

Service Quality, Patient Trust, and Outpatient Satisfaction Across Medical Centers, Regional Hospitals, and Clinics in Taiwan: A Comparative Analysis

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Article History: (12pt)

Article Type: Research

Received : 2026-05-05

Accepted : 2026-06-13

Revised : 2026-06-06

Published : 2026-06-20

Abstract

Outpatient satisfaction reflects patients' evaluations of service processes, communication, waiting experiences, and institutional performance. This study compared service quality, patient trust, and outpatient satisfaction across medical centers, regional hospitals, and clinics in Taiwan. A secondary cross-sectional analysis used data from 345 outpatients, including 111 from medical centers, 114 from regional hospitals, and 120 from clinics. Service quality, patient trust, outpatient satisfaction, and waiting-time evaluation were measured with multi-item scales. Group differences were assessed with Welch analysis of variance, and multivariable linear regression with robust standard errors identified independent predictors. Mediation and institution-specific analyses were also conducted. Service quality, patient trust, outpatient satisfaction, and waiting-time evaluation did not differ significantly across institution types. The fully adjusted satisfaction model explained 83.3% of the variance. Overall service quality was positively associated with satisfaction, and waiting-time evaluation was the strongest predictor. Process quality was the only service-quality dimension independently associated with satisfaction. Process and environmental quality predicted patient trust. Trust did not independently predict satisfaction and did not mediate the service quality-satisfaction relationship. Outpatient experiences were broadly comparable across institution types within Taiwan's stratified healthcare system. Quality improvement for outpatient care should prioritize efficient service processes, waiting management, communication, and supportive care environments rather than facility classification alone.

Keywords: Outpatient satisfaction, Patient trust, Service quality, Taiwan healthcare, Waiting-time evaluation

1. Introduction

Outpatient care is an important care interface that affects access to care, treatment adherence, perceptions of institutional performance, and continuity of care and is therefore a key area for consideration. Patient satisfaction is now one of the most important indicators of healthcare quality and is the patient's assessment of clinical encounters, service processes, facility conditions, and the level of satisfaction with the care received. It is widely utilised to detect gaps in the services, to compare institutional performance, and to plan quality improvement programs in various healthcare environments (Ferreira et al., 2023). Pooled analyses suggest that satisfaction is influenced by various factors, such as communication, responsiveness, convenience, perceived competence, accessibility, and trust, and a higher level of satisfaction can improve patient loyalty and retention of services (Olesen & Bathula, 2022).

The quality of services provided in outpatient care is multi-dimensional. It also covers interaction quality (communication, respect, empathy, responsiveness), process quality (registration, consultation, coordination, waiting, administration efficiency), and environmental quality (cleanliness, comfort, privacy, and physical organization). Previous primary care research has found that patients' perceptions of service quality are highly linked to their satisfaction, especially in terms of whether the service is accessible, respectful, reliable, and responsive to their needs (Persai et al., 2022). Comparative evidence from across multiple healthcare facilities also indicates that differences in institutional organization, staffing, infrastructure, and patient flow could also impact perceptions of service delivery and overall satisfaction (Thach Phuong et al., 2023). In addition to that, there is the Donabedian framework that is used to measure the quality of outpatient care by examining the structural condition, care processes, and the outcome of the care, one of which is patient satisfaction, which is a patient-reported healthcare performance outcome (Setyaningrum et al., 2024).

Also, trust is a key factor in the experience of an outpatient. Trust is a belief in the healthcare system, its structures, the healthcare professional, their competence, honesty, and the expectation that care will be provided to the best of the health service's ability. Positive interactions can improve trust, especially for patients needing multiple or frequent interactions with healthcare (Shie et al., 2022). Empathy and communication are soft attributes that can impact satisfaction and future behavioral intentions, as can technical capacity, facilities, and procedural efficiency - hard attributes (Chen et al., 2024). The results of the clinic-based analysis also suggest that supportive environments, reliable service processes, and positive provider interactions are all interdependent and can lead to patient trust and satisfaction (Ai et al., 2022). Trust can also serve as an explanatory mechanism that connects service quality and satisfaction, but its independent and intervening effects differ depending on the context of care and the dimensions that are incorporated into statistical models (Al-Hilou & Suifan, 2023).

