



The effect of service quality, facilities, atmosphere, and short waiting time on hemodialysis patient satisfaction

Amanda Hermanto

Faculty of Medicine, Universitas Pelita Harapan, Jakarta

ARTICLE INFO

Article history:

Received Jul 23, 2024

Revised Aug 02, 2024

Accepted Aug 27, 2024

Keywords:

Atmosphere,
Facilities,
Short Waiting Time,
Service Quality.

ABSTRACT

The purpose of this study is to examine the impact of service quality, facilities, atmosphere, and wait time management on the satisfaction of hemodialysis patients at XYZ Hospital in Tangerang City. This is a quantitative study with a cross-sectional design and the sampling method used is census. Empirical data obtained from May to June 2024 through online questionnaires with 152 hemodialysis patients who had been receiving treatment for at least one year. The data were processed and analyzed using the Structural Equation Modeling (SEM) method with the Partial Least Square (PLS) path, higher-order construct, the disjoint two-stage approach using the SmartPLS 4 program. The study results indicate that all four tested factors, namely service quality, facilities, atmosphere, and short waiting time, have a positive on patient satisfaction

This is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license.



Corresponding Author:

Amanda Hermanto

Faculty of Medicine

Universitas Pelita Harapan, Jakarta

MH Thamrin Boulevard 1100, Klp. Dua, Kec. Klp. Dua, Kota Tangerang, Banten 15811, Indonesia

Email: amanda.hermanto@gmail.com

INTRODUCTION

Patient satisfaction is an important thing in a service institution, especially hospitals. It describes the quality and effectiveness of the services provided. Patient satisfaction is something that is difficult to measure as it is a personal assumption that can vary. Therefore, many factors influence every aspect (Taufiq et al., 2022). A patient-centered approach in health services encourages health services to meet the expectations and desires of patients as a whole (Yunike et al., 2023).

Research in healthcare settings consistently shows a positive correlation between perceived service quality and patient satisfaction, indicating that improvements in service delivery can significantly improve patient perceptions and satisfaction with the services received. This relationship is particularly relevant in hemodialysis care, where quality of care directly influences patient engagement, adherence to treatment protocols, and overall satisfaction with the healthcare experience (Nuairi et al., 2022).

Hemodialysis, often called HD, is an important health service provided in hospitals, especially for patients with impaired kidney function. Patients undergoing hemodialysis in health services usually have dialysis treatment three times a week for about four hours (National Kidney Foundation, 2024). Therefore, their experiences during these dialysis sessions will greatly impact their lives with chronic illness. Research on patient satisfaction provides insight into problems in

care and reveals the successes and failures of health care organizations (Helmy et al., 2022).

Research conducted by Septiawan et al. (2023) in health services consistently shows a positive correlation between service quality and patient satisfaction felt by patients, indicating that improvements in service delivery can significantly increase patient perceptions and satisfaction with the services received. This correlation is particularly relevant in hemodialysis care, where quality of care directly influences patient engagement, adherence to treatment protocols, and overall satisfaction with the healthcare experience (Septiawan et al., 2023).

The second factor, namely facilities that make a significant contribution to patient satisfaction. Based on research results, Hartanti & Antonio (2022) states that the facilities of hemodialysis health services, which include physical infrastructure, environmental conditions, and the availability and condition of medical equipment, have a direct impact on patient perceptions of service quality and overall comfort during treatment (Hartanti & Antonio, 2022).

The third factor, namely the atmosphere or atmosphere in the health service environment, plays an important role in shaping patient experience and satisfaction. Kotler, P., & Keller (2016) explain that atmosphere is an atmosphere created through several elements, such as visual communication, lighting, color, music and aroma, which aims to evoke emotional reactions and consumer perceptions, as well as stimulate the desire to make a purchase (Kotler, P., & Keller, 2016). Atmosphere can be concluded as an effort to design the environment of building design, interior space, exterior space, lighting, room layout, hallways, carpet and wall textures, smells, colors, shapes and sounds to create a special emotional influence so that patients are interested and feel satisfied (Tiwa et al., 2018).

The final factor, namely short waiting time, is an aspect that is often overlooked but is important in providing health services, especially in hemodialysis treatment. Research conducted by Zhang et al. (2023) shows that the time patients spend waiting for treatment influences the patient's perception of service efficiency and has an impact on overall patient satisfaction with the treatment process. Short waiting times are very important in providing a sense of comfort and minimizing the stress and anxiety associated with long waits. Strategies aimed at reducing wait times and improving overall service delivery efficiency are important components of a patient-centered approach to hemodialysis care (Zhang et al., 2023).

