



The Relationship Between Online Registration and Doctor Attendance Hours with Waiting Time at the Outpatient Clinic of dr. Rivai Abdullah Central General Hospital

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ABSTRACT

Outpatient Waiting Time needs to be a concern for Hospitals in order to improve patient experience, making it one of the best healthcare service provider hospitals at the Asian level, which is the task of dr. Rivai Abdullah Central General Hospital. This study aims to provide an overview of the relationship between online registration and doctor attendance hours on Waiting Time at the Outpatient Clinic of dr. Rivai Abdullah Central General Hospital, as well as to obtain an overview related to outpatient waiting time. The research method used is quantitative and qualitative with a cross-sectional design, involving 356 patients who came for treatment to the outpatient clinic during the period of July and July 2025. The results show that the majority of respondents were over 60 years old (31.7%), female gender (63.8%) and mostly sought treatment at the Internal Medicine Polyclinic (41.9%). Most respondents who came used M-JKN (90.2%). Regarding doctor attendance hours, most were late between 31 minutes to 60 minutes (36.8%) with the average doctor attendance time at 08:15 WIB. Most Waiting Time was achieved below 60 minutes (89.6%) with an average waiting time of 33 minutes. The analysis results of the relationship between online registration and outpatient waiting time obtained a *p-value =* 0.388 (p-value > 0.05), so it can be concluded that there is no relationship between online registration and outpatient waiting time. The analysis results of the relationship between doctor attendance based on fingerprint attendance and outpatient waiting time obtained a *p-value =* 0.350 (p-value > 0.05), so it can be concluded that there is no relationship between doctor attendance based on fingerprint attendance and outpatient waiting time. Based on observation and interview results with respondents, it is concluded that there are other factors influencing waiting time, namely doctor delay in arriving at the clinic, crowded clinics, insufficient number of doctors. Doctor delays are due to travel distance to the Hospital, doctors visiting inpatients, and the Hospital Information System (SIMRS) requiring improvement. From the variables above, it is suggested that further research development is needed.

Keywords: Outpatient Waiting Time, Online Registration, Doctor attendance hours.

Introduction

A hospital is an organization operating in the service sector, namely organizing comprehensive personal health services. As an organization operating in the health service field, hospitals are required to provide data information, data processing, and data distribution that is easy, accurate, fast, efficient, and secure. This aims to maintain the trust of patients as users of a hospital's health services. As stipulated in Law of the Republic of Indonesia No. 47 of 2021 concerning Hospitals (UU RI, 2021).

The Ministry of Health through the National Medium-Term Development Plan (RPJMN) has launched 6 pillars of transformation in the Health sector: transformation of primary services, transformation of referral services, transformation of the health resilience system, transformation of the health financing system, transformation of health human resources, and transformation of health technology.

In the 2019-2024 RPJMN, 6 pillars of transformation in the Health sector have been established, especially for referral Health services, improvement steps need to be taken as many people still complain about referral services in hospitals, especially government-owned

hospitals. dr. Rivai Abdullah Central General Hospital is a Vertical General Hospital under the Ministry of Health and is directly obligated to carry out referral service transformation. As a Vertical Hospital (RSV), it has 3 main tasks as a provider of Health referral services under the Ministry of Health: Providing the best Asian-level services, National Referral Center, and Research Development. dr. Rivai Abdullah Central General Hospital, through initiative 2 and initiative 6, focuses on improving patient experience, one of which is by improving end-to-end service waiting time and implementing integrated digitalization of systems and service administration.

From the 2024 Board of Directors KPI results for Waiting Time Without Supporting Examinations (Outpatient Waiting Time), the results always show non-achievement, with an average value of 58.4% achieved below 60 minutes. The target expected by the Ministry of Health is the achievement of Outpatient Waiting Time with a minimum achievement of 80%. In order to improve the quality of hospital services, one of which is measured from the National Quality Indicators which include patient waiting time, it is necessary to conduct an analysis related to indicators that influence waiting time.

