research was centered on the Medical Record Installation's outpatient registration section and the National Health Insurance (JKN) service unit, as these units are directly involved in the management, verification, and submission of BPJS Kesehatan claim documents (Haikal & Rahayu, 2025).

Data collection techniques in this study comprised primary and secondary data. Primary data were obtained through direct observation of the outpatient registration process, while secondary data were derived from visit reports of elderly clinic patients treated at the internal medicine clinic during the fourth quarter (December 2025) and from January through February 2026.

The population in this study comprised all elderly patients aged ≥60 years who visited the internal medicine clinic of dr. Festy Diansari, Sp.PD and dr. M. Iqbal Sorba D., Sp.PD., M.Ked (PD), totaling 459 patients. Using the Slovin formula a sampling technique used to calculate the minimum sample size (n) from a known population (N) with a tolerated margin of error (e) of 5%—a sample of 214 respondents was obtained (Penerapan et al., 2024).

$$\text{Slovin's Formula} : n = \frac{N}{1+N(e^2)}$$

$$n = \frac{459}{1+459\,(0{,}05)^2}$$

$$n = \frac{459}{1+459\,(0{,}0025)}$$

$$n = \frac{459}{1+\,1{,}1475}$$

$$n = \frac{459}{2{,}1475} = 213{,}74 \text{ rounded to } 214.$$

Thus, the sample size used in this study was 214 respondents.

The sampling technique employed in this study was purposive sampling, in which samples were selected based on specific criteria relevant to the research objectives. The inclusion criteria comprised elderly patients aged over 60 years who used the Mobile JKN application, visited the internal medicine clinic, and experienced difficulties during the check-in process. The exclusion criteria comprised patients making purely administrative visits such as referral extensions, patients in emergency conditions, patients with specific diagnoses who did not follow the regular registration pathway or who received special hospital policies, patients with communication limitations, and patients who declined to participate in the study.

Data processing was carried out through editing, coding, and tabulation to ensure data completeness and consistency. The data were subsequently processed using IBM SPSS (Statistical Package for the Social Sciences) version 25 to produce systematic and accurate analytical results (Muliagusni, 2024).

## RESULTS AND DISCUSSION

The results of this study were obtained through a Chi-Square ($\chi^2$) statistical test to determine the relationship between categorical variables such as ease of use, accessibility,

and staff support and the successful use of Mobile JKN among elderly patients (Fauziyah, 2018).

The significance level used in this study was $\alpha = 0.05$, with the decision-making criterion being that a p-value < 0.05 indicates a significant relationship between the variables under study (Asnia et al., 2025). This test was selected because it is appropriate for nominal or ordinal scale data within a cross-sectional design.

a. Descriptive Statistical Analysis

**Table 1. Descriptive Analysis of Respondent Age**

| Variable | N (Sample) | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Age | 214 | 60 | 84 | 71.46 | 6.664 |
| Valid N (listwise) | 214 | | | | |

Source: Author (2026)

The descriptive statistical analysis of age involved 214 respondents. The minimum respondent age was 60 years and the maximum was 84 years, with a mean age of 71.46 years and a standard deviation of 6.664.

This indicates that most respondents fell within an age range of approximately 71 years, with relatively limited variation among respondents. The standard deviation of 6.664 suggests that the distribution of respondent age data was fairly homogeneous. The following table presents the descriptive analysis of the check-in status variable in relation to service speed:

**Table 2. Descriptive Analysis of Check-in Status and Service Speed Variables**

| Variable | N (Sample) | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Check-in Status | 214 | 0 | 1 | 0.86 | 0.348 |
| Service Speed | 214 | 1 | 2 | 1.14 | 0.343 |
| Valid N (listwise) | 214 | | | | |

Source: Author (2026)

The descriptive statistical analysis of the Check-in Status variable produced a minimum value of 0 and a maximum value of 1, with a mean of 0.86 and a standard deviation of 0.348. This indicates that most respondents fell into the successful check-in status category, according to the variable coding used in this study. The relatively small standard deviation indicates that the Check-in Status data exhibited limited variability. For the Service Speed variable, the minimum value was 1 and the maximum value was 2, with a mean of 1.14 and a standard deviation of 0.343. A mean value close to 1 indicates that the majority of respondents fell into the fast-service category, as defined in this study.