In the initial research, a brief interview was conducted with the head coordinator of the hemodialysis unit, it was said that out of 10 hemodialysis patients, 9 patients were expected to be satisfied with the hemodialysis service, but in fact only 8 patients were satisfied. This research shows a gap phenomenon in the level of satisfaction of hemodialysis patients, namely according to expectations, 9 out of 10 patients were satisfied, but in the initial research only 8 out of 10 patients stated that they were satisfied.

A previous study was conducted on 10 hemodialysis patients at XYZ Hospital. Sampling was carried out by conducting brief random interviews with 10 patients who came for hemodialysis therapy. Based on the results of the interview, it can be concluded that there are at least 4 factors that influence the satisfaction of hemodialysis patients at XYZ Hospital, namely service quality, facilities, atmosphere, and short waiting time.

RESEARCH METHOD

Type of the research used quantitative approach with a cross-sectional design and the sampling method used is census. The study was conducted at the XYZ Private Hospital in Tangerang between May and June 2024. Respondent data were obtained through an online questionnaire using Google Form with 152 hemodialysis patients who had been receiving treatment for at least one year. The questionnaire was filled out by hemodialysis patients during treatment assisted by their families who accompanied them. Data in research were then classified into two categories, namely primary and secondary data. Primary data included information obtained directly through

interviews, observations, or experiments. In contrast, secondary data were the information collected from several sources, such as literature, articles, journals and websites that are relevant to the research (Sugiyono, 2011). The data analysis method selected in this research was a multivariate analysis approach, namely the Partial Least Square (PLS) method.

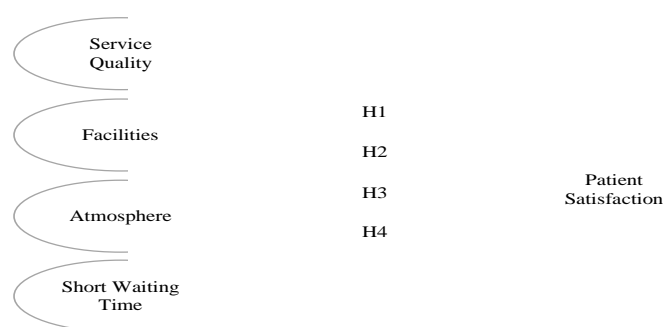


Figure 1. Conceptual Framework

RESULTS AND DISCUSSIONS

Respondent Profile

Based on the data collected, it shows that the gender distribution shows a balanced proportion with the percentage of men (45%) and women (55%). In terms of age, the majority of respondents were 44-59 years (45%), ≥ 60 years (43%), 12-27 years (1%) of the total respondents. In terms of education, the majority of respondents have a bachelor's degree (33%), followed by senior high school (32%). In terms of residence, the majority of respondents live in the Jabodetabek area (99%). In terms of employment, the majority of respondents were unemployed (55%), private employees (22%), entrepreneurs (16%), civil servants (7%), professionals (1%), and students (1%).

Table 1. Respondent Profile

Description	Category	Number of Respondents	Percentage (%)
Gender	Woman	84	55
	Man	68	45
	Total	152	100
Age	12 - 27	2	1
	28 - 43	17	11
	44 - 59	68	45
	≥ 60	65	43
	Total	152	100
Education	Elementary school	27	18
	Junior high school	14	9
	Senior high school	49	32
	Associate Degree	6	4
	Bachelor Degree	50	33
	Master Degree	6	4
	Total	152	100
Employment	Private employees	33	22
	Civil servants	10	7
	Entrepreneurs	24	16
	Professional	1	1
	Unemployed	83	55
	Student	1	1
Total	152	100	

Domicile	Jabodetabek	151	99
	Outside Jabodetabek	1	1
	Total	152	100

Source: Research Data Processing Results (2024)

Outer Model

This research collected respondent data through online questionnaire distribution from May to June 2024. This research employed hierarchical component model analysis or high-level constructs with a two-stage approach method of the disjoint two-stage approach.