In outpatient services, waiting experience is particularly crucial as it influences patients' judgments prior to, during, and after a consultation. Increased or inadequate waiting time can lead to dissatisfaction, while good information, waiting only for an acceptable length of time, and efficient order processing can enhance patient evaluations even when there is some delay (Zhang et al., 2023). Satisfaction also has been shown to be related to both clinical and nonclinical components of care in large outpatient surveys, such as convenience, communication, environment, and service organization (Xintong et al., 2024). Structured rounds by nurses and increased responsiveness to patient needs in care delivery have been found to have the potential to build patient satisfaction with outpatient care in the outpatient service area, a primary focus of targeted quality improvement interventions that reduce patient uncertainty (Fan et al., 2021).

Taiwan's healthcare system consists of medical centers, regional hospitals, and clinics, which vary in their institutional size, service complexity, patient volume, the availability of specialists, and healthcare route. Such differences in structure can lead to variations in level of service, trust and satisfaction, but there is only limited direct comparison across all three levels. It is essential to discuss these constructs together because the type of institution alone

could not account for patient experience when taking into account service processes, waiting times, evaluations, and demographic characteristics. The comparative approach can help to determine if patient-reported differences are due to the level of institutional classification, or due to service attributes that can be modified but that remain constant across levels of outpatient care within the national healthcare system structure. This study was a comparison of the quality of services, patient trust, and patient satisfaction between the medical centers, regional hospitals, and clinics in Taiwan. It also investigated whether there was a relationship between the satisfaction of the outpatients and the service quality and patient trust, after controlling for perception of waiting-time evaluation and participants' characteristics.

Objectives of the study:

1. To compare service quality across medical centers, regional hospitals, and clinics in Taiwan.
2. To assess differences in patient trust and outpatient satisfaction across institution types.
3. To identify factors associated with outpatient satisfaction and patient trust.

2. Methodology

2.1 Study Design and Data Source

A secondary cross-sectional comparative study was performed with a publicly released outpatient survey dataset obtained from Taiwan, which included data from patients visiting medical centers, regional hospitals, and clinics (Tsai, 2026). The data consisted of demographic data, characteristics of the outpatient visits, and validated questionnaires assessing service quality, trust, outpatient satisfaction, and perceived waiting time. This study did not include the collection of new data or contact with patients.

2.2 Study Sample and Inclusion Criteria

Finally, 345 outpatients were recruited, with 111 at medical centers, 114 at regional hospitals, and 120 at clinics. The key outcome variables were grouped by institution type, and records were only included if institution type and key outcome variables were available, while incomplete and ineligible records were excluded.

2.3 Study Variables and Measurements

Service quality was evaluated by 13 items under three dimensions of service: interaction, process, and environment, resulting in a service quality score computed as an average of the 13 items. Each of the three measures (patient trust, outpatient satisfaction, and perceived waiting-time evaluation) was measured using scales with four items, with higher scores reflecting more positive perceptions. Satisfaction with outpatient service was the primary dependent variable, and the variables of service quality, patient trust, waiting-time evaluation, and the type of institution were major predictor variables, as were other dependent variables including age, gender, level of education, frequency of visits to the outpatient department, self-rated health, and clinical department. The scores at the item level were reconverted into composite scores to ensure consistency.

2.4 Data Preparation and Quality Assessment

Datasets were checked for missing values, duplicate data, and data that were too extreme to be considered valid, and descriptive statistics and checks for data distribution were run. Cronbach's alpha was used to test internal consistency of all multi-item scales, with values ≥ 0.70 deemed acceptable for composite use.