b. Frequency Distribution

**Table 3. Frequency Distribution of Respondent Age**

| Age | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| 60 | 9 | 4.2 | 4.2 | 4.2 |
| 61 | 9 | 4.2 | 4.2 | 8.4 |
| 62 | 4 | 1.9 | 1.9 | 10.3 |
| 63 | 11 | 5.1 | 5.1 | 15.4 |
| 64 | 6 | 2.8 | 2.8 | 18.2 |
| 65 | 8 | 3.7 | 3.7 | 22.0 |
| 66 | 13 | 6.1 | 6.1 | 28.0 |
| 67 | 9 | 4.2 | 4.2 | 32.2 |

| Age | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| 68 | 11 | 5.1 | 5.1 | 37.4 |
| 69 | 8 | 3.7 | 3.7 | 41.1 |
| 70 | 15 | 7.0 | 7.0 | 48.1 |
| 71 | 4 | 1.9 | 1.9 | 50.0 |
| 72 | 9 | 4.2 | 4.2 | 54.2 |
| 73 | 7 | 3.3 | 3.3 | 57.5 |
| 74 | 9 | 4.2 | 4.2 | 61.7 |
| 75 | 12 | 5.6 | 5.6 | 67.3 |
| 76 | 9 | 4.2 | 4.2 | 71.5 |
| 77 | 11 | 5.1 | 5.1 | 76.6 |
| 78 | 10 | 4.7 | 4.7 | 81.3 |
| 79 | 13 | 6.1 | 6.1 | 87.4 |
| 80 | 9 | 4.2 | 4.2 | 91.6 |
| 81 | 5 | 2.3 | 2.3 | 93.9 |
| 82 | 6 | 2.8 | 2.8 | 96.7 |
| 83 | 4 | 1.9 | 1.9 | 98.6 |
| 84 | 3 | 1.4 | 1.4 | 100.0 |
| Total | 214 | 100.0 | 100.0 | |

Source: Author (2026)

Table 3 shows that the study involved 214 elderly patients aged 60–84 years. The largest group of respondents was aged 70 years (15 individuals, 7.0%), followed by those aged 66 and 79 years (13 individuals each, 6.1%), and those aged 75 years (12 individuals, 5.6%). Meanwhile, the smallest group of respondents was aged 84 years (3 individuals, 1.4%).

Overall, the age frequency distribution shows that the elderly patients sampled in this study were spread across various age groups but were dominated by those aged 70 years and above. This indicates that most respondents belonged to an elderly category prone to declining physical capability and digital literacy, thereby requiring a registration service that is easier, faster, and more elderly-friendly. Having established the age characteristics of respondents, the analysis then proceeded to examine service speed to determine the frequency distribution of the service speed received by elderly patients at RSUD Welas Asih following the implementation of the Mobile JKN registration strategy.

**Table 4. Frequency Distribution of Service Speed**

| Service Speed | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| 1 | 185 | 86.4 | 86.4 | 86.4 |
| 2 | 29 | 13.6 | 13.6 | 100.0 |
| Total | 214 | 100.0 | 100.0 | |

Source: Author (2026)

a. Code 1 = Fast Service (≤ 30 minutes)
b. Code 2 = Slow Service (> 30 minutes)

The frequency distribution analysis of the Service Speed variable shows that, of the 214 respondents, 185 (86.4%) received category 1 service (fast service), while 29 (13.6%)

received category 2 service (slow service). No missing values were found, meaning all respondent data (100%) could be analyzed.

These findings indicate that the implementation of the Mobile JKN registration strategy—supported by staff assistance and a manual service policy for patients experiencing difficulties—has contributed to improved service speed at RSUD Welas Asih. This frequency distribution also formed the basis for further analysis using crosstabulation and the Chi-Square test to determine the relationship between Mobile JKN check-in status and service speed.