After testing using the PLS-SEM model via SmartPLS 4.0 software, Disjoint Two-Stage Approach model with a measurement model (outer model) on five service quality dimensions in the initial process results were obtained from convergent validity tests, internal consistency reliability tests, and discriminant validity tests are as follows:

Table 2. Convergent Validity and Internal Consistency Reliability Tests

Variable	Indicator	Convergent Validity		Convergent Validity		Cronbach's Alpha	
		Outer Loading	AVE	Composite Reliability (rho_a)	Composite Reliability (rho_c)		
Service Quality (KPL)	Tangibles	0.880					
	Reliability	0.872					
	Responsiveness	0.914	0.757	0.927	0.940	0.919	
	Assurance	0.893					
	Empathy	0.787					
Facilities (FST)	FST1	0.841					
	FST2	0.851					
	FST3	0.868					
	FST4	0.803					
	FST5	0.899	0.750	0.945	0.955	0.944	
	FST6	0.895					
	FST7	0.903					
	SSN1	0.805					
	SSN2	0.831					
	SSN3	0.858					
Atmosphere (SSN)	SSN4	0.856					
	SSN5	0.866					
	SSN6	0.796					
	SSN7	0.850					
	SSN8	0.865	0.660	0.969	0.966	0.961	
	SSN9	0.842					
	SSN10	0.799					
	SSN11	0.843					
	SSN12	0.837					
	SSN13	0.873					
	SSN14	0.852					
	SSN15	0.768					
	Short Waiting Time (WT)	WT1	0.919				
		WT2	0.894				
		WT3	0.876				
WT4		0.858					
WT5		0.876	0.785	0.972	0.973	0.969	
WT6		0.911					
WT7		0.884					
WT8		0.853					
WT9		0.891					
WT10		0.894					
Patient Satisfaction (KPS)	KPS1	0.881					
	KPS2	0.826	0.773	0.967	0.971	0.967	
	KPS3	0.871					

KPS4	0.888
KPS5	0.923
KPS6	0.896
KPS7	0.856
KPS8	0.885
KPS9	0.898
KPS10	0.863

Source: Research Data Processing Results (2024)

Table 3. Discriminant Validity tests (Fornell-Larcker Criterion)

Variable	Facilities	Service Quality	Patient Satisfaction	Atmosphere	Short Waiting Time
Facilities	0.866				
Service Quality	0.740	0.870			
Patient Satisfaction	0.792	0.734	0.879		
Atmosphere	0.748	0.715	0.713	0.812	
Short Waiting Time	0.709	0.689	0.745	0.700	0.886

Source: Research Data Processing Results (2024)

Inner Model

The following are the results of the bootstrapping process:

Table 4. Coefficient of Determination Test (R^2)

Variable	R-Square	Adjusted R-Square
KPS	0.717	0.710

Source: Research Data Processing Results (2024)

This table presents the R-square value for the Patient Satisfaction variable, reaching a figure of 0.717, placing it in the medium category. Thus, this research model can be used or replicated in further research, especially with different populations. The following are the results of Q-squared Predict using PLS_predict in the SmartPLS 4 application:

Table 5. Predictive Relevance Test with Q-square (Q^2)

Variable	Q-Squared Predict
KPS	0.691

Source: Research Data Processing Results (2024)

Patient Satisfaction (KPS), Q-squared Predict result is 0.691. This value indicates that the model is able to explain approximately 69.1% of the variability in KPS variables that were not involved in model building. This indicates a high level of success in predicting or explaining PPPs. These results indicate that this model is quite effective in predicting results when changes or variations occur in the data. For future research, it is recommended to develop this model using a similar approach, but with a larger sample size. In addition, applying stricter criteria are able to optimally improve predictive capabilities.

The third step in the analysis involved applying the f-square test. This aims to assess the effect size or the extent to which a construct influences changes in the R-square value of the target construct. When there is a removal of a particular construct as a predictor in the research model, f-square provides information about how large the effect is. The following is a table of results from the f-square calculation in this research:

Table 6. Effect Size Test (f^2)

Track	f-square	Category
FST → KPS	0.170	Moderate Effect
KPL → KPS	0.048	Small Effects
SSN → KPS	0.012	Small Effects

Track	f- square	Category
WT →KPS	0.106	Small Effects

Source: Research Data Processing Results (2024)

The path from Facilities (FST) to Patient Satisfaction (KPS) shows an effect size of 0.170, which is included in the Moderate Effect category. This indicates that FST has quite a significant influence on KPS. On the other hand, the path from Service Quality (KPL) to KPS only has an effect size of 0.048, which is included in the Small Effect category, indicating that the influence of KPL on KPS is relatively small. A similar thing happened on the Atmosphere (SSN) route to KPS, with an effect size of 0.048, also included in the Small Effect category. Likewise, the path from Short Waiting Time (WT) to KPS, with an effect size of 0.106, is also included in the Small Effect category.

