



Risk Management Analysis of Mobile JKN Queues for Outpatients at Islamic Hospital Surabaya With a Failure Mode Effect and Analysis Approach

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ARTICLE INFORMATION

Received: April 14, 2026

Revised: May 19, 2026

Available online: May 2026

KEYWORDS

Mobile JKN; FMEA; Risk Management; Outpatient services; BPJS kesehatan

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ABSTRACT

The implementation of Mobile JKN at Surabaya Islamic Hospital showed increased utilization during January–April 2024 compared to the previous year, although its use has not yet reached optimal levels. This study aimed to evaluate the utilization of Mobile JKN in outpatient services and identify potential risks using the Failure Mode and Effects Analysis (FMEA) method. A descriptive qualitative case study design was employed involving service officers and JKN patients. Data were collected through observations and in-depth interviews and analyzed using the Miles and Huberman approach. The findings revealed potential failures at almost every stage of the Mobile JKN process, including patients not installing or being unfamiliar with the application, delayed arrivals, physician delays, patient congestion, incomplete supporting examinations, and technical problems with diagnostic equipment. FMEA analysis demonstrated that the average risk score decreased from 19.5 to 12.5 after implementing improvement strategies. Nine recommendations were identified to reduce risks associated with online registration through Mobile JKN. These findings suggest that integrating patient education, technological improvements, and consistent operational management is essential to optimize the sustainable implementation of Mobile JKN in outpatient services.

INTRODUCTION

Health development is a strategic government effort to improve public health by increasing awareness, willingness, and the ability to live a healthy life. It is strengthened by the mandate of the 1945 Constitution and Law Number 40 of 2004 concerning the National Social Security System (*Sistem Jaminan Sosial Nasional* or SJSN), which affirms that every citizen has the right to obtain social security, including health insurance. The policy has been implemented through the National Health Insurance (*Jaminan Kesehatan Nasional* or JKN) program, organized by *Badan Penyelenggara Jaminan Sosial Kesehatan* (BPJS Kesehatan), since 2014, with the principle of mutual cooperation. This program aims to ensure access to comprehensive health services, including promotive, preventive, curative, and rehabilitative services for all Indonesian people.

Along with the development of information technology, *BPJS Kesehatan* launched the Mobile JKN application as part of its digital transformation to increase access to health services. This application allows participants to perform various administrative activities independently, such as checking membership status, registering services, and obtaining queue numbers online, without visiting health facilities. The implementation of Mobile JKN in hospitals, including Surabaya Islamic Hospital, can

potentially improve service efficiency, reduce queues, and support data-driven decision-making. However, this technology also carries potential risks, both technical and operational, that can affect service quality if not managed properly.

Based on data on the use of online queues at Surabaya Islamic Hospital, the achievement of using Mobile JKN still fell short of the set target, at only 17.78% of the 25% target, even though the overall use of online queues has approached the target. This condition indicates that there are problems with the optimal use of Mobile JKN that need further analysis. Therefore, a systematic risk management approach is crucial, including Failure Mode and Effects Analysis (FMEA), to identify potential failures, analyze their impacts, and determine improvement priorities. Thus, it is hoped that the implementation of Mobile JKN can run more optimally, minimize risks, and achieve the goal of improving the quality of health services. The urgency of this research lies in the still suboptimal use of Mobile JKN, which has not reached the target, so that it has the potential to cause service inefficiency, patient queues, and a decrease in service quality if risk identification and system improvements are not immediately carried out (Wahyuni et al., 2026). This study aims to comprehensively examine the use of Mobile JKN in outpatient services at Surabaya Islamic Hospital by identifying BPJS patient systems, flows, and queues, as well as potential failures and obstacles. In addition, this study analyzes risk levels using the FMEA approach by assessing severity, occurrence, and detection, and by calculating the Risk Priority Number (RPN) to determine improvement priorities and formulate process redesign recommendations to minimize high risks (Jamal & Adinda, 2025). Theoretically, this research contributes to the development of information technology-based risk management science in the health sector. At the same time, it can practically serve as a guide for hospital management and BPJS Kesehatan in improving the quality of Mobile JKN services and providing a positive impact on patients through more efficient, user-friendly services (Makmur et al., 2024).