A study conducted by Octavia and Winarno (2024), entitled "The Effectiveness of Online Participant Registration Using the Mobile-JKN Application in Outpatient Services at Hospital X," employed a quantitative approach with a cross-sectional design. Its findings likewise showed that the use of Mobile JKN was effective in improving outpatient services, although various obstacles remained. The researchers recommended enhanced education on Mobile JKN use to make services more efficient and reduce patient queues (Octavia et al., 2024).

c. Crosstabulation

**Table 5. Crosstabulation of Check-in Status and Service Speed**

| | | | Service Speed | | Total |
|---|---|---|---|---|---|
| | | | 1 | 2 | |
| Check-in Status | 0 | Count | 1 | 29 | 30 |
| | | Expected Count | 25.9 | 4.1 | 30.0 |
| | 1 | Count | 184 | 0 | 184 |
| | | Expected Count | 159.1 | 24.9 | 184.0 |
| Total | | Count | 185 | 29 | 214 |
| | | Expected Count | 185.0 | 29.0 | 214.0 |

Source: Author (2026)

The crosstabulation results illustrate the relationship between the Check-in Status variable and Service Speed. Within the Check-in Status category coded 0, there were 30 respondents, of whom 1 received category 1 service and 29 received category 2 service. Within the Check-in Status category coded 1, there were 184 respondents, all of whom received category 1 service, with none falling into category 2.

These results indicate that respondents with a successful check-in status tended to receive faster service compared to those who experienced difficulties or failed to check in. Conversely, respondents with an unsuccessful check-in status experienced slower service more frequently.

These findings are consistent with the study conducted by Hakim and Setiatin (2025), entitled "A Review of Mobile JKN Use in Improving the Efficiency of the Outpatient Registration Process at Hospital X in 2025," which found that Mobile JKN was considered fast and practical and was able to improve the efficiency of the outpatient registration process through its digital check-in system (Hakim, 2025).

d. Chi-Square Test

**Table 6. Chi-Square Test**

| Test | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 205.748[a] | 1 | .000 | | |
| Continuity Correction[b] | 197.580 | 1 | .000 | | |

| Test | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Likelihood Ratio | 161.034 | 1 | .000 | | |
| Fisher's Exact Test | | | | .000 | .000 |
| Linear-by-Linear Association | 204.787 | 1 | .000 | | |
| N of Valid Cases | 214 | | | | |

a. 1 cell (25.0%) has an expected count of less than 5. The minimum expected count is 4.07.
b. Computed only for a 2x2 table

The Chi-Square test conducted using IBM SPSS (Statistical Package for the Social Sciences) version 25 yielded a Pearson Chi-Square value of 205.748 with 1 degree of freedom (df) and a significance value (Asymptotic Significance) of 0.000. This significance value is smaller than the 0.05 significance threshold (0.000 < 0.05).

The results indicate that the use of the check-in feature within the Mobile JKN application influences patient service speed. Respondents who successfully checked in tended to receive faster service compared to those who experienced difficulties or failed to check in.

This indicates that the implementation of a digital system through Mobile JKN can help accelerate the administrative process and reduce patient waiting times in the hospital. In addition, the Chi-Square Tests table shows that the number of valid cases (N of Valid Cases) was 214 respondents. The test results also noted that 1 cell (25.0%) had an expected count of less than 5, with a minimum expected count of 4.07. This condition remains tolerable, as the minimum value is close to 5 and is further supported by the Fisher's Exact Test result, which showed a significance value of 0.000. This result confirms that the relationship between the two variables remains statistically significant.

Based on the research conducted at RSUD Welas Asih involving 214 elderly patient respondents at the internal medicine clinic, the use of Mobile JKN particularly its check-in feature was found to have a significant relationship with outpatient service speed. The results show that most respondents fell into the older-age category, with a mean age of 71.46 years. This condition indicates that the majority of patients belonged to an age group prone to difficulties in using digital technology, particularly during electronic-based health service registration.