Overall, the data show that of the four paths observed, the path from FST to KPS has the most significant influence, although it is still in the Moderate Effect category. Inner VIF was obtained through the PLS Algorithm results as listed below:

Table 7. Variance Inflation Factor (VIF) Test

Variable	KPS
FST	3.045
KPL	2.713
SSN	2.822
WT	2.469

Source: Research Data Processing Results (2024)

All VIF values in this study do not exceed 5, thus it can be concluded that there is no multicollinearity issue in this study. The SRMR test results in this study used SmartPLS 4.0 software.

Table 8. Standardized Root Mean Square Residual (SRMR) Fit Model Test

	Saturated Model	Estimated Model
SRMR	0.055	0.055

Source: Research Data Processing Results (2024)

Based on table above, the Standardized Root Mean Square Residual (SRMR) Fit Model value obtained is 0.055, which is smaller than the threshold of 0.100. Therefore, according to these threshold provisions, this research model shows fit acceptable.

Table 9. Hypothesis Test

No.	Hypothesis	Standardized Coefficient	Decision
H1	Service Quality → Patient Satisfaction	0.192	Supported
H2	Facilities → Patient Satisfaction	0.383	Supported
H3	Atmosphere → Patient Satisfaction	0.098	Supported
H4	Short Waiting Time → Patient Satisfaction	0.272	Supported

Discussion

The Influence of Service Quality on Patient Satisfaction

In statistical analysis, the researcher tested the null hypothesis (H_0) and alternative hypothesis (H_a) based on the statistical results found. The theoretical hypothesis mentioned that service quality has a positive influence on patient satisfaction. The researcher then formulated a statistical hypothesis as follows: (1) H_0 (Null Hypothesis): there is no influence on service quality on patient satisfaction; (2) H_a (Alternative Hypothesis): there is an influence of service quality on patient satisfaction.

The results of the H_1 hypothesis test with a standard coefficient value of 0.192, indicate that there is a positive correlation between service quality and patient satisfaction in the hemodialysis

unit of XYZ Hospital in Tangerang City. Therefore, H_0 is rejected and H_a is accepted, in accordance with the theoretical hypothesis. These findings confirm that hypothesis H_1 is supported.

The research results above are in accordance with previous research conducted by Akdere et al. (2020); Le & Fitzgerald (2017), which states that service quality has a positive effect on patient satisfaction.

The Influence of Facilities on Patient Satisfaction

In statistical analysis, the null hypothesis (H_0) and alternative hypothesis (H_a) were tested based on the statistical results found. The theoretical hypothesis mentioned that facilities have a positive influence on patient satisfaction. The results of the H_2 hypothesis test with a standard coefficient value of 0.383, indicate that there is a positive correlation between facilities and patient satisfaction hemodialysis at XYZ Hospital in Tangerang City. Therefore, H_0 is rejected and H_a is accepted, in accordance with the theoretical hypothesis. These findings confirm that hypothesis H_2 is supported.

In line with Kotler, P., & Keller (2016) that physical infrastructure, physical equipment, and the environment are designed to provide quality services, increase comfort, and meet consumer needs. The research results above are in accordance with previous research conducted by Hartanti & Antonio (2022); Danty (2020); Hamidah et al. (2023); Tanniru & Khuntia (2017) that facilities have a positive influence on patient satisfaction.

The Influence of Atmosphere on Patient Satisfaction

The research results show that atmosphere has a positive influence on patient satisfaction. The results with a standard coefficient value of 0.098, indicate a positive correlation between atmosphere and patient satisfaction hemodialysis at XYZ Hospital in Tangerang City.

Grifka et al. (2022) advocated for the creation of a hospital environment that is not only positive and supportive but also rooted in the principles of patient-centered care. Such an environment according to Grifka et al. (2022) can significantly increase patient satisfaction levels, resulting in better experiences and outcomes for individuals undergoing treatment (Grifka et al., 2022).

The research results above are in accordance with previous research conducted by Tiwa et al. (2018); Firda (2023); Susilo et al. (2020) that atmosphere has a positive effect on patient satisfaction.