METHOD

This study used a descriptive qualitative approach and a case study design to provide an in-depth understanding of the use of Mobile JKN (Hakim et al., 2024) at Surabaya Islamic Hospital, with the analysis unit comprising various users, such as service officers and JKN patients. Participants were key, main, and supporting informants selected for their involvement and understanding of the Mobile JKN system. Data collection was through in-depth observation and interviews, supported by instruments such as observation guidelines and interview guides, and documented using recording tools (Wahidah et al., 2023). The research component included system analysis, utilization, potential failure, and risk measurement using the FMEA method, based on severity, occurrence, and detection indicators, which produce RPN

values to identify strategic issues and recommend improvements. The data were then analyzed using Miles and Huberman's technique through data reduction (Daniati et al., 2025), data presentation, and conclusion. The data's validity was maintained through triangulation of sources, techniques, and time to ensure the research results were valid. In addition, this study also paid attention to ethical aspects by providing informed consent sheets to respondents as a form of consent after obtaining complete information on the objectives, benefits, and research process (Br Sagala & Hajad, 2022). It has passed the Ethics Test with certificate number: No. 205. EC. KEP. RSIAY.07.25.

RESULT

The use of Mobile JKN (MJKN) at Surabaya Islamic Hospital increased from January to April 2024, averaging 1.25%. However, this is still relatively low compared to total visits, reflecting the early stages of digital adoption. In terms of system quality, Mobile JKN is considered to have a clear flow, is easy to use, and has been well integrated to support user activities (Rinjani, 2022). In terms of information quality, the application can present information that is quite complete, easy to understand, and reliable. However, there are still obstacles, such as doctor delays, that affect the accuracy of service information (Suhadi et al., 2022). The quality of the process shows that using Mobile JKN can increase efficiency and reduce queues. However, there are still obstacles for certain groups, such as older people or users without adequate devices (Suhadi, 2022). Meanwhile, the quality of collaboration is considered quite good, characterized by accurate data support, fast service response, and effective system integration. However, there is still a need to increase server capacity to overcome technical obstacles, such as errors or system slowdowns (Wulanadary et al., 2019).

Table 1 Potential Failures and Impacts of Mobile JKN Users of Surabaya Islamic Hospital

Process Stages	Potential Failure from the Patient Side	Impact
Initial access to the MJKN application	Didn't have an Android/iOS cellphone or couldn't download apps.	Patients could not register online → remain in manual queues → longer queues.
Registration on the MJKN application	Not understanding how to use the app.	Patients failed to register → lost the service slot that day.
	Incorrect data input (polyclinic, date, health facility).	Patients were registered at the wrong polyclinic → cannot be served.
	Not recording or forgetting the queue number.	Confused when coming to the hospital → difficulty validating the queue → there was a delay in service.
Arrival at the hospital according to the schedule	Arriving not on time or late.	The queue number was forfeited, patients had to requeue → the waiting time was getting longer.
	Didn't know the check-in/queue validation procedure.	Inactive queues → considered absent.
Processes in the outpatient polyclinic	Not knowing the polyclinic's location or flow.	Patients went back and forth → stress, fatigue, longer service time.
	Did not bring supporting documents (referral letter, ID cards, BPJS cards).	Registration failed to be validated → service was delayed or declined.
Hospital supporting examinations or	Patients did not know where to go for supporting examinations or pharmacies.	Service was not completed in one day → must come back.

pharmacy	The patient did not understand the information provided by the doctor/nurse.	Confused about supporting examinations or rules for taking medication.
Follow-up visit	Didn't get info about the follow-up visit	Patients did not have a follow-up visit → patient was at risk of complications or did not complete treatment.
	Not keeping proof of service/documents.	Difficult when there were follow-up claims, complaints, or new referrals.

Overall, potential failures in the use of Mobile JKN from the patient's side occurred at almost all stages of the process, from initial access to follow-up visit, largely due to limited digital literacy, ignorance of service flows, and administrative negligence. The impact not only hinders individual patients, such as registration failures, service delays, and incompleteness of treatment, but also has a systemic impact in the form of increasing manual queues, irregularities in service flows, and hospital operational inefficiencies (Tauran et al., 2025). Therefore, comprehensive interventions are crucial, including patient education, streamlining processes, strengthening information systems, and active support at each service point, to minimize the risk of failure. Thus, the use of Mobile JKN can run optimally (Siallagan et al., 2025).

