

The effect of Interpersonal Communication, Facilities and Application-Based Registration on patient satisfaction with service quality as an intervening variable in the outpatient row RSUD Raja Ahmad Tabib Riau Island Province

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Abstract

Purpose: The purpose of this study was to analyze the effect of interpersonal communication, facilities, and ease of application-based registration on patient satisfaction with service quality as an intervening variable in the Outpatient Hospital Raja Ahmad Tabib Riau Islands Province.

Research methodology: The research design used in this study was quantitative research with an associative type of research in the form of a causal relationship. The population in this study were outpatients who registered using the application totaling 5,818 people. The sample size was determined using the Slovin formula to obtain a sample size of 374 people. The data collection technique in this study was a Likert scale questionnaire, with instruments in the form of questionnaire sheets and Google Forms. The data analysis technique used in this study used the partial least squares (PLS) approach assisted by SmartPLS.

Results: The results showed that direct interpersonal communication, facilities, and ease of application-based registration had a significant effect on patient satisfaction in the outpatient department of Raja Ahmad Tabib Hospital, Riau Island Province.

Contribution: Direct interpersonal communication, facilities, and ease of application-based registration also have a significant effect on service quality in the outpatient department of Raja Ahmad Tabib Hospital, Riau Islands Province. In addition, service quality can significantly intervene between direct interpersonal communication, facilities, and ease of application-based registration on patient satisfaction in the outpatient department of Raja Ahmad Tabib Hospital, Riau Islands Province.

Keywords: *Interpersonal Communication, Ease of Application-Based Registration Facility, Service Quality, Patient Satisfaction*

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1. Introduction

Hospitals are health service facilities that provide comprehensive individual health services through promotive, preventive, curative, rehabilitative, and/or palliative health services by providing inpatient, outpatient, and emergency services in accordance with the Law of the Republic of Indonesia No. 17 of 2023. The purpose of health services is to provide comprehensive and continuous care for each

individual, not only when they are sick, but also to maintain and improve their overall health. When providing health services, it is necessary to pay attention to the accessibility of health services available to everyone, regardless of economic, social, or geographic status. Thus, collaboration in health services is needed among various health professionals, including doctors, nurses, pharmacists, and other health professionals, as well as involving patients and their families in the decision-making process.

A decline in a hospital's patient satisfaction index indicates a gap between patient expectations and reality. If the cause is not identified and corrective action is taken, it can have a negative impact on various aspects, such as a decline in the hospital's reputation, where negative experiences experienced by patients can affect other patients either directly or through online reviews, which can affect the public perception of a hospital. Hospitals are likely to spend more to fix dissatisfaction problems and require a great deal of effort to restore their reputation. In carrying out their health service functions, hospitals are monitored by accreditation bodies and regulatory bodies that use patient satisfaction as a benchmark for hospital quality indicators. A decline in the patient satisfaction index has an impact on hospital accreditation.

Patient registration is the initial process of the entire medical recording process performed on a patient. Through registration, patients give a good or bad impression of the service received. The use of information technology as a tool to facilitate work and support services is effective and efficient. An example of the application of information technology in hospitals is the use of an online registration system. Online registration is a system in which patients register to obtain an examination from a health service facility using technology. The application of this technology is expected to make the service process easier, faster, more precise, and reduce errors that may occur.

The implementation of this application-based registration service is influenced by various factors, including user habits. The application-based registration service at Raja Ahmad Tabib Hospital has not been implemented effectively because patients tend to register directly at polyclinics. Based on the results of interviews with registration officers on March 13, 2024, regarding application-based registration, there are still obstacles, such as the disconnected BPJS network causing difficulty in verifying BPJS patient files, thus hampering patient services. In addition, patients have registered online, but the data are not recorded in the application, so patients register manually and queue at the registration counter, which is likely to have an impact on service satisfaction with online registration (Medical Records Installation, 2024).

The decreasing satisfaction index and increasing number of patient complaints to the hospital have a negative impact on the hospital's reputation. This not only affects patient trust in the hospital, but can also affect the assessment of hospital quality by accreditation institutions and other institutions that use patient satisfaction as a benchmark for the quality of health services in hospitals.

Based on these problems, the author is interested in conducting a study "The Influence of Interpersonal Communication, Facilities and Application-Based Registration Services on Patient Satisfaction with Service Quality as an Intervening Variable in Outpatient Care at Raja Ahmad Tabib Hospital, Riau Islands Province."

1.1 Problem Formulation

Based on the background of the problem and the limitations described above, the main issues to be researched, the problem is formulated as follows:

1. Does interpersonal communication affect outpatient satisfaction at Raja Ahmad Tabib Regional Hospital, Riau Islands Province?
2. Do service facilities affect outpatient satisfaction at Raja Ahmad Tabib Regional Hospital, Riau Islands Province?
3. Does the ease of application-based registration affect outpatient satisfaction at Raja Ahmad Tabib Regional Hospital, Riau Islands Province?
4. Does interpersonal communication affect the quality of outpatient services at Raja Ahmad Tabib

- Regional Hospital, Riau Island Province?
5. Do service facilities affect the quality of outpatient services at Raja Ahmad Tabib Regional Hospital, Riau Island Province?
 6. Does the ease of application-based registration affect the quality of outpatient services at Raja Ahmad Tabib Regional Hospital, Riau Islands Province?
 7. Does interpersonal communication have an indirect effect on outpatient satisfaction at Raja Ahmad Tabib Regional Hospital, Riau Islands Province?
 8. Do service facilities have an indirect effect on outpatient satisfaction at Raja Ahmad Tabib Regional Hospital, Riau Islands Province?
 9. Does the ease of application-based registration have an indirect effect on outpatient satisfaction at Raja Ahmad Tabib Regional Hospital, Riau Islands Province?
 10. Does quality of service have a direct effect on the satisfaction of outpatients at Raja Ahmad Tabib Regional Hospital, Riau Islands Province?

1.2 Research Objectives

Berdasarkan rumusan masalah diatas, maka tujuan penelitian ini adalah :

1. Analyzing interpersonal communication influences the satisfaction of outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province
2. Analyzing service facilities influences the satisfaction of outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province
3. Analyzing the ease of application-based registration influences the satisfaction of outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province
4. Analyzing interpersonal communication influences the quality of outpatient services at Raja Ahmad Tabib Hospital, Riau Islands Province
5. Analyzing service facilities influences the quality of outpatient services at Raja Ahmad Tabib Hospital, Riau Islands Province
6. Analyzing the ease of application-based registration influences the quality of outpatient services at Raja Ahmad Tabib Hospital, Riau Islands Province
7. Analyzing interpersonal communication indirectly influences the satisfaction of outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province
8. Analyzing service facilities indirectly influences the satisfaction of outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province.
9. Analyzing the ease of application-based registration has an indirect effect on the satisfaction of outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province.
10. Analyzing the quality of service has a direct effect on the satisfaction of outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province.