The Influence of Short Waiting Time on Patient Satisfaction

The results with a standard coefficient value of 0.272, indicate a positive correlation between short waiting time and patient satisfaction hemodialysis at XYZ Hospital in Tangerang City. These findings confirm that hypothesis H_4 is supported.

In line with Shaw et al. (2018), the correlation between short waiting time and patient satisfaction underscores the important role of operational efficiency and patient-centred care practices in shaping the patient experience (Shaw et al., 2018). Waiting time management, through strategic operational interventions and effective communication, is a determining factor in patient satisfaction, reflecting commitment of healthcare institutions to provide high-quality and patient-centered services (García-Corchero & Jiménez-Rubio, 2022).

The research results above are in accordance with previous research conducted by Clifford Bleustein et al. (2014); Mehra (2016); Rizany (2021); Yew (2020) states that short waiting time significant positive effect on patient satisfaction.

The Importance-Performance Mapping Analysis (IPMA)

IPMA provides specific recommendations to management. In the context of this research, Patient Satisfaction was selected as the target construct. IPMA analysis includes two main aspects of importance (total effects value) and performance (mean value of respondent responses).

Table 10. IPMA Value of Patient Satisfaction Construct

Patient Satisfaction	Importance (Total Effect)	Performance
FST	0.383	61.165
KPL	0.192	61.662
SSN	0.098	56.260
WT	0.272	59.005
Mean	0.236	59.523

Source: Research Data Processing Results (2024)

By utilizing IPMA analysis using SmartPLS version 4, visualization of variable and indicator position mapping can be produced. The process of interpreting this mapping involved placing predictor and indicator variables into four quadrants. This division was determined by vertical and horizontal lines originating from the averages of total effect and performance values. By considering these two lines, the IPMA visualization results can be grouped into four quadrants, namely Important-Perform, Important-Not Perform, Not Important-Perform and Not Important-Not Perform. The IPMA visualization and its division into quadrants can be seen below:

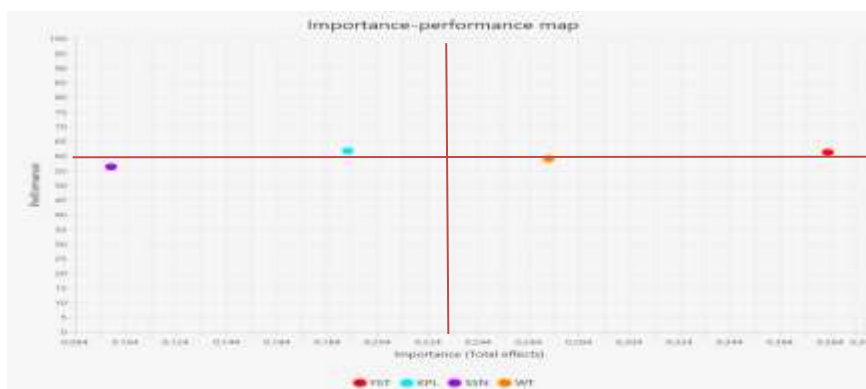


Figure 2 IPMA Construct results

Source: Research Data Processing Results (2024)

In Figure 2 above, it can be seen the dividing line for the IPMA Construct, which is derived from the average value, as listed in Table 10. From this figure, the position of the four Patient Satisfaction (KPS) predictor variables can be seen. The Short Waiting Time (WT) variable is located in the lower right quadrant. This variable is considered important as it has a large total effect value, but has not achieved good performance. From these data, it can be concluded that the respondents' perception of Short Waiting Time is still not considered good or not performing. The average or mean value of Importance (total effect) for the constructs in this research is 0.236. The level of perception of facilities has a strong effect on hemodialysis patient satisfaction. Short Waiting Time (WT) is also considered to make a significant contribution, with an Importance value of 0.272, which exceeds the average value (0.236).

In terms of performance, the average or mean of performance in this research construct is 59.523. Service Quality (KPL) stands out with the highest score of 61.662. This indicates that the hospital has succeeded in providing good service in terms of quality, even though the contribution

of import or total effect is not great. Facilities (FST) also showed good performance with a score of 61,165, indicating that the hospital was successful in providing and maintaining existing facilities. However, Short Waiting Time (WT) and Atmosphere (SSN) have lower performance with values of 59.005 and 56.260 respectively.