Materials and Methods

The research method used is quantitative and qualitative using a cross-sectional study approach. This research will be conducted during the period of June to July 2025. This research will be conducted at the Outpatient Clinic of dr. Rivai Abdullah Central General Hospital. The population of this study is all patients who have registered online and seek treatment at the outpatient clinic of dr. Rivai Abdullah Central General Hospital. The population in this study are outpatient patients of dr. Rivai Abdullah Central General Hospital who use online registration either through the Hospital application or Mobile JKN. Patients coming to the outpatient clinic total 52,552 people/year (medical records, 2024). From 2024 data, the average use of online registration is 72.5%. The estimated population is 3,175 people/month. Based on the sample size calculation formula according to Slovin, the sample size obtained is 356 people. Primary data on waiting time was collected through service time records in the Hospital Information System (SIMRS). The recorded results were then noted again in narrative form. In addition, primary data was also obtained through observation and simple interviews. In this study, secondary data collected included outpatient patient data and doctor attendance data.

Quantitative methods will be analyzed using univariate and bivariate analysis for statistical testing. Meanwhile, qualitative data analysis will use the Customer Experience (CE) concept, which focuses on the interaction between patients and service providers in the Hospital with the aim of creating positive, satisfying experiences, building customer loyalty, and enhancing the Hospital's reputation.

RESULTS

Tabel

1.

Frequency Distribution of Respondent Characteristics by Age at Dr. Rivai Abdullah General Hospital in 2025

Age (year)	Frequency(f)	Persentation(%)
0-16	42	11,8
17-30	30	8,4
31-40	31	8,7
41-50	51	14,3
51-60	89	25
>60	113	31,7
Total	356	100

Based on table 1. shows that the characteristics of respondents based on age, the most respondents were over 60 years old as many as 113 respondents (31.7%), aged 51-60 years as many as 89 respondents (25%), aged 41-50 years as many as 51 respondents (14.3%), aged 0-16 years as many as 42 respondents (11.8%), aged 31-40 years as many as 31 respondents (8.7%) and the fewest respondents were aged 17-30 years as many as 30 respondents (8.4%).

Tabel

2.

Frequency Distribution of Respondent Characteristics by Gender at Dr. Rivai Abdullah General Hospital in 2025

gender	Frequency(f)	Persentation(%)
man	129	36,2
woman	227	63,8
Total	356	100

Based on table 2, it shows that the characteristics of respondents based on gender, the most respondents were female, as many as 227 respondents (63.8%) and the most respondents were male, as many as 129 (36.2%).

Tabel 3.
Distribution of Outpatient Waiting Time (WTRJ) at Dr. Rivai Abdullah General Hospital in 2025

Variabel	Mean	Median	Min-Max
WTRJ	00:33	00:30	00:01 – 1:48

Table 3 shows that the average outpatient waiting time (WTRJ) is 33 minutes, with a median of 30 minutes. The minimum outpatient waiting time (WTRJ) is 1 minute, and the maximum outpatient waiting time (WTRJ) is 108 minutes.

Tabel 4.
Distribution of Average Difference in Time from Completion of Medical Record Registration to Check-in at the Polyclinic at Dr. Rivai Abdullah General Hospital in 2025

Variabel	Mean	Media n	Modus	Min- Max
Average time difference between completing medical record registration and checking in at the polyclinic	00:09	00:05	00:01	00:01 – 01:18

Table 4 shows that the average time difference between completing medical record registration and checking in at the polyclinic is 9 minutes, with a median of 5 minutes and a mode of 1 minute. The average time difference between completing medical record registration and checking in at the polyclinic is a minimum of 1 minute and a maximum of 1 hour and 18 minutes.

Tabel 5.
Distribution of Doctors' Attendance Hours at the Polyclinic at Dr. Rivai Abdullah General Hospital in 2025

Variabel	Mean	Median	Modus	Min - Max
Doctor's attendance hours at the polyclinic	08:42	08:33	8:30	08:00 – 13:30

Based on Table 5, it shows that the average time of doctor's presence at the polyclinic is 8:42 minutes past 8, the median is 8:33 minutes past 8, the mode is 8:30 minutes past 8, and the minimum time of doctor's presence at the polyclinic is 8:00 and the maximum time is 1:30 minutes past 1:00.

Tabel 6.
Distribution of Online Registration with Outpatient Waiting Time (WTRJ) at Dr. Rivai Abdullah General Hospital in 2025

How to registrer	Outpatient Time (WTRJ)		Waiting		Total	P value	
	> 60 Menit		< 60 Menit			N	%
	N	%	N	%	N		
Hospital online applicati	5	14,3%	30	85,7%	35	100%	0,388
Online mobile applicati on JKN	3	10%	289	90%	321	100%	
Total	3	10,4%	319	89,6%	356	100%	

Table 6 shows the results of the analysis of the relationship between online registration and outpatient waiting times. Five patients (14.3%) had outpatient waiting times of 60 minutes or more using the hospital's online application. Meanwhile, 32 patients (10%) had outpatient waiting times of 60 minutes or more using the JKN Mobile Online Application.