2. Literature review

2.1 Patient Satisfaction

Satisfaction can be interpreted as a feeling of satisfaction, pleasure, and relief from someone consuming a product or service to obtain a service (Elliyana, 2022). According to Tjiptono, customer satisfaction or dissatisfaction is a comparison of consumer expectations and perceptions regarding actual service interactions (Maulidiah et al., 2023). Armaniah states that satisfaction is an emotional response felt by customers when they enjoy the experience of using or consuming a product/service (Talur, 2023). (Utomo & Riswanto, 2019) stated that satisfaction is a customer's response to the evaluation of perceived discrepancies/disconfirmations between previous expectations (or other performance norms) and the actual performance of the product felt after use, another opinion from Saladin in (Febri et al., 2019) satisfaction is a person's feeling of pleasure or disappointment that comes from a comparison between their impressions of the performance or results of a product and their expectations. Customer satisfaction can create a high customer loyalty or image. In addition, Sholeha et al. Customer satisfaction has a positive impact on a company in prioritizing the creation of customer loyalty and strengthening the company's reputation or name for customer (Ludiansyah et al., 2022)s; therefore, every company must understand customer expectations regarding the products or services provided. Providing quality services can strengthen internal relationships between entrepreneurs and consumers.

2.2 Interpersonal Communication

Interpersonal communication is face-to-face communication between people, which allows each participant to capture the reactions of others directly, both verbally and nonverbally, according to Febriati (Paradila Putri et al., 2022). Interpersonal communication is the process of sending and receiving messages between two people and a small group, with some effects and feedback. Interpersonal communication is the process of conveying information between two or more people, either face-to-face or using social media, with the aim that the message conveyed is easy to understand, either verbally or non-verbally (Nisak & Choliffah, 2020).

Interpersonal communication activities are the most common daily activities performed by humans as social beings. Interpersonal communication takes place in a face-to-face situation between two or more people. According to Effendi (Azizah, 2022), the essence of interpersonal communication is communication between the communicator and the communicant, which is considered the most effective in changing a person's attitude, opinion, or behavior because of its dialogical nature in the form of conversation. The feedback is direct, and the communicator knows the communicant's response at the time (Adhani, 2014).

2.3 Facility

According to Kotler, facilities are physical equipment provided by a service provider to support consumer comfort (Maulidiah et al., 2023). Examples include the condition of the facilities, completeness, interior and exterior design, and level of cleanliness, especially those closely related to what is desired, experienced, or received directly by the community. Meanwhile, according to Tjiptono, facilities are physical resources that must exist before a service is offered to consumers (Ratu Syifa Nabila Khansa, 2020). Suharmi Arikunto stated that facilities are anything that can facilitate and facilitate the implementation of an activity, facilities can be in the form of objects or money, in general facilities can be divided into two components, namely physical facilities and public facilities.

Asyro et al. (2020) define facilities as everything, both objects and services, that accompany the services provided by a company, whether a service company, a trading company, or an industrial company. Facilities can also be interpreted as facilities and infrastructure available in the environment or in the company office, intended to provide maximum service so that consumers feel comfortable and satisfied. Facilities are the main factors supporting the activities of a product. (J. A. Ginting, 2020) states that facilities can be interpreted as facilities that must be met to support the success of an activity from the planning stage to the implementation of the activity.

2.4 Technology Acceptance Model (TAM)

The TAM model is adopted from the Theory of Reasoned Action (TRA) model, which is a theory of action that argues that user reactions and perceptions will determine a person's attitude and behavior. According to the TRA model, a person's behavior is influenced by behavioral tendencies or intentions. TAM is a psychological theory that shows that the behavior of technology or computer users is based on their beliefs, desires, attitudes, and behavioral relationships (Wiyati & Sarja, 2014).

The TAM shows that the use of technology can improve a person's work efficiency. The TAM shows that individual beliefs are divided into perceptions of ease and perceptions of usefulness. These beliefs are the main determinants of user behavior that ultimately choose to use technology (Syahada, 2022). The level of acceptance of a technology by users can be a reference for assessing their acceptance of information technology by users. The TAM is suitable for measuring the acceptance and use of technology (Rahayu, 2017).

2.5 Quality of Service

Gaspersz stated that quality is everything that is able to meet the desires or needs of customers (meeting the needs of customers) (Mulyawan, 2016). Meanwhile, quality, as explained in the Big Indonesian Dictionary, is interpreted as the level of good or bad of something or a good person in the form of the

good behavior of a person who can be used as an example in living in society and the state. (Manengal 2021) states that service quality is a dynamic state that is closely related to products, services, human resources, processes, and the environment that can meet or even exceed the expected quality of service. (Dzikra 2020) also stated that service quality is a strategic system involving all work units or organizational units, from leaders to employees, to meet the needs expected by consumer expectations, and Putri 2021) stated that service quality is a service provided to customers in accordance with service standards that have been standardized as guidelines in providing services.

2.6 Hypothesis Development

2.6.1 The Influence of Interpersonal Communication on Service Quality

Interpersonal communication can provide someone with complex communication with the people involved, and express their responses during communication. Communication is important in establishing cooperative relationships with people involved in an organization and has a significant influence on the process of achieving organizational goals. In providing services to patients, employees of the Raja Ahmad Tabib Hospital, Riau Islands Province, must be able to communicate well because it affects the safety and healing of patients. If communication is not properly established, it will have an impact on the decline in quality of service.

This is reinforced by research conducted by Gusni Marlina, Marzalismann, and Sinta Westika Putri, which states that interpersonal communication has a significant influence on quality of service (Putri et al., 2022).

H1: Interpersonal communication influences outpatient satisfaction.

2.6.2 The Influence of Service Facilities on Service Quality

According to (Kotler, 2020) facilities are physical resources that exist before services can be provided. Examples include facility conditions, completeness, interior and exterior design, and cleanliness levels, especially those closely related to what is desired, experienced, or received directly by the community. Gunawan et al. (2019) state that service quality is a measure to assess whether a service already has the desired utility value; in other words, an item can be said to have quality if its utility or function is in accordance with what is desired.

This theory is in line with the research results (Maulidiah et al., 2023) that facilities have a significant effect on service quality, service quality has a significant effect on customer satisfaction, service quality has a significant effect on customer satisfaction, and facilities mediated by service quality have a significant effect on customer satisfaction.

H2: Service facilities influence the quality of care.

2.6.3 The Impact of Application-Based Registration Ease on Service Quality

According to (Kristanto, 2018) an information system is a collection of computer hardware, software, and human devices that processes data using hardware and software. In addition, data plays an important role in information systems. Data that are entered into an information system can be in the form of forms, procedures, and other forms of data. According to Wahyuni (2016), service quality can be defined as the extent to which the difference exists between reality and consumer expectations of the services they receive. Service quality can be determined by comparing customer perceptions of the services they actually receive”.