The average Importance of all variables is 0.236, while the average Performance is 59.523. This shows that these variables make a positive contribution to hemodialysis patient satisfaction although there are differences in the relative performance of each. In order to increase hemodialysis patient satisfaction, the most important special attention for hospital management is on aspects that have high importance, especially Short Waiting Time (WT). in terms of Atmosphere (SSN), although it is considered not to have recorded high performance, these have a low level of importance, so management can consider prioritizing improving Short Waiting Time performance.

Based on the Importance-Performance Mapping Analysis (IPMA) analysis of the data provided, there are several findings as the basis for hospital management to improve the quality of their services. First, in terms of facilities (FST), it shows high performance and has a major effect on the dependent variable. Therefore, management needs to maintain or even improve the performance of these facilities. On the other hand, most service quality indicators (KPL) and atmosphere (SSN) are in the Not Important-Perform category. From these findings, there are several recommendations that can be taken. The main priority for hospital management is to improve and maintain the performance of facilities that are considered important. Focusing on improving the performance of these facilities can be an effective strategy to improve overall patient satisfaction and experience. In addition, management needs to re-evaluate their strategy regarding service quality, atmosphere, and short waiting time. Even though the performance is quite good, the impact on the dependent variable is not significant. A change in strategy or increased focus on other, more impactful aspects may be necessary.

CONCLUSION

According to the result of the research, it can be concluded that service quality, facilities, atmosphere, and short waiting time have the positive influences on hemodialysis patient satisfaction at XYZ Hospital.

References

- Akdere, M., Top, M., & Tekingündüz, S. (2020). Examining patient perceptions of service quality in Turkish hospitals: The SERVPERF model. *Total Quality Management and Business Excellence*, 31(3-4), 342-352. <https://doi.org/10.1080/14783363.2018.1427501>
- Bleustein, C., Rothschild, D. B., Valen, A., Valatis, E., Schweitzer, L., & Jones, R. (2014). Wait times, patient satisfaction scores, and the perception of care. *The American Journal of Managed Care*, 20(5), 393-400. <https://pubmed.ncbi.nlm.nih.gov/25181568/>
- Danty, K. R. (2020). The Influence of Human Resources, Facilities and Infrastructure To Hemodialization Patient Satisfaction in Bhayangkara Hospital TK. 1 Raden Said Soekanto Jakarta. *AFEBI Management and Business Review*, 4(02), 140. <https://doi.org/10.47312/ambr.v4i02.277>
- Firda, A. (2023). the Positive Impact of Service Quality, Location, and Situation on Patients' Satisfaction in Hospital. *Jurnal Ekonomi*. <https://ejournal.seaninstitute.or.id/index.php/Ekonomi/article/view/3048%0Ahttps://ejournal.seaninstitute.or.id/index.php/Ekonomi/article/download/3048/2387>
- García-Corchero, J. D., & Jiménez-Rubio, D. (2022). Waiting times in healthcare: equal treatment for equal need? *International Journal for Equity in Health*, 21(1). <https://doi.org/10.1186/s12939-022-01799-x>
- Grifka, A., Dorris, J., Marshall-Aiyelawo, K., Gliner, M., & Frazier, C. (2022). Patient Experience and Hospital Environment Measures at Military Treatment Facilities. *Journal of Healthcare Management*, 67(1), 38-53. <https://doi.org/10.1097/JHM-D-20-00316>
- Hamidah, *, Siregar, S., Siregar, H. S., & Lubis, Y. (2023). The Influence of Hospital Facilities and Services on