The risk management assessment of the non-optimal use of online registration through Mobile JKN at Surabaya Islamic Hospital was conducted through in-depth interviews with the head of outpatient, registration, pharmacy, laboratory, and radiology units, which identified various obstacles such as limited access and digital literacy of patients, discrepancies in arrival times, patient stacking, doctor delays, technical constraints in systems and supporting equipment, to problems with drug availability and non-compliance patients to the instructions of the service. Based on these findings, a risk management analysis was conducted using the FMEA approach. It assesses the frequency of occurrence, severity, and likelihood of detection on a 1–10 numerical scale, quantitatively arranged to minimize bias (Budiarti, 2024). This assessment considers the impact of any potential failure on the next service process as well as on the patients as an end user, by ensuring uniformity of scale between parameters so that it can produce accurate risk priorities as a basis for decision-making to improve Mobile JKN services at Surabaya Islamic Hospital (Hanif et al., 2015).

Table 2. Risk Management Assessment from Various Units at Surabaya Islamic Hospital in the Use of Mobile JKN

Risks	Events	Constraints	Frequency (Likelihood)	Impact	Possible Failure detected	Value
Patients did not have the Mobile JKN application.	On average, 40% of patients did not have Mobile JKN each day.	The patient could not complete the online registration, so they chose on-site registration.	10	7	10	27
Patients were not accustomed to using the JKN mobile app.	Almost all Mobile JKN users were not accustomed to using it.	Patients registered on-site, so the target indicator for achieving mobile JKN was not met.	10	5	10	25

Risks	Events	Constraints	Frequency (Likelihood)	Impact	Possible Failure detected	Value
Patients did not come at the scheduled treatment time.	On average, 3 patients did not attend treatment at the scheduled time after registering with mobile JKN each month.	The patient quota was not used, so it was consumed by other patients who wanted treatment at that time.	6	6	9	21
Patients arrived late, not on schedule.	There were 5 average incidents in 1 month of patients arriving late, not according to the existing queue number.	The queue quota would shift and did not match the existing queue sequence number.	6	6	7	19
The accumulation of patient arrival processes.	There was a buildup of patients several times a month because arrivals were not on schedule.	Waiting rooms were not enough because patients came at the same time.	8	4	9	16
Doctors arrived late.	On average, there were 10 physician delays per practice arrival hour in 1 month.	Patients piled up due to delayed services.	6	5	6	17
Patients did not arrive on schedule.	On average, four patients arrived outside the predetermined schedule each month.	The inaccuracy in the patient's schedule will affect the allocation of quotas to other patients, so that the next patient who wants to register will not be able to undergo the examination.	4	4	8	16
Patients failed to perform a supporting examination because they did not follow the officer's directions correctly.	Two patients failed to have a supporting examination in one month.	The next patient exceeded the quota for supporting examinations that day.	3	5	8	16
There were technical problems with the diagnostic devices.	Some supporting examinations could not be performed due to technical issues with the diagnostic devices. It might have occurred 2 times in 1 month.	There was a buildup of patient queues for a supporting examination.	5	5	6	16

Based on Table 2 of the risk assessment results, it can be concluded that the main problem in the use of Mobile JKN at Surabaya Islamic Hospital was dominated by patient factors, especially patients did not have the Mobile JKN application and were not accustomed to using it, which had the highest risk value, so that it had an impact on the high on-site registration and the failure to achieve the service digitization

target. In addition, non-compliance with schedules, such as patients not arriving or arriving late, also contributed to inefficient quota utilization and queue flow disruptions. Other operational risks, such as doctor delays, patient buildup, patients failing to perform supporting examinations, and technical problems with the diagnostic devices, also affected service operations, even at a moderate level of risk. Overall, the risks identified indicated that user behavior and schedule discipline were the dominant factors to prioritize in improvement efforts, along with increasing system readiness and operational management to support the optimization of Mobile JKN use. Based on the risk management assessment, a risk-reduction analysis was conducted, resulting in recommendations to reduce risk.

Table 3. Recommendations for Increasing the Utilization of Individuals Registering Online Through Mobile JKN at Surabaya Islamic Hospital