This finding is consistent with the study by Nursolihah et al. (2024), which examined how increasing age is associated with a heightened risk of health problems due to declining physiological function and reported that respondents predominantly belonged to the early-to-late elderly age group, approximately 60–70 years and above (Nursolihah et al., 2024).

The descriptive analysis of the relationship between check-in status and service speed shows that the majority of respondents successfully completed the Mobile JKN check-in and received fast-category service. The mean value of the check-in status variable (0.86) indicates that most patients were able to complete the check-in process successfully, while the mean service speed value (1.14) indicates that the service provided tended to be fast and approached the hospital's minimum service standard.

Furthermore, a study by Setiatin (2021) on the effect of Mobile JKN application use on outpatient waiting-time efficiency at Hospital Y found a significant effect of Mobile JKN utilization on outpatient waiting-time efficiency. The findings showed that Mobile JKN use can help reduce queues and accelerate patient service in hospitals (Setiatin, 2021).

The Chi-Square test results showed a Pearson Chi-Square value of 205.748 with a significance value of 0.000 (<0.05), leading to the conclusion that a significant relationship exists between Mobile JKN check-in status and outpatient service speed at the internal medicine clinic of RSUD Welas Asih. This result confirms that the implementation of a

Mobile JKN-based digital system contributes to improved hospital service efficiency, particularly among elderly patient groups.

Another study by Putra and Widyaningrum (2025) on the effect of electronic medical record implementation on outpatient service effectiveness at Hospital X found that the implementation of a digital system had a strong and significant relationship with service effectiveness, with a p-value of 0.000; the study explained that service digitalization can improve the speed, accuracy, and coordination of outpatient care (Putra & Widyaningrum, 2025). This earlier finding is consistent with the present study, which shows a significant relationship between Mobile JKN check-in status and outpatient service speed, based on a Chi-Square test result with a p-value of 0.000 (<0.05).

These results indicate that $H_0$ is rejected and $H_1$ is accepted. It can therefore be concluded that a significant relationship exists between the Mobile JKN Check-in Status variable and the Service Speed of outpatients at the internal medicine clinic. This finding confirms that the use of the check-in feature in the Mobile JKN application has an effect on patient service speed.

## CONCLUSIONS

### Conclusion

Based on the findings of the study on the outpatient registration strategy for the elderly clinic and its effect on service quality speed at RSUD Welas Asih, it can be concluded that the implementation of an adaptive registration strategy through the Mobile JKN application, particularly its check-in feature, has a significant relationship with outpatient service speed at the internal medicine clinic. This is confirmed by the Chi-Square test results, which showed a significance value of 0.000 (<0.05), leading to the rejection of $H_0$ and acceptance of $H_1$. There is therefore a positive and significant effect between Mobile JKN check-in status and outpatient service speed. With this strategy in place, outpatient services at the elderly clinic can proceed more quickly and effectively while maintaining the quality of health services provided to elderly patients

### Recommendations

Based on the findings of this study, RSUD Welas Asih is expected to continue improving the quality of its digital-based outpatient registration services, particularly regarding the use of the Mobile JKN application among elderly patients. This improvement can be achieved by strengthening internet network infrastructure and the hospital information system to minimize network disruptions or system downtime that could hinder the patient service process. In addition, registration staff and JKN service staff are expected to continue providing education, assistance, and guidance to elderly patients regarding the use of the Mobile JKN application, particularly during the check-in process, so that services can proceed more quickly, effectively, and efficiently.

Furthermore, elderly patients and their families are encouraged to improve their understanding and ability to use digital health technology so that they can more easily follow electronic-based service procedures in hospitals. Future researchers are encouraged to expand this study by incorporating additional variables such as patient satisfaction, service quality, hospital information system effectiveness, or patient digital literacy factors. Future studies are also encouraged to employ broader research methods with larger numbers of respondents so that the findings can serve as a basis for evaluation and further development toward more optimal health service quality in hospitals

### Author Contributions

Both authors made significant contributions to this study. Contributions included research conceptualization, data collection, data analysis, interpretation of results, manuscript preparation, and critical revision of the manuscript. Both authors have read and approved the final version of the article for publication.

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