2.5 Statistical Analysis

Python was used to carry out statistical analyses. Categorical comparisons were made using either the chi-square test or Fisher's exact test, and group means were compared using the Welch analysis of variance with Games–Howell post hoc tests. Cramér's V and eta squared

were used to report effect sizes. Multivariable linear regression models were used to test the predictors of outpatient satisfaction and patient trust, using HC3 robust standard errors, and results of the model fitting, 95% confidence intervals, and coefficients are reported. To minimize multicollinearity, other models were created that examined the service-quality dimensions individually.

3. Results

3.1 Participant Characteristics

A total of 345 outpatients were included: 111 (32.2%) from medical centers, 114 (33.0%) from regional hospitals, and 120 (34.8%) from clinics. The sample included 183 (53.0%) males and 162 (47.0%) females. Most participants were aged 41–50 years (115, 33.3%) and held a bachelor's degree (190, 55.1%). There were no significant differences among institution types in terms of gender, age, education, self-rated health, or clinical department. The frequency of visits was variable and had a small effect size ($\chi^2=17.59$, $p=0.025$; Cramér's $V=0.160$), as detailed in Table 1.

Table 1. Distribution and comparison of participant characteristics across healthcare institution types

Characteristic	Total, N (%)	Test statistic	p-value	Effect size
Medical centers	111 (32.2)	NA	NA	NA
Regional hospitals	114 (33.0)	NA	NA	NA
Clinics	120 (34.8)	NA	NA	NA
Male	183 (53.0)	5.71	0.058	0.091
Female	162 (47.0)	5.71	0.058	0.091
Age ≤ 30 years	67 (19.4)	3.51	0.743	0.071
Age 31–40 years	94 (27.2)	3.51	0.743	0.071
Age 41–50 years	115 (33.3)	3.51	0.743	0.071
Age ≥ 51 years	69 (20.0)	3.51	0.743	0.071
Senior high school	133 (38.6)	4.23	0.375	0.078
Bachelor's degree	190 (55.1)	4.23	0.375	0.078
Master's degree	22 (6.4)	4.23	0.375	0.078
Visit frequency	345 (100.0)	17.59	0.025	0.160
Self-rated health	345 (100.0)	12.86	0.117	0.137
Clinical department	345 (100.0)	0.53	0.997	0.028

3.2 Reliability of the Measurement Scales

The Cronbach's alpha values for each scale were all within an acceptable to excellent range (ranging from 0.808 for patient trust to 0.935 for perceived waiting-time evaluation). The findings supported using composite scores in further analysis as presented in Table 2.

Table 2. Internal consistency of the measurement scales

Construct	Number of items	Cronbach's alpha
Interaction quality	6	0.898
Process quality	4	0.851
Environmental quality	3	0.880
Patient trust	4	0.808
Outpatient satisfaction	4	0.882
Perceived waiting-time evaluation	4	0.935

3.3 Service Quality Across Healthcare Institution Types

The overall service-quality score was not different in medical centers (3.72 ± 0.73) than in regional hospitals (3.76 ± 0.75) and in clinics (3.74 ± 0.77) (Welch $F=0.09$, $p=0.917$). There was also no significant difference in interaction, process, and environmental quality by institution type. As shown in Table 3, process quality was the score with the highest mean value in all groups, and all of the effect sizes were small.

Table 3. Comparison of service-quality scores across healthcare institution types

Variable	Medical centers, mean $\pm$ SD	Regional hospitals, mean $\pm$ SD	Clinics, mean $\pm$ SD	Welch F	p- value	η^2
Interaction quality	3.52 $\pm$ 0.90	3.51 $\pm$ 0.91	3.57 $\pm$ 0.92	0.12	0.891	0.001
Process quality	4.15 $\pm$ 0.63	4.18 $\pm$ 0.66	4.16 $\pm$ 0.74	0.07	0.932	<0.001
Environmental quality	3.54 $\pm$ 0.87	3.69 $\pm$ 0.91	3.53 $\pm$ 0.92	1.17	0.311	0.007
Overall service quality	3.72 $\pm$ 0.73	3.76 $\pm$ 0.75	3.74 $\pm$ 0.77	0.09	0.917	<0.001