Constraints	Recommendation Efforts	Before Value	Value After	Decline
Patients were unable to complete online registration and ultimately chose on-site registration.	- Socialization for all patients, both inpatients and outpatients. - Adding JKN mobile ambassadors in terms of educating patients.	27	11	16
Patients registered on-site, so the target indicator for achieving mobile JKN was not met.	Customer Information Officers and marketing personnel conducted socialization regarding the use of Mobile JKN to foster understanding.	25	12	13
The patient quota was not used, thus preventing other patients from seeking treatment at that time.	There was a policy to remind patients on the day before the scheduled appointment (D-1) so they could use the doctor's check-up quota as scheduled.	21	13	8
The queue quota would shift and did not match the existing sequence number.	Notification of queue quotas via the information system on the WhatsApp application, so patients knew when to come.	19	13	6
The waiting room wasn't enough because patients arrived at the same time.	Notification of queue quotas via the information system on the WhatsApp application, so patients knew when to come.	21	13	8
There was an accumulation of patient arrival processes.	Notification of queue quotas via the information system on the WhatsApp application, so patients knew when to come.	17	13	4
Patients would interfere with the quota allocation, so that other patients who want to register cannot undergo the examination.	There was a policy to remind patients on the day before a follow-up visit (D-1), so they could use their check-up quota according to the schedule.	16	12	4
Other patients could not use the quota that was actually available.	Designing a system that was bridged with mobile JKN so that patients could be informed systemically, so that notification information was properly systematic.	16	13	3
There was a buildup of patients.	Quota arrangements were evenly distributed and required doctors to arrive on time, with commitment and discipline.	16	12	4
Average value		19,5	12,5	7

The average risk value decreased from 19.5 to 12.5, a decrease of 7 points. The most influential interventions included intensive patient socialization, the addition of Mobile JKN ambassadors, on-the-day-before (D-1) reminders, and WhatsApp-based notifications for queue management. In addition,

designing a system that bridged mobile JKN and a more equitable distribution of quotas also helped reduce patient buildup and improve service efficiency (Table 3).

DISCUSSION

The Mobile JKN application at Surabaya Islamic Hospital is an innovation in BPJS's digital services that aims to facilitate quick, easy, and efficient access to administrative and health services for JKN participants (Wulanadary et al., 2019). This system has been integrated with the Hospital Management Information System (*Sistem Informasi Manajemen Rumah Sakit* or SIMRS) through online queue bridging, allowing patients to register for outpatient up to D-30 before the day of service, choose the polyclinic, schedule, and doctor independently. The registration flow, which consists of several simple stages, is considered easy to understand by users and supported by features such as membership checks, online registration, service history, and health facility information. There has been an increased use of Mobile JKN at Surabaya Islamic Hospital. It is due to the hospital's commitment to providing education and assistance to patients through officers in various service units (Hakim et al., 2024).

In terms of quality, Mobile JKN at Surabaya Islamic Hospital is considered to have a fairly reliable system, is easy to use, and can provide accurate, relevant, and real-time information to users (Febriyani et al., 2022). Process quality has shown efficiency in reducing queues and accelerating outpatient service flows. However, there were still some obstacles, such as server disruptions, that sometimes cause applications to experience errors, underscoring the need for improvements in infrastructure and system durability. Overall, the quality of the Mobile JKN system, information, and processes has been good and has met user needs. However, it still needs further development to be more optimally utilized across all service units (Wahidah et al., 2023).

The potential failures that occur at each stage of Mobile JKN use indicate that the main problem lies not only in the system but also in patients' readiness and user behavior (Nurjayanti & Novratilova, 2025). This study showed that in the early stages, limited access to technology, such as not having a smartphone or the inability to download apps, became fundamental barriers that kept patients dependent on manual registration. During registration, low digital literacy also led to errors in using the application, such as selecting the wrong poly or schedule, or failing to save the queue number, which can result in not receiving services (Table 1). It indicates that even though the system is available, not all patients have the capacity to make optimal use of it (Suhadi et al., 2022).

In addition, at the arrival and service stage at the hospital, problems continue with non-adherence to schedules and a lack of understanding of check-in procedures and service flows (Kusumawati et al., 2024). The impact is that queues become irregular, waiting times increase, and service loads become

uneven. Furthermore, administrative obstacles, such as patients' confusion about the flow of polyclinics and support services, and not bringing documents, indicated that information was still not effectively conveyed to patients (Table 1). Even in the final stage of service, a lack of understanding of medical instructions and follow-up control can reduce the quality of health service outcomes (Suhadi, 2022).

Thus, this problem is multidimensional, encompassing technology, human resources, and service systems (Tawar, Santoso, and Salma, 2022). Therefore, the solutions needed are not only to strengthen the digital system but also to increase patient digital literacy, provide clear, integrated information, and ensure active assistance from officers at each service point. This approach is expected to reduce the potential for failure at every stage, increase patient compliance, and optimize the efficiency and effectiveness of Mobile JKN use in hospitals (Kusumawati et al., 2024).