The research data yielded a two-sided p-value of 0.388, indicating that the p-value is >0.05. Therefore, Ho is accepted, indicating that there is no statistically significant relationship/influence between online registration and outpatient waiting times (WTRJ).

Tabel

7.

The Relationship between Doctor Presence Based on Fingerprint Absence and Outpatient Waiting Time (WTRJ) at Dr. Rivai Abdullah General Hospital in 2025

Absence of finger DPJP	Outpatient (WTRJ)		Waiting Time		Total	P value
	> 60 Menit		< 60 Menit			
	N	%	N	%	N	%
late > 60 menit	12	16%	63	84%	75	100%
late 31 - 60 menit	12	9,2%	119	90,8%	131	100%
late 1 - 30 menit	11	8,9%	112	91,1%	123	100%
On time	2	7,4%	25	92,6%	27	100%
Total	37	10,4%	319	89,6%	356	100%

From Table 7, the results of the analysis of the relationship between doctor attendance based on fingerprint attendance and outpatient waiting time (WTRJ) show that for doctor attendance late more than 60 minutes, there were 12 patients (16%) who had outpatient waiting time more than 60 minutes; for doctor attendance late 31-60 minutes, there were 12 patients (9.2%) who had outpatient waiting time more than 60 minutes; for doctor attendance late 1-30 minutes, there were 11 patients (8.9%) who had outpatient waiting time more than 60 minutes; and for doctor attendance on time, there were 2 patients (7.4%). This research data has a p-value of 0.350 (p-value > 0.05), so Ho is accepted, meaning statistically there is no significant relationship between doctor attendance based on fingerprint attendance and outpatient waiting time (WTRJ).

Results and Discussion

Relationship between online registration and outpatient waiting time;

According to the researcher, the use of online registration, both Mobile JKN and the Hospital application, does not show a significant difference on waiting time. This is because the majority of patients seeking treatment at the Hospital are patients using BPJS Health services who are required to use Mobile JKN (90.2%). Furthermore, according to the researcher, the bridging process of the Mobile JKN application is not fully operational at dr. Rivai Abdullah Central General Hospital, where patients should be able to go directly to the clinic for fingerprinting, but still perform fingerprinting at the registration admission. The use of Mobile JKN, which should shorten the processing time at medical records/admission if the M-JKN online queue system is bridged with the Hospital Information System (SIMRS). Patients who have registered online still need to register at medical records or admission, which also influences outpatient waiting time.

Relationship between doctor attendance hours based on fingerprint attendance and outpatient waiting time; This research data does not meet the requirements for the Chi-square test for a 2x2 table because the table is larger than 2x2, but the number of *cells* that have an *expected count* value less than 5 is < 20% (12.5%), therefore the value used is the Pearson Chi-square value of 0.350 (p-value > 0.05), so H_0 is accepted, meaning statistically there is no significant relationship between doctor attendance based on fingerprint attendance and outpatient waiting time (WTRJ).

These research results are not in line with research (Fauziyyah, 2020), which states that one of the causes of long waiting time in the outpatient installation of Cempaka Putih Hospital is doctor delay in starting services because it does not match the practice schedule determined by the hospital. These research results are also not in line with research conducted by (Dewi *et al.*, 2020), which also mentions factors that can prolong Outpatient Waiting Time are lack of doctor discipline, namely arriving late and starting polyclinic practice late. According to the researcher, the variable of doctor attendance hours via fingerprint is not significant due to changes in service times implemented by the hospital, namely registration starts at 08:15 and polyclinic service starts at 08:30. Therefore, fingerprint attendance time based on employee discipline regulations at 07:30 differs from the registration time and service time.

The use of Mobile JKN also influences waiting time because it has a structured arrival time according to the online queue, so patients do not need to come to the Hospital if it is not close to their queue time. Thus, doctor attendance hours do not significantly affect patient waiting time. The number of samples taken per polyclinic also did not experience an even distribution, which can cause prolonged waiting time in certain polyclinics such as the Internal Medicine polyclinic and the Neurology polyclinic.