This theory is in line with research results (Ardelia & Pradana, 2022), and current technological factors can support the smooth provision of services to the community.

H3: The ease of application-based registration affects the quality of service.

2.6.4 The Influence of Interpersonal Communication on Patient Satisfaction

Communication interaction, where the quality of communication that occurs between both parties of health workers and patients will result in patient satisfaction, because patients feel satisfied and return to the same doctor if the communication they provide is good. According to Herlambang, satisfaction

is a person's feeling after comparing their performance (or results) that are felt compared to their expectations (Anwar et al., 2020).

According to Anjaswarni, employees need to show two attitudes when communicating with patients: physical and psychological. Physically, employees should ideally sit face-to-face, maintain eye contact when speaking, bend towards the patient, and maintain an open and relaxed attitude. Psychologically, there are two dimensions of communication: the response dimension (sincere, respectful, empathetic, and concrete) and the action dimension (confrontation, immediacy, openness, emotional catharsis, and role-playing) that must be applied in the context of warmth, acceptance, and understanding (Khairani et al., 2021).

This can be strengthened by research conducted by Ismal et al., which states that communication has a positive and significant effect on BPJS patient satisfaction at the Lambung Baji General Hospital, Makasar (Paradila Putri et al., 2022).

H4: Nonpersonal communication affects patient satisfaction.

2.6.5 The Influence of Service Facilities on Patient Satisfaction

According to (Tjiptono, 2016) facilities are physical resources that must exist before a service is offered. According to (Riyanto, 2018) satisfaction is a comparison of the quality of service felt by consumers with consumer expectations; if the quality felt by consumers is below their expectations, then consumers are not satisfied; if the quality felt by consumers is in accordance with expectations, then consumers will be satisfied; and if the quality felt by consumers is more than their expectations, then consumers will be very satisfied.

This theory is in line with the research results (Nurul Hidayah & Nurmiati, 2021) that there is a significant influence of the health facility variable $0.000 < 0.005$ on satisfaction.

H5: Service facilities affect Patient Satisfaction.

2.6.6 The Influence of Application-Based Registration Convenience on Patient Satisfaction

An information system is a collection of interconnected components that collect, process, store, provide, and distribute information to support decision making and control within an organization (Kurniawan & Mumtahana, 2019). Da Silva in (Oktiani & Setyorini, 2018) "consumer satisfaction is a form of their assessment while using or consuming the products and services provided which will provide a reaction and feeling about expectations, the results of the evaluation of the use of these products and services."

This theory is in line with the research results (Yudha et al., 2018) that the convenience variable has a significant positive effect on grabfood customer satisfaction.

H6: Ease of application-based registration has an indirect effect on patient satisfaction.

2.6.7 The Influence of Service Quality on Patient Satisfaction

According to Arianto (2018), Service Quality can be interpreted as focusing on meeting needs and requirements, as well as on timeliness to meet customer expectations. Based on the study by Hiil et al. (Oktiani, 2016) "customer satisfaction is a measure of total product performance, an organization compared to a series of customer requirements." According to Lupiyoadi et al. (2021), service quality is closely related to customer satisfaction. Companies with high customer satisfaction levels also provide high service levels.

This theory is in line with the results of research (Wilhelmina Kosnan, 2023) that 1) tangible influences the satisfaction of inpatients at the Regional General Hospital of Merauke Regency. 2) Reliability influences inpatient satisfaction at the Regional General Hospital of Merauke Regency. 3) Responsiveness influences inpatients' satisfaction at the Regional General Hospital of Merauke Regency. 4) Assurance influences inpatients' satisfaction at the Regional General Hospital of Merauke Regency. 5) Empathy influences the satisfaction of inpatients at the Regional General Hospital of Merauke Regency.

H7: Service Quality has a direct effect on patient satisfaction

2.7 Conceptual Framework

From the description of the literature review containing theories of the dimensions of the variables to be researched, a conceptual framework was prepared to determine the influence of interpersonal communication variables, facilities, application-based registration services, and service quality on patient satisfaction. For more details, see the following image.

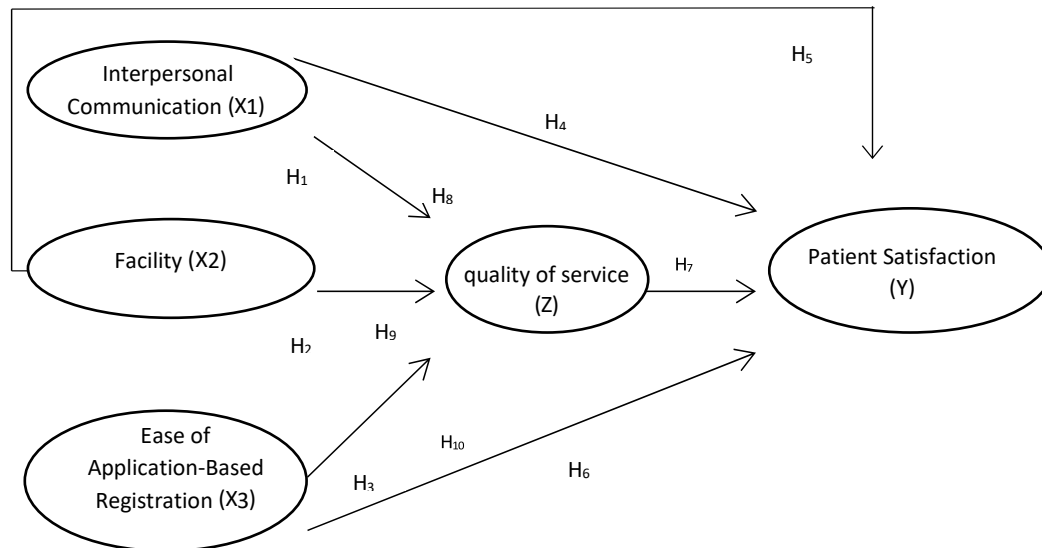


Figure 1. Conceptual Research Model

3. Research methodology

3.1 Types of research

This causality study aims to analyze the relationship and influence (cause and effect) of two or more phenomena (now) through hypothesis testing. Based on this study, the target population was the Number of Patients who used application-based registration services from December 2023 to February 2024, which amounted to 5,818 people (Five Thousand Eight Hundred and Eighteen) (Medical Records Installation, 2024). This research instrument uses a questionnaire developed based on theory. The main instruments used in this study were questionnaires and Google Forms.

3.2 Research Variables

In this study, the variables are divided into independent variables, namely variables that influence Interpersonal Communication (X1), facilities (X2), and Ease of Application-Based Registration (X3). Other variables are dependent variables, namely variables that are influenced or are the result of the independent variable. In this study, there are two dependent variables: the Intervening Variable is Service Quality (Z), and the dependent variable is Patient Satisfaction (Y).