The recommendations in this study significantly reduced the risk value from an average of 19.5 to 12.5, a decrease of 7 points (Table 3). This decrease showed that interventions focused on patient education, strengthening information systems, and queue management increased the use of Mobile JKN. The socialization strategy carried out by the officers, including the addition of Mobile JKN ambassadors, was also effective in increasing patient understanding and reducing the tendency toward on-site registration. In addition, implementing D-1 reminders and WhatsApp-based notifications could optimize the use of service quotas and reduce untimely patient arrivals, the main cause of queue irregularities (Nurjayanti & Novratilova, 2025). Furthermore, recommendations to strengthen the system, such as bridging information gaps and a more equitable distribution of quotas, helped reduce the risk of patient accumulation and service inefficiencies.

However, the success of implementing these recommendations depends heavily on the consistency of implementation, the discipline of medical personnel, and the readiness of the technological infrastructure. Overall, these results confirm that the combination of an educational approach, a responsive digital system, and the right operational policy can effectively improve service efficiency and the utilization of Mobile JKN at Surabaya Islamic Hospital (Suhadi et al., 2022).

CONCLUSION

Overall, nine improvement recommendations can reduce the risk value in nine risks in the use of online registration through Mobile JKN at Surabaya Islamic Hospital. It highlights that a combination of educational approaches, technological enhancement, and consistent operational management is essential to optimize the sustainable utilization of Mobile JKN.

REFERENCES

- Br Sagala, R., & Hajad, V. (2022). Inovasi Pelayanan Kesehatan Mobile JKN Di Kantor BPJS Kota Subulussalam. *Journal of Social Politics and Governance (JSPG)*, 4(1), 14–23. <https://doi.org/10.24076/JSPG.2022v4i1.775>
- Budiarti, T. (2024). Efektifitas Aplikasi Mobile JKN dalam meningkatkan Pelayanan BPJS Kesehatan di Rumah Sakit Islam Malahayati Medan. *Kesmas Prima Indonesia*, 8(2), 77–80.
- Daniati, S. E., Hasanah, Si., & Astika, F. (2025). Penerapan Penggunaan Aplikasi Mobile JKN Guna Meningkatkan Pelayanan (Fitur Pendaftaran) BPJS Di Puskesmas X Kota Pekanbaru Tahun 2025. *JHMHS: Journal of Hospital Management and Health Science*, 6(1), 1–6. <https://journal.almatani.com/index.php/jhmhs/article/view/1524>
- Febriyani, R. W., Novi, A., & Rahmat, S. (2022). Efektifitas Penggunaan Aplikasi Mobile JKN Bagi Peserta BPJS Kesehatan Di Kota Bandung. *Tolis Ilmiah: Jurnal Penelitian*, 4(1), 8–16.
- Hakim, A. U., Rustanto, A. E., Bratakusumah, D. S., & Sutawijaya, A. H. (2024). Analisis Efektivitas Penggunaan Aplikasi Mobile JKN Sebagai Bagian Pelayanan Publik Pada BPJS Kesehatan Di Kota Bekasi. *Jurnal Cahaya Mandalika*, 5(2), 1087–1095. <https://doi.org/https://doi.org/10.36312/jcm.v5i2.2744>
- Hanif, R., Rukmi, S. H., & Susanty, S. (2015). Perbaikan Kualitas Produk Keraton Luxury DI PT. X dengan Menggunakan Metode Failure Mode and Effect Analysis (FMEA) dan Fault Tree Analysis (FTA). *Jurnal Online Institut Teknologi Nasional*, Vol. 03(No. 03), 137–147. <https://ejurnal.itenas.ac.id/index.php/rekaintegra/article/view/879>
- Jamal, N., & Adinda, A. S. (2025). Pemanfaatan Mobile JKN Sebagai Bentuk Digitalisasi Kesehatan Untuk Meningkatkan Efektivitas Layanan Kesehatan. *Pelayanan Unggulan: Jurnal Pengabdian Masyarakat Terapan*, 2(4), 29–37. <https://doi.org/10.62951/unggulan.v2i4.2330>
- Kusumawati, R. M., Apriyani, A., Wulandari, K., & Suwignyo, S. (2024). Pemanfaatan Penggunaan Aplikasi Mobile JKN. *Jurnal Kebijakan Kesehatan Indonesia*, 13(1), 52. <https://doi.org/10.22146/jkki.89234>
- Makmur, S. F. A. S., Ahri, R. A., & Nurgahayu. (2024). Efektivitas Penggunaan Program Mobile JKN Dalam Pelayanan Kesehatan Di RS Pendidikan Universitas Hasanuddin. *Window of Public Health Journal*, 5(5), 786–796. <https://doi.org/10.33096/woph.v5i5.2093>
- Nurjayanti, R., & Novratilova, S. (2025). Evaluasi Penggunaan Aplikasi Mobile Jaminan Kesehatan Nasional (MJKN) Pada Pendaftaran Rawat Jalan Menggunakan Metode TAM. *Jurnal Kesehatan Tropis Indonesia*, 3(3), 161–173. <https://doi.org/10.63265/jkti.v3i3.112>
- Rinjani, R. (2022). Analisis Penerapan Aplikasi Mobile Jkn Terhadap Peserta Badan Penyelenggara Jaminan Sosial Kesehatan Cabang Subulussalam. *PUBLIKA: Jurnal Ilmu Administrasi Publik*, 8(2), 209–223. [https://doi.org/10.25299/jiap.2022.vol8\(2\).10491](https://doi.org/10.25299/jiap.2022.vol8(2).10491)
- Siallagan, A. D., Diana, H. S., Fitriya, N. I., Nurhuda, P. M., Oktaviany, V., Luginasari, Y., & Sukaesih, N. S. (2025). Revolusi Kesehatan Digital melalui teknologi Big Data Dalam Aplikasi Mobile JKN/ Rapid Review. *Bhamada: Jurnal Ilmu Dan Teknologi Kesehatan (E-Journal)*, 16(1), 1–12. <https://doi.org/10.36308/jik.v16i1.768>
- Suhadi, Jumakil, & Irma. (2022). Aplikasi Mobile JKN untuk Memudahkan Akses Pelayanan BPJS. *Jurnal Penelitian Kesehatan “Suara Forikes,”* 13(2), 262–267. <https://doi.org/http://dx.doi.org/10.33846/sf.v13i0.1847>
- Suhadi, S. (2022). Dampak Penggunaan Aplikasi Mobile JKN Terhadap Pelayanan BPJS. *Jurnal*