Figure 1.

Causes of Outpatient Waiting Time more than 60 minutes based on observation and interview results

[Image placeholder: Pie chart showing causes: Doctor delay (27%), Network disturbance (21.6%), Inpatient visit (18.9%), Many visitors (10.8%), Patient late check-in at polyclinic (10.8%), Long consultation with previous patient (5.4%), Patient not present at polyclinic when called (5.4%)]

From observation results, the most common cause of Waiting Time more than 60 minutes is due to doctor delay (27%), network disturbance (21.6%), inpatient visit (18.9%), many visitors (10.8%), patient late check-in at polyclinic (10.8%), long consultation with previous patient (5.4%), patient not present at polyclinic when called (5.4%).

Interview results from 10 doctors who were late, causing patient waiting time to exceed 60 minutes. Reasons for delay are as follows:

1. Conducting inpatient visits first: 4 people
2. Many patients so waiting time more than 60 minutes: 1 person
3. Personal matters: 1 person
4. Emergency surgery: 2 people
5. Traffic jam: 2 people

Figure 2

[Image placeholder: Fishbone diagram and 5 Whys analysis]

Based on interview results from informants, a picture of problems that still affect waiting time, and using problem analysis techniques fishbone (Ishikawa) and 5 Whys, it was found that:

1. Man

Based on Literature Review: Analysis of Outpatient Polyclinic Service Waiting Time in Hospitals (Andreas Kurnianto, 2024), it is mentioned that the cause of prolonged waiting time is from human resources or officers who are less good, officers in registration, polyclinic, or doctors providing service. Also, factors of patient knowledge and administrative services regarding Waiting Time for Outpatient Polyclinic Services at Sentra Medika Hospital, Minahasa Regency (Sumayku, Pandelaki, Kandou, Wahongan, & Nelwan, 2023). In this study, it was found that the cause of 10.4% prolonged waiting time from the "Man" side is the late arrival time of doctors and the insufficient number of doctors providing services on that day for one specialty. From the aspect of late doctor arrival, it is caused by doctors conducting visits first. Doctors conduct visits so that patients can get medicine faster and can be discharged sooner. This is also in line with the existence of Key Performance Indicators (KPI) for inpatient patient visits before 14:00.

From observation results, it was found that 4 informants with Outpatient Waiting Time > 60 minutes were due to many patients, and from interviews with 7 informants, they perceived that waiting time >60 minutes was caused by many patients. From interviews, it was found that 5 people hoped for an increase in the number of doctors. Based on staffing data, there are no constraints in the number of registration

officers and polyclinic nurses. There is no shortage in the number of doctors providing services. The following is the staffing data for the number of specialist doctors: 3 Internal Medicine Specialists, 3 Pediatric Specialists, 3 ObGyn Specialists, 2 Surgery Specialists, 1 Orthopedic Specialist, 2 Anesthesiology Specialists, 2 Neurology Specialists, 2 ENT Specialists, 1 Ophthalmology Specialist, 2 Dermatology Specialists, 1 Clinical Pathology Specialist, 1 Anatomical Pathology Specialist, 1 Radiology Specialist, 1 Rehabilitation Specialist.

2. Method

Based on research "Analysis of Outpatient Waiting Time at Dr. Achmad Darwis Suliki Regional General Hospital 2019" (Suspenti Dewi), causes of prolonged waiting time include medical record SOP not implemented optimally due to lack of officer discipline in implementing SOP, while SOP for outpatient is not yet available. Also, causes of prolonged waiting time are the implementation of doctor visit SOP, so doctors are often late to the polyclinic because they perform visit duties first (Andreas Kurnianto, 2024).

Based on the 5 Whys analysis technique, the root cause of waiting time more than 60 minutes is patient accumulation, due to patients arriving at the same time. This is because patients do not arrive according to the arrival time stated in the online queue, whether with Mobile JKN or the Hospital's online registration application. In this study, it was found that the cause of 10.4% prolonged waiting time is doctors' non-compliance in implementing outpatient SOP and visit SOP, because the maximum time limit for visits is quite flexible, at 14:00, so doctors should be able to divide time between polyclinic attendance and visits. Also, there is a registration SOP that is not implemented by registration officers, namely informing patients to check-in at the polyclinic and wait at the polyclinic so that when called, patients can be served immediately. The existence of an online queue pattern system created by the Hospital throughout 2025 has impacted the increase in waiting time below 60 minutes.