Table 1. Research Questionnaire Form

No	Variable	Indicator	Reference	Scale	Item
1	Interpersonal Communication (X1)	1. Openness 2. Empathy 3. Support 4. Positivity/Positive Behavior 5. Similarity	Arni Muhammad dalam (Benny Usman, 2019)	Likert	1-5
2	Service Facilities (X2)		Kartajaya dalam	Likert	1-5

3	Ease of Application-Based Registration (X3)	1. Completeness, Cleanliness, and Neatness of the facilities offered 2. Condition of Facilities 3. Function of facilities 4. Ease of use 5. Completeness of equipment	(Paradila Putri et al., 2022) Davis (Putri, 2021)	Likert	1-5
4	Quality of Service (Y)	1. Easy to learn 2. Easy to operate 3. Easy to what the user wants 4. Doesn't require much effort to interact 5. Flexible	Dzikra (2020)	Likert	1-5
5	Patient Satisfaction (Z)	1. Physical evidence 2. Reliability 3. Responsiveness 4. Assurance 5. Empathy	Regulation of the Minister of Administrative and Bureaucratic Reform No. 14 of 2017	Likert	1-5
		1. System, Mechanism and Procedure 2. Completion Time 3. Competence of implementers 4. Behavior of implementers 5. Facilities and Infrastructure			

Table 2. Reliability Testing on Each Variable

Variable	Cronbach Alpha Value	Cut Of Value	Information
Interpersonal Communication (X1)	0,975	0,60	Reliable
Facilities (X2)	0,922	0,60	Reliable
Ease of Application-Based Registration (X3)	0,961	0,60	Reliable
Service Quality (Z)	0,959	0,60	Reliable
Patient Satisfaction (Y)	0,961	0,60	Reliable

Source: Processed Primary Data, 2024

Table 2 shows that the Cronbach's alpha exceeds the minimum standard, namely 0.60, so it can be concluded that all variables in this study are reliable.

3.3 Data Analysis Methods

This study uses the Structural Equation Model (SEM), which describes the relationship between variables in a path diagram to describe the relationship between latent variables based on substantive theory; specifically, it helps describe a series of causal relationships between constructs from the theoretical model that has been built in the first stage. The data analysis method used in this study uses PLS (partial least squares (PLS) with SmartPLS software. Hair et al (2017) stated that PLS-SEM is an alternative approach that shifts from a covariance-based SEM approach to a variance-based one, because it is not based on many assumptions. For example, data do not have to be normally distributed, and the samples do not have to be large.

3.3.1 Outer Model Analysis

An outer model analysis was carried out to ensure that the indicators used were suitable for use as valid and reliable measurement parameters (Abdillah, 2018). The measurement model (outer model) in this study specifies the relationship between the latent variables (constructs) and each indicator. To obtain a valid and reliable measurement model, it must meet the criteria specified in the Goodness of Fit (GoF) outer model.

3.3.2 Inner Model Analysis

In PLS-SEM, the structural model test is carried out after the measurement model test is fulfilled; namely, it is evaluated by examining the parameters of the percentage value of the variance as follows:

1. Effect Size F2

The F2 effect size test is conducted to see the change in the R2-square value which aims to determine whether the influence of exogenous variables on endogenous variables has a large, medium or small effect (Hair et al, 2017). The F2-square effect size value with the criterion (0.02) is weak, (0.15) is moderate, and if the F2-square value is greater than (0.35) then the influence of exogenous variables on endogenous variables has a strong substantial effect (Hair et al., 2017).

2. Overall Fit Index (GoF)

The GoF for the overall fit index is a criterion for evaluating measurement and structural models that provides a simple measurement of the entirety of the model predictions (Ghozali, 2015). This test is used to assess how well the hypothesized model structure fits

In this study, the overall fit index test used the model fit value in SmartPLS (Hair et al., 2017). The fit model in this study refers to the standardized root mean square residual (SRMR) value. Henseler et al. (2018) introduced SRMR as a test for model fit in PLS-SEM to avoid model specification errors. SRMR values less than 0 were considered a good model. The SRMR value limit was less than 0.10 or 0.08.

3.4 Hypothesis Testing

Hypothesis testing is carried out to determine the influence of one construct on another construct by looking at the coefficient of determination and the t-statistic value (Ghozali, 2015). Hypothesis testing in this study uses the PLS-SEM path analysis model. Path analysis is an extended analysis technique of the regression model used to test the dependence of several variables in a model (Abdillah, 2018). Therefore, this study provides the results of hypothesis testing by taking the parameter output from the total effect table and not from the path coefficient table.

3.5 Intervening Effect Test

Baron and Kenny (2018) stated that a construct is called a mediator if it influences the relationship between the predictor construct (exogenous) and the criterion construct (endogenous). Therefore, a Sobel test was not needed to draw conclusions about the mediation test because it was carried out using the bootstrapping method.

4. Results and discussions

4.1 Data Analysis

4.1.1 Measurement Model Analysis (Outer Model)

The measurement model analysis (outer model) aims to evaluate the construct variables studied and the validity (accuracy) and reliability (reliability) of a variable. Before evaluating the construct variables on the instrument used, the researcher first analyzed SEM from the variable indicators to the variables studied until all values in the Construct Validity and Reliability output after the PLS Algorithm process were green. The results of the SEM analysis are shown in Fig. 3.

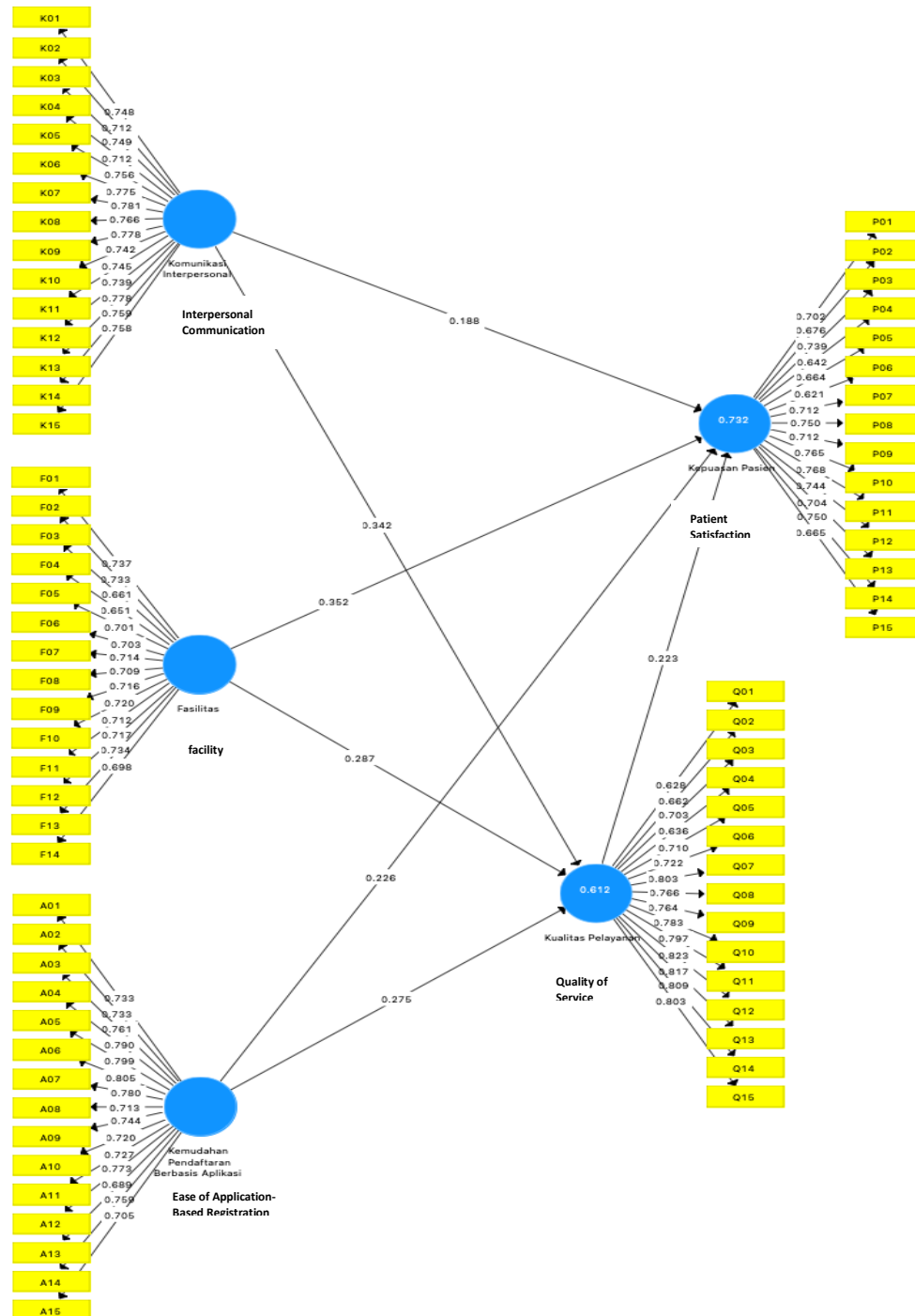


Figure 3. SEM Analysis Results

To test convergent validity in this study, we examined the AVE values presented in Table 3.

Table 3. Output Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Facility	0,923	0,925	0,934	0,501
Ease of Application-Based Registration	0,944	0,945	0,950	0,562
Patient Satisfaction	0,929	0,931	0,938	0,503
Quality of Service	0,944	0,945	0,951	0,564
Interpersonal Communication	0,946	0,947	0,952	0,568

Source: Processed Primary Data, 2024

From Table 3, it can be seen that all AVE values were > 0.5 . This means that these indicators have good convergent validity. In other words, the indicators used in the research model reflect the intended constructs.

4.1.2 Discriminant Validity

Discriminant validity assesses whether an indicator of a construct variable is valid. To test discriminant validity, it can be seen from the Cross Loading and Square Root AVE (Fornell-Lacker Criterion) values (Duryadi 2021). The criterion for accepting the cross-loading value is if each indicator has a higher main loading than the construct in question, compared to the cross-loading on other constructs. The cross-loading outputs in this study are listed in Table 4.

Table 4. Cross Loading Output

	Facility	Ease of Application-Based Registration	Patient Satisfaction	Interpersonal Communication	Quality of Service
A01	0,491	0,733	0,540	0,419	0,489
A02	0,497	0,733	0,540	0,433	0,488
A03	0,497	0,761	0,530	0,428	0,506
A04	0,526	0,790	0,541	0,428	0,505
A05	0,509	0,799	0,577	0,478	0,554

A06	0,547	0,805	0,578	0,465	0,571
A07	0,550	0,780	0,576	0,458	0,546
A08	0,528	0,713	0,509	0,439	0,478
A09	0,536	0,744	0,545	0,380	0,487
A10	0,489	0,720	0,504	0,447	0,494
A11	0,492	0,727	0,513	0,431	0,471
A12	0,502	0,773	0,549	0,430	0,490
A13	0,586	0,689	0,599	0,485	0,499
A14	0,544	0,759	0,598	0,449	0,526
A15	0,464	0,705	0,506	0,478	0,466
F01	0,737	0,493	0,588	0,491	0,512
F02	0,733	0,497	0,598	0,473	0,512
F03	0,661	0,359	0,458	0,355	0,397
F04	0,651	0,384	0,449	0,318	0,453
F05	0,701	0,406	0,504	0,311	0,455
F06	0,703	0,479	0,536	0,388	0,426
F07	0,714	0,496	0,574	0,466	0,514
F08	0,709	0,559	0,568	0,483	0,557
F09	0,716	0,539	0,600	0,450	0,547
F10	0,720	0,567	0,595	0,454	0,476
F11	0,712	0,496	0,526	0,416	0,428
F12	0,717	0,485	0,521	0,399	0,469
F13	0,734	0,505	0,564	0,429	0,483
F14	0,698	0,540	0,536	0,443	0,483
K01	0,443	0,470	0,477	0,748	0,448
K02	0,468	0,469	0,494	0,712	0,448
K03	0,499	0,473	0,509	0,749	0,473
K04	0,451	0,422	0,472	0,712	0,421
K05	0,470	0,449	0,524	0,756	0,446
K06	0,453	0,470	0,585	0,775	0,515
K07	0,458	0,472	0,588	0,781	0,510

K08	0,420	0,412	0,546	0,766	0,475
K09	0,481	0,488	0,584	0,778	0,520
K10	0,411	0,389	0,486	0,742	0,447
K11	0,432	0,422	0,493	0,745	0,548
K12	0,415	0,416	0,462	0,739	0,569
K13	0,443	0,432	0,478	0,778	0,579
K14	0,450	0,432	0,496	0,759	0,595
K15	0,470	0,472	0,513	0,758	0,603
P01	0,522	0,646	0,702	0,483	0,458
P02	0,507	0,602	0,676	0,492	0,432
P03	0,557	0,588	0,739	0,527	0,524
P04	0,479	0,465	0,642	0,406	0,423
P05	0,475	0,499	0,664	0,441	0,419
P06	0,475	0,406	0,621	0,341	0,414
P07	0,589	0,522	0,712	0,592	0,581
P08	0,587	0,494	0,750	0,549	0,599
P09	0,565	0,469	0,712	0,540	0,612
P10	0,610	0,529	0,765	0,506	0,608
P11	0,556	0,523	0,768	0,556	0,596
P12	0,543	0,523	0,744	0,553	0,567
P13	0,561	0,490	0,704	0,401	0,534
P14	0,595	0,537	0,750	0,454	0,547
P15	0,573	0,473	0,665	0,368	0,526
Q01	0,545	0,447	0,498	0,377	0,628
Q02	0,502	0,533	0,504	0,382	0,662
Q03	0,595	0,573	0,582	0,393	0,703
Q04	0,480	0,483	0,536	0,394	0,636
Q05	0,554	0,538	0,533	0,431	0,710
Q06	0,466	0,505	0,570	0,642	0,722
Q07	0,533	0,562	0,618	0,594	0,803
Q08	0,491	0,504	0,586	0,519	0,766