3.4 Patient Trust, Outpatient Satisfaction, and Waiting-Time Evaluation

The level of patient trust, outpatient satisfaction, and wait-time assessment were similar among medical centers, regional hospitals, and clinics. Patient-trust scores ranged from 4.01 ± 0.70 to 4.04 ± 0.77 , satisfaction scores ranged from 3.71 ± 0.93 to 3.75 ± 0.79 , and waiting-time evaluation scores ranged from 3.62 ± 0.97 to 3.70 ± 0.97 . Table 4 shows that there was no overall or pairwise comparison that was statistically significant. Figure 1 shows the mean scores for overall service quality, trust of a patient in the service, and an outpatient's satisfaction for the three types of institutions.

Table 4. Comparison of patient trust, outpatient satisfaction, and waiting-time evaluation

Variable	Medical centers, mean $\pm$ SD	Regional hospitals, mean $\pm$ SD	Clinics, mean $\pm$ SD	Welch F	p- value	η^2
Patient trust	4.01 $\pm$ 0.70	4.01 $\pm$ 0.73	4.04 $\pm$ 0.77	0.06	0.941	<0.001
Outpatient satisfaction	3.75 $\pm$ 0.79	3.73 $\pm$ 0.88	3.71 $\pm$ 0.93	0.07	0.935	<0.001
Waiting-time evaluation	3.66 $\pm$ 0.88	3.70 $\pm$ 0.97	3.62 $\pm$ 0.97	0.17	0.842	0.001

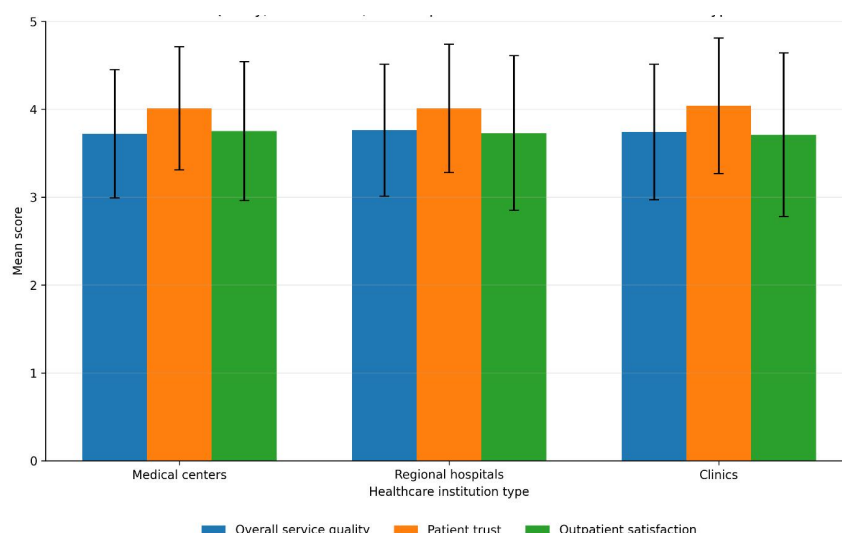


Figure 1. Comparison of Mean Overall Service Quality, Patient Trust, and Outpatient Satisfaction Scores Across Healthcare Institution Types

3.5 Multivariable Predictors of Outpatient Satisfaction and Patient Trust

Fully adjusted satisfaction model accounted for 83.3% of the variance (adjusted $R^2=0.821$, $p<0.001$). Overall service quality was independently associated with higher satisfaction ($B=0.156$, 95% CI: 0.042–0.271; $p=0.007$), while waiting-time evaluation was the strongest predictor ($B=0.715$, 95% CI: 0.626–0.804; $p<0.001$). Neither patient trust nor institution type was independently related to patients' satisfaction. The dimension-specific model showed only process quality as being significant ($B=0.137$, $p=0.014$). The patient-trust model accounted for 50.0% of the variance, and process quality ($B=0.374$, $p<0.001$) and environmental quality ($B=0.184$, $p=0.023$) were found to be significant, as shown in Table 5. The regression coefficients and 95% confidence intervals of the major predictors of outpatient satisfaction are shown in Figure 2.

Table 5. Multivariable regression models for outpatient satisfaction and patient trust

Outcome	Predictor	B	Robust SE	95% CI lower	95% CI upper	p-value
Outpatient satisfaction	Regional hospitals vs medical centers	−0.066	0.051	−0.165	0.034	0.194
	Clinics vs medical centers	−0.022	0.052	−0.124	0.081	0.678
	Overall service quality	0.156	0.058	0.042	0.271	0.007
	Patient trust	0.052	0.049	−0.045	0.148	0.293
	Waiting-time evaluation	0.715	0.046	0.626	0.804	<0.001
	Interaction quality	0.079	0.055	−0.030	0.188	0.155
	Process quality	0.137	0.056	0.027	0.247	0.014
Patient trust	Environmental quality	−0.022	0.055	−0.131	0.087	0.695
	Regional hospitals vs medical centers	−0.051	0.081	−0.210	0.107	0.524
	Clinics vs medical centers	0.016	0.075	−0.131	0.162	0.833
	Interaction quality	0.094	0.080	−0.063	0.252	0.240
	Process quality	0.374	0.096	0.186	0.562	<0.001
	Environmental quality	0.184	0.081	0.025	0.343	0.023
	Waiting-time evaluation	0.057	0.066	−0.074	0.187	0.394

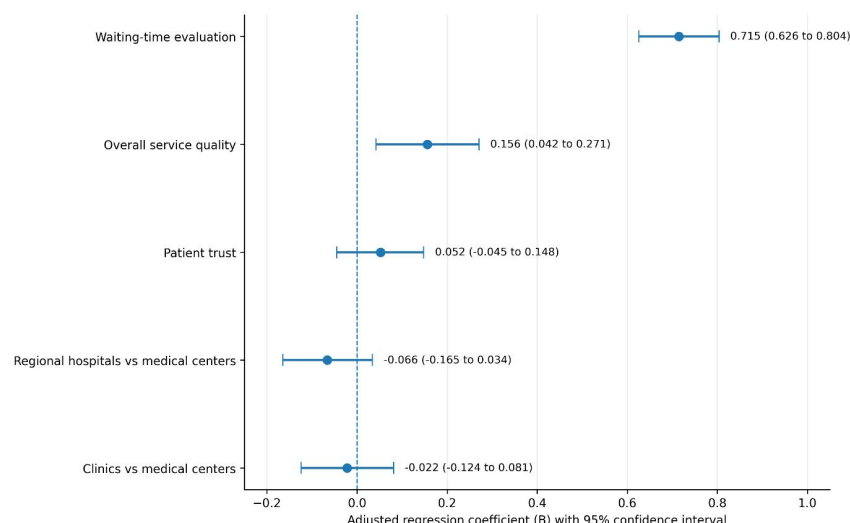


Figure 2. Adjusted Regression Coefficients for Predictors of Outpatient Satisfaction

3.6 Mediation and Institution-Specific Analyses

The association between service quality and outpatient satisfaction was 0.039 with a bootstrap 95% confidence interval from -0.071 to 0.140 , and thus the indirect effect did not significantly mediate the association between the two. Waiting time evaluation continued to be a significant predictor of satisfaction in medical centers ($B=0.618$, $p<0.001$), regional hospitals ($B=0.735$, $p<0.001$) and clinics ($B=0.754$, $p<0.001$). Service quality and patient trust were significant only in medical centers ($B=0.230$, $p=0.002$), and p -values obtained from interaction tests were not significant in both test variables by institution type (service quality–satisfaction, $F=0.04$, $p=0.964$, and patient trust–satisfaction, $F=0.48$, $p=0.618$). Institution-specific regression coefficients for service quality, patient trust, and the evaluation of waiting time are presented in Figure 3.