- Patient Satisfaction with Hospital Image as an Intervening Variable at Haji Abdul Manan Simatupang General Hospital. *Jurnal Bintang Manajemen (JUBIMA)*, 1(3), 97-112. <https://doi.org/>
- Hartanti, L. K., & Antonio, F. (2022). the Effect of Service Quality Dimensions on Hemodialysis Patient Satisfaction in Indonesia. *Indonesian Journal of Health Administration*, 10(1), 50-59. <https://doi.org/10.20473/jaki.v10i1.2022.50-59>
- Helmy, N. H., Hussein, A., Kamal, M., Minshawy, O. El, & Wahsh, E. A. (2022). Hemodialysis patients' satisfaction with dialysis care: a cross-sectional prospective study conducted in a non-profitable care facility, Minia Egypt. *BMC Nephrology*, 23(1). <https://doi.org/10.1186/s12882-022-03010-3>
- Kotler, P., & Keller, K. L. (2016). Marketing management (15th ed.). In *Pearson Education*.
- Le, P., & Fitzgerald, G. (2017). Applying the SERVPERF scale to evaluate quality of care in two public Hospitals at Khanh Hoa province, Vietnam. *Asian Pacific Journal of Health Sciences*, 9(2), 66-76.
- Mehra, P. (2016). Outpatient clinic waiting time, provider communication styles and satisfaction with healthcare in India. *International Journal of Health Care Quality Assurance*, 29(7), 759-777. <https://doi.org/10.1108/IJHCQA-02-2016-0017>
- National Kidney Foundation. (2024, April 26). *Hemodialysis*. <https://www.kidney.org/kidney-topics/hemodialysis>
- Nuairi, A. Al, Bermamet, H., Abdulla, H., Simsekler, M. C. E., Anwar, S., & Lentine, K. L. (2022). Identifying Patient Satisfaction Determinants in Hemodialysis Settings: A Systematic Review. *Risk Management and Healthcare Policy*, 15, 1843-1857. <https://doi.org/10.2147/RMHP.S372094>
- Rizany, I. (2021). The Relationship between Waiting Time and Patient Satisfaction in The Outpatient of Public Hospital in Banjarbaru. *IJNP (Indonesian Journal of Nursing Practices)*, 5(1), 60-66. <https://doi.org/10.18196/ijnp.v5i1.10275>
- Septiawan, Z., Girsang, E., & Ramadhani Nasution, S. L. (2023). Analysis of the Perception of Service Quality to Patient Satisfaction in the Royal Prima Hospital Inpatient Room in 2019. *International Journal of Research and Review*, 10(7), 572-584. <https://doi.org/10.52403/ijrr.20230768>
- Shaw, T., Metras, J., Ting, Z. A. L., Courtney, E., Li, S. T., & Ngeow, J. (2018). Impact of Appointment Waiting Time on Attendance Rates at a Clinical Cancer Genetics Service. *Journal of Genetic Counseling*, 27(6), 1473-1481. <https://doi.org/10.1007/s10897-018-0259-z>
- Sugiyono. (2011). Metode penelitian kombinasi (mixed methods). In *Bandung : Alfabeta*.
- Susilo, R., Bernarto, I., & Purwanto, A. (2020). Effect of trust, value and atmosphere towards patient satisfaction (Case study on preama clay of wae laku, indonesia). *International Journal of Advanced Science and Technology*, 29(3), 6716-6723.
- Tanniru, M., & Khuntia, J. (2017). Dimensions of Patient Experience and Overall Satisfaction in Emergency Departments. *Journal of Patient Experience*, 4(3), 95-100. <https://doi.org/10.1177/2374373517692914>
- Taufiq, M., Samsualam, & Surahman Batara, A. (2022). Pengaruh Kualitas Pelayanan Terhadap Kepuasan dan Kepercayaan Pasien Rawat Inap di Rumah Sakit Umum Daerah Andi Makkassar Parepare. *Journal of Muslim Community Health (JMCH)* 2022, 3(1), 83-92. <https://doi.org/10.52103/jmch.v3i1.671>JournalHomepage:<https://pasca-umi.ac.id/index.php/jmch/about>
- Tiwa, C., Soegoto, A. S., & Lengkong, V. P. K. (2018). Analisis Kualitas Produk, Suasana, Dan Kualitas Jasa Layanan Terhadap Kepuasan Pasien (Studi Pada Puskesmas Bengkulu Manado). *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 6(4), 2208-2217.
- Yew, K. L. (2020). *Impact of Wait Times, Perception of Care and Environment on Patient Satisfaction at Infusion Centers and Dialysis Centers*.
- Yunike, Y., Tyarini, I. A., Evie, S., Hasni, H., Suswinarto, D. Y., & Suprpto, S. (2023). Quality of Health Services to the Level of Patient Satisfaction. *Jurnal Ilmiah Kesehatan Sandi Husada*, 12(1), 183-189. <https://doi.org/10.35816/jiskh.v12i1.990>
- Zhang, H., Ma, W. M., Zhu, J. J., Wang, L., Guo, Z. J., & Chen, X. T. (2023). How to adjust the expected waiting time to improve patient's satisfaction? *BMC Health Services Research*, 23(1). <https://doi.org/10.1186/s12913-023-09385-9>