Q09	0,499	0,508	0,571	0,544	0,764
Q10	0,496	0,529	0,597	0,582	0,783
Q11	0,510	0,449	0,521	0,533	0,797
Q12	0,482	0,461	0,530	0,552	0,823
Q13	0,508	0,497	0,570	0,517	0,817
Q14	0,524	0,507	0,559	0,549	0,809
Q15	0,481	0,489	0,560	0,546	0,803

Source: Processed Primary Data, 2024

Based on Table 4, the output cross-loading of the indicators was interpreted for each construct. Overall, it can be concluded that the constructs in this research model are different, and the indicators measure the constructs that should be measured. The next step to test discriminant validity can be seen from the AVE square root value (Fornell-Lacker Criterion). If the AVE square root value (which is diagonal) > the value of the other constructs, then it meets the AVE square root criteria (Duryadi, 2021). The AVE square root output (Fornell-Lacker Criterion) is shown in Table 5.

Table 5. Fornell-Larcker Criterion output

	Facility	Ease of Application-Based Registration	Patient Satisfaction	Interpersonal Communication	Quality of Service	R²
Facility	0,708					
Ease of Application-Based Registration	0,691	0,749				
Patient Satisfaction	0,773	0,731	0,709			0,732
Interpersonal Communication	0,598	0,592	0,683	0,754		
Quality of Service	0,681	0,675	0,743	0,676	0,751	0,612

Source: Processed Primary Data, 2024

Based on Table 5, it can be seen that the square root value of AVE > absolute correlation (off-diagonal value) with other constructs. Therefore, discriminant validity was achieved.

4.1.3 Reliability

The reliability values in this study were composite reliability and Cronbach's alpha. If the composite reliability and Cronbach's alpha values were > 0.7, the indicator met the reliability criteria (Duryadi, 2021). Table 3 shows that all composite reliability and Cronbach's alpha values for all variables were > 0.7. This means that the variables in this research model were reliable.

4.1.4 Structural Model Analysis (Inner Model)

Structural model analysis, or the inner model, aims to test the research hypothesis. The inner model is a structural model that connects latent variables based on path coefficient values and bootstrapping calculations (Hamid and Anwar, 2017). There are several important tests to ensure that the structural model is valid and reliable, namely, the R Square and Model Fit.

4.2 Fit Model

The model fit in SEM-PLS is typically evaluated to ensure that the proposed model fits the data obtained. Nonlinear Iterative Partial Least Squares (NIF) is a technique used. The model fit outputs in this study are presented in Table 6.

Table 6. Model Fit Output

	Saturated Model	Estimated Model
SRMR	0,085	0,085
d_ULS	19,916	19,916
d_G	9,847	9,847
Chi-Square	16817,592	16817,592
NFI	0,485	0,485

Source: Processed Primary Data, 2024

Based on Table 6, the NFI value obtained was 0.485, which was expressed as 48.5%. This means that the proposed model has an increase in suitability of 48.5% compared to the baseline model (zero model), which has no relationship between the variables.

4.3 Hypothesis Test Analysis

The bootstrap procedure used the entire original sample for resampling. The path coefficients for testing the hypotheses are shown in Figure 4.

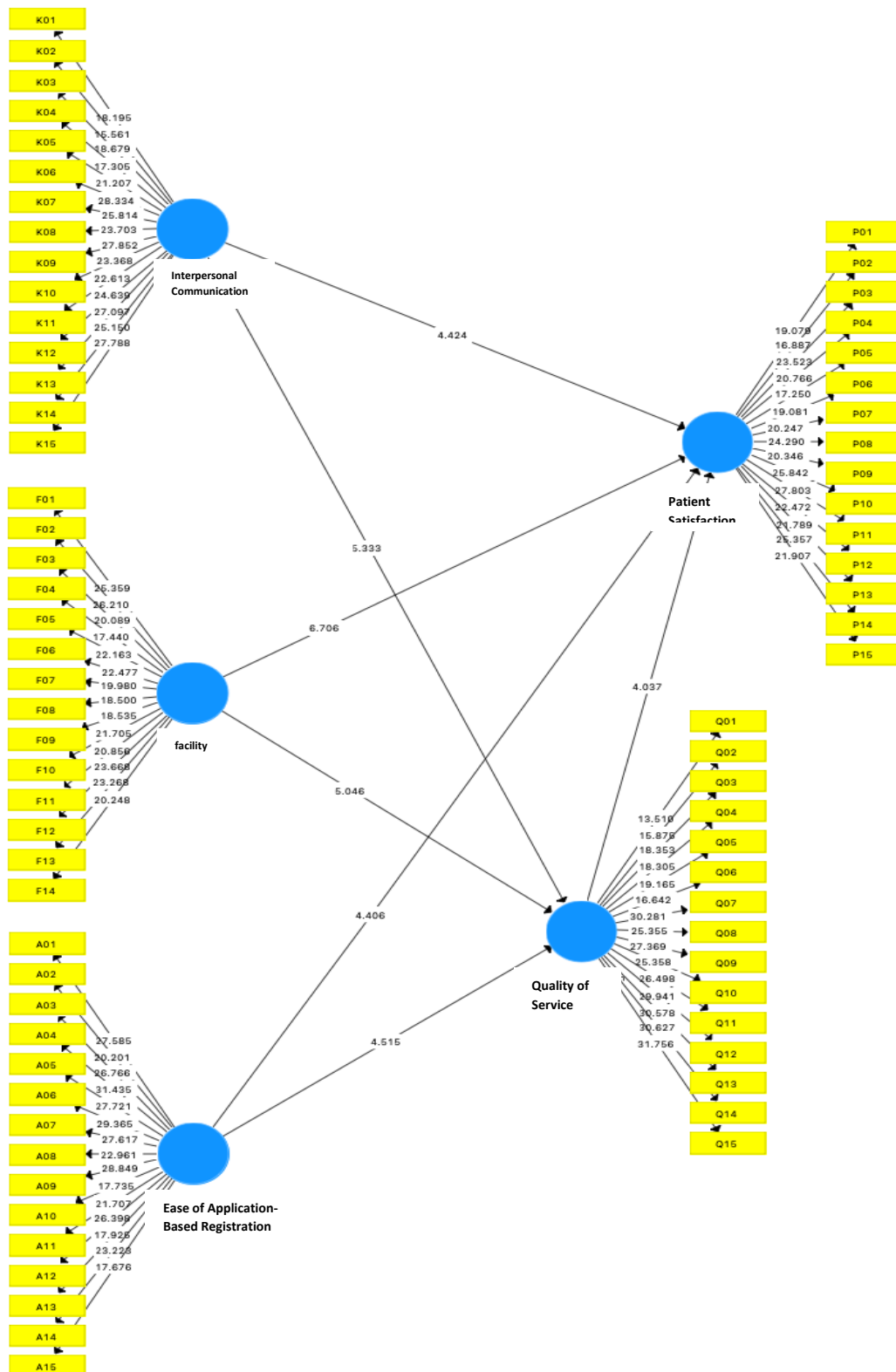


Figure 4. SEM Model for Hypothesis Testing

4.3.1 Direct Influence (Path Coefficients)

The direct effect hypothesis test aims to prove the hypotheses regarding the influence of a variable on other variables directly (without intermediaries). If the path coefficient value is positive, it indicates that an increase in the value of a variable is followed by an increase in the value of another variable, and vice versa. Then, if the P-Value is <0.05 , H_0 is rejected and H_1 is accepted, meaning that the

independent variable has a significant effect on the dependent variable. The output path coefficients used in this study are listed in Table 7.

Table 7. Output Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Facilities -> Patient Satisfaction	0,352	0,351	0,052	6,706	0,000
Facilities -> Service Quality	0,287	0,290	0,057	5,046	0,000
Ease of Application-Based Registration -> Patient Satisfaction	0,226	0,226	0,051	4,406	0,000
Ease of Application-Based Registration -> Quality of Service	0,275	0,278	0,061	4,515	0,000
Interpersonal Communication -> Patient Satisfaction	0,188	0,186	0,043	4,424	0,000
Interpersonal Communication -> Service Quality	0,342	0,337	0,064	5,333	0,000
Quality of Service -> Patient Satisfaction	0,223	0,226	0,055	4,037	0,000

Source: Processed Primary Data, 2024

1. The direct effect of the facility variable on Patient Satisfaction had a path coefficient of 0.352 (positive), meaning that an increase in the value of the facility variable was followed by an increase in the Patient Satisfaction variable. The effect of the facility variable on patient satisfaction has a P Value of $0.000 < 0.05$; therefore, it can be stated that facilities have a significant effect on Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province.
2. The direct effect of the facility variable on Service Quality has a path coefficient of 0.287 (positive), meaning that an increase in the value of the facility variable is followed by an increase in the Service Quality variable. The effect of the facility variable on service quality has a P Value of $0.000 < 0.05$; therefore, it can be stated that facilities have a significant effect on the Quality of Outpatient Services at Raja Ahmad Tabib Hospital, Riau Islands Province.
3. The direct effect of the Application-Based Registration Ease variable on Patient Satisfaction has a path coefficient of 0.226 (positive), meaning that an increase in the value of the Application-Based Registration Ease variable will be followed by an increase in the Patient Satisfaction variable. The effect of the Application-Based Registration Ease variable on Patient Satisfaction has a P Value of $0.000 < 0.05$; therefore, it can be stated that the application-based registration erase has a significant effect on Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province.
4. The direct effect of the application-based registration erase variable on Service Quality has a path coefficient of 0.275 (positive), meaning that an increase in the value of the Application-Based Registration Ease variable is followed by an increase in the Service Quality variable. The effect of the Application-Based Registration Ease variable on education has a P Value of $0.000 < 0.05$, so it

can be stated that the application-based registration erase has a significant effect on the Outpatient Service Quality at Raja Ahmad Tabib Hospital, Riau Islands Province.

5. The direct effect of the Interpersonal Communication variable on Patient Satisfaction has a path coefficient of 0.188 (positive), meaning that an increase in the value of the Interpersonal Communication variable will be followed by an increase in the Patient Satisfaction variable. The influence of the Interpersonal Communication variable on Patient Satisfaction has a P Value of 0.000 <0.05; therefore, it can be stated that Interpersonal Communication has a significant effect on Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province.
6. The direct influence of the Interpersonal Communication variable on Service Quality has a path coefficient of 0.342 (positive), meaning that an increase in the value of the Interpersonal Communication variable will be followed by an increase in the Service Quality variable. The influence of the Interpersonal Communication variable on education has a P Value of 0.000 <0.05, so it can be stated that Interpersonal Communication has a significant influence on the Quality of Outpatient Services at Raja Ahmad Tabib Hospital, Riau Islands Province.
7. The direct influence of the Service Quality variable on Patient Satisfaction has a path coefficient of 0.223 (positive), meaning that an increase in the value of the Service Quality variable is followed by an increase in the Patient Satisfaction variable. The influence of the Service Quality variable on patient satisfaction has a P value of 0.037 <0.05, so it can be stated that service quality has a significant influence on Outpatient Satisfaction at Raja Ahmad Tabib Regional Hospital, Riau Islands Province.

4.3.2 Specific Indirect Effects

Indirect effect hypothesis testing aims to prove the hypotheses regarding the influence of a variable on other variables indirectly (without intermediaries). If the value of the indirect effect coefficient > the direct effect coefficient, this indicates that the intervening variable mediates the relationship between one variable and another, and vice versa. Then, if the P-Value is <0.05, H_0 is rejected and H_1 is accepted, meaning that the independent variable has a significant effect on the dependent variable. Table 8 presents the outputs of specific indirect effects in this study.

Table 8. Output Specific Indirect Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Facilities -> Service Quality -> Patient Satisfaction	0,064	0,065	0,021	3,106	0,002
Ease of Application-Based Registration -> Quality of Service -> Patient Satisfaction	0,061	0,064	0,024	2,583	0,010
Interpersonal Communication -> Service Quality -> Patient Satisfaction	0,076	0,076	0,023	3,330	0,001

Source: Processed Primary Data, 2024

1. The indirect effect between the facility variable on Patient Satisfaction intervened by service quality has a T Statistics value of $3.106 > 1.96$ and a P Value of $0.002 < 0.05$. Therefore, it can be stated that Service Quality significantly intervenes between Facilities on Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province.
2. The indirect effect between the Ease of Application-Based Registration variable and Patient Satisfaction intervened by Service Quality has a T Statistics value of $2.583 > 1.96$, and a P Value of $0.010 < 0.05$. Therefore, it can be stated that Service Quality significantly intervenes between the Ease of Application-Based Registration on Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province.
3. The indirect effect between the variables of Interpersonal Communication on Patient Satisfaction intervened by service quality has a T Statistics value of $3.330 > 1.96$, and a P Value of $0.001 < 0.05$. Therefore, it can be stated that Service Quality significantly intervenes between Interpersonal Communication on Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province.

5. Conclusions

5.1 Conclusion

Based on the results of the data analysis and hypothesis testing, the following conclusions can be drawn:

1. Interpersonal Communication variables have a significant effect on the Quality of Outpatient Services at Raja Ahmad Tabib Regional Hospital, Riau Islands Province, so it can be stated that interpersonal communication has a strong relationship with quality of service. The more effective the interpersonal communication of doctors and nurses with patients and families, the better the quality of outpatient services. Conversely, the ineffectiveness of interpersonal communication provided by doctors and nurses means that the quality of service provided to patients is poor. Thus, Hypothesis 1 (H1) was accepted.
2. The facility variable had a significant effect on the quality of outpatient services at Raja Ahmad Tabib Regional Hospital, Riau Islands Province. This study proves that there is a strong relationship between the available facilities and the quality of outpatient services. This means that if Raja Ahmad Tabib Regional Hospital has complete and quality equipment, then outpatient services will also be of quality. Conversely, inadequate or poor-quality equipment reduces the quality of outpatient services provided to patients. Thus, Hypothesis 2 (H2) was accepted.
3. The variable that the Ease of Application-Based Registration has a significant effect on the Quality of Outpatient Services at Raja Ahmad Tabib Hospital, Riau Islands Province. This study proves that there is a strong relationship between ease of application-based registration and quality of service. In other words, the easier and more efficient the application registration provided by Raja Ahmad Tabib Hospital, Riau Islands Province, the better the quality of service provided to patients. It can also be interpreted that the use of applications to register for outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province, has a significant impact on the quality of service received by patients. Thus, Hypothesis 3 (H3) was accepted.
4. Interpersonal Communication Variables had a significant effect on Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province. This study proved that interpersonal communication has a strong relationship with patient satisfaction. This means that if interpersonal communication between medical personnel, patients, and families is good and effective, patients will feel satisfied with the services they receive. Thus, Hypothesis 4 (H4) was accepted.
5. The facility variable had a significant effect on the satisfaction of outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province. This study proved that facilities have a strong relationship with patient satisfaction. This means that if the facilities at Raja Ahmad Tabib Hospital, Riau Islands Province, are adequate, modern, and of high quality, then patients tend to feel more satisfied with the services they receive. Conversely, if facilities are inadequate or of low quality, patient satisfaction tends to decrease. Thus, Hypothesis 5 (H5) was accepted.
6. The application-based registration erase variable had a significant effect on Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province. This study proves that ease of use of the application in the registration process has a strong relationship with patient satisfaction. The easier the registration process, the more the number of users of the application will increase, so that the registration process becomes more concise and faster, and, of course, patients will feel satisfied.

Thus, Hypothesis 6 (H6) was accepted.

7. Service Quality intervenes significantly between Interpersonal Communication and Outpatient Satisfaction at Raja Ahmad Tabib Hospital, Riau Islands Province. This study shows that service quality plays an important role as an intermediary between interpersonal communication and patient satisfaction. Effective interpersonal communication among doctors, nurses, and patients in the outpatient health service process at Raja Ahmad Tabib Hospital can improve the quality of service, which ultimately increases patient satisfaction. Similarly, without good service quality, even though interpersonal communication is good, it may not be able to increase patient satisfaction. Thus, Hypothesis 7 (H7) was accepted.
8. The variable of Service Quality intervenes significantly between Facilities and Outpatient Satisfaction of Raja Ahmad Tabib Hospital, Riau Islands Province. This study shows that service quality plays an important role as an intermediary between facilities and patient satisfaction. Complete and good facilities can improve service quality and ultimately improve patient satisfaction. Without good service quality, good facilities may not be sufficient to significantly improve patient satisfaction. Thus, Hypothesis 8 (H8) was accepted.
9. The Service Quality variable significantly intervenes between the Ease of Application-Based Registration and Satisfaction of Outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province. This study proves that the ease of application-based registration affects the quality of service, which in turn affects patient satisfaction. The ease of registration through the application improves the quality of service received by patients, and an increase in the quality of service ultimately increases patient satisfaction. Thus, Hypothesis 9 (H9) was accepted.
10. The Service Quality variable had a significant effect on the Satisfaction of Outpatients at Raja Ahmad Tabib Hospital, Riau Islands Province. This study proved that service quality has a strong relationship with patient satisfaction. This means that if the quality of service at Raja Ahmad Tabib Hospital, Riau Islands Province, is good, patients will feel more satisfied with the services they receive. Conversely, if the quality of service is inadequate, patient satisfaction tends to decrease. Thus, Hypothesis 10 (H10) was accepted.

5.2 Suggestions

Based on the conclusions from the research results, the researcher has several suggestions that are expected to be useful input for further researchers, the community, and the Raja Ahmad Tabib Regional Hospital, Riau Islands Province, including the following:

For Raja Ahmad Tabib Regional Hospital, Riau Islands Province

1. The results of this study indicate that interpersonal communication influences patient satisfaction. Therefore, Raja Ahmad Tabib Regional Hospital can make efforts to improve communication skills by providing effective communication training for doctors, nurses, and other staff on how to communicate effectively with patients. Implementing standard procedures and policies for effective communication between medical staff and patients, including providing clear information about diagnosis, care plans, and treatment. Implementing a feedback system from patients regarding the quality of communication received, so that the hospital can evaluate and improve.
2. The results of this study indicate that facilities influence patients' satisfaction. Therefore, Raja Ahmad Tabib Regional Hospital, Riau Islands Province, can make efforts to improve infrastructure by carrying out routine repairs and maintenance on buildings, waiting chairs, inappropriate directions, and medical equipment to ensure that facilities are always in good condition and ready to use. Cleanliness is an important factor in improving patient comfort; therefore, it is necessary to ensure the cleanliness and tidiness of all areas of the hospital, including waiting rooms, toilets, and consultation rooms. Currently available parking facilities need to be considered in terms of adequacy and security because some respondents have experienced losing their helmets and complaints related to the considerable distance between the hospital building and parking area.
3. The results of this study showed that the ease of application-based registration has an influence on patient satisfaction. For this reason, Raja Ahmad Tabib Hospital, Riau Islands Province, can make efforts to ensure that all features in the online registration application function according to what is offered by the patient. Provide an appointment reminder feature via notification in the application or WhatsApp to reduce the possibility of patients forgetting their schedule because some patients

change their control schedule because it is past the date because they forget and notification if the doctor is not practicing. In addition, it is necessary to strengthen education programs by providing easy-to-understand information, relevant materials, and practical counseling or socialization to improve patient and family understanding of service procedures, especially registration applications.

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