3. Machine

Based on research "Analysis of Outpatient Waiting Time at Dr. Achmad Darwis Suliki Regional General Hospital 2019" (Suspenti Dewi), causes of prolonged waiting time include insufficient number of computers, thus requiring a long time in preparing medical records. Based on the 5 Whys analysis technique, the root cause of waiting time more than 60 minutes is patient accumulation. This patient accumulation is caused by the Hospital Information Management System (SIMRS) used by the Hospital, which is still considered difficult to use by Doctors (30%). The fulfillment of SIMRS completion is also due to obligations in meeting claim file completeness requirements. In this study, it was also found that the cause of waiting time more than 60 minutes is the reliability of the SIMRS (SIMGOS) used by the Hospital, network readiness both local network (Local Area Network) and Internet network.

4. Material

The material of Outpatient Waiting Time is the time required in each section, namely time at registration, waiting time for registration process, time to go to polyclinic, waiting time in polyclinic waiting room. From analysis using the 5 Whys technique, it was found that the cause of waiting time more than 60 minutes from the material side is the time for patients to go to the polyclinic, and the time patients wait in the polyclinic waiting room. The cause of the time from patients completing registration at medical records until patients go to the polyclinic being prolonged is due to polyclinic location and insufficient waiting room. Patient compliance to go directly to the polyclinic and wait in the waiting room influences prolonged waiting time. Also, consultation time with the previous patient is also a factor causing prolonged waiting time. Waiting time for previous patients also causes the waiting room to become full, and patients can be late or not immediately check-in.

5. Environment

In this study, environmental factors affecting waiting time more than 60 minutes are the Hospital's location being quite far from the service-providing doctor's residence, and the distance between the inpatient ward and the outpatient polyclinic room.

Some doctors are late due to the Hospital being quite far away, so the majority of doctors' arrival times are late 31 to 60 minutes. The location of the dr. Rivai Abdullah Central General Hospital building, part of which still uses the old building as inpatient rooms, thus requiring a travel distance of about 10 minutes to the outpatient polyclinic room. Based on analysis of problem causes through fishbone and 5 Whys, the Researcher proposes several follow-up action plans divided into three stages, namely:

1. Short-Term Plan

From problem identification results through questionnaires to 10% of patients, several phased short-term follow-up action plans (Plan of Action) are proposed:

- a) Conduct socialization and reprimands regarding doctor arrival discipline during working hours according to Government Regulation No. 94 of 2021.
- b) Conduct socialization of registration SOP to patients/visitors so they can be directed after registration; patients can immediately go or wait in the respective polyclinic waiting room.
- c) Provide education on the use of the Mobile JKN application and the Hospital's online registration application, so they can register and come to the hospital according to the time when registering online.

2. Medium-Term Plan

From problem identification results through questionnaires to 10% of patients, several phased medium-term follow-up action plans (Plan of Action) are proposed:

- a) Conduct review and socialization of SOP for inpatient patient visits and SOP for patient registration at polyclinic by doctors, so that time division between visits and polyclinic time can run better.
- b) Conduct review and adjustment of the SIMRS (SIMGOS) used by the Hospital and conduct re-socialization if there are still difficulties for doctors in filling out medical record files through the existing system.
- c) Conduct review of existing building facilities. With the aim that if there is overcrowding or excessive queue load at one polyclinic, a new polyclinic service can be opened.

3. Long-Term Plan

From problem identification results through questionnaires to 10% of patients, several phased long-term follow-up action plans (Plan of Action) are proposed:

Conduct review of LAN and Internet networks to support information systems.

Conduct review of service buildings, to facilitate access for both patients and service-providing doctors

Conclusion

Based on the analysis of questionnaires, medical records, and interviews with patients and doctors, this study concludes two main points. First, quantitatively, there was no significant relationship between outpatient waiting time and the variables of online registration or doctor attendance hours. Second, qualitatively, interviews revealed that waiting times exceeding 60 minutes are caused by operational factors such as doctor delays due to divided duties and long commutes, an insufficient number of doctors relative to patient volume, and technical issues with the SIMRS system. While most patients were not informed about the delays and few felt negative impacts, their perception of the hospital remained positive. As a solution, informants emphasized the need for management to improve doctor attendance discipline and upgrade facility infrastructure.

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