Kesehatan, 15(1), 11–23. <https://doi.org/10.23917/jk.v15i1.15977>

- Tauran, I., Pangandaheng, T., & Nurlina, W. O. (2025). Implementasi Aplikasi Mobile JKN Dalam Upaya Mengurangi Lama ANtrian Dan Waktu Tunggu Pelayanan Pasien Rawat Jalan. *Jurnal Penelitian Perawat Profesional*, 7(1), 1333–1336. <https://doi.org/https://doi.org/10.37287/jppp.v7i1.5955>
- Tawar, Santoso, A. F., & Salma, Y. S. (2022). Model HOT FIT dalam Manajemen Sistem Informasi. *Bincang Sains Dan Teknologi*, 1(02), 76–82. <https://doi.org/10.56741/bst.v1i02.144>
- Wahidah, M., Syaiful, A. R., Najib, R. O., Prasetya, I., Bakhri, A. S., Yuliana Sari, A. R., Sahraini, L. A., Adim, M. F., Rezki, M., & Edwin Jenuar, I. G. B. (2023). Efektivitas Implementasi Monitoring Intensif Pemanfaatan Antrean Online melalui Mobile JKN di Fasilitas Kesehatan Rujukan Tingkat Lanjutan (FKRTL) Champion Kantor Cabang Bulukumba Tahun 2022. *Jurnal Jaminan Kesehatan Nasional*, 3(1), 116–129. <https://doi.org/10.53756/jjkn.v3i1.140>
- Wahyuni, M. M. D., Yuniatri, R., Abineno, D. A., Batukh, A. Y., Yusuf, D. B., Tabun, K., Manu, N. M., Oematan, P. N., & Setiawan, T. K. P. (2026). Peningkatan Kesadaran dan Pemanfaatan Aplikasi Mobile JKN Melalui Edukasi Masyarakat di Kota Kupang. *Jurnal Pengabdian Masyarakat Bangsa*, 3(11), 6295–6300. <https://doi.org/10.59837/jpmmba.v3i11.3290>
- Wulanadary, A., Sudarman, S., & Ikhsan, I. (2019). Inovasi BPJS Kesehatan Dalam Pemberian Layanan Kepada Masyarakat: Aplikasi Mobile JKN. *Jurnal Public Policy*, 5(2), 98. <https://doi.org/10.35308/jpp.v5i2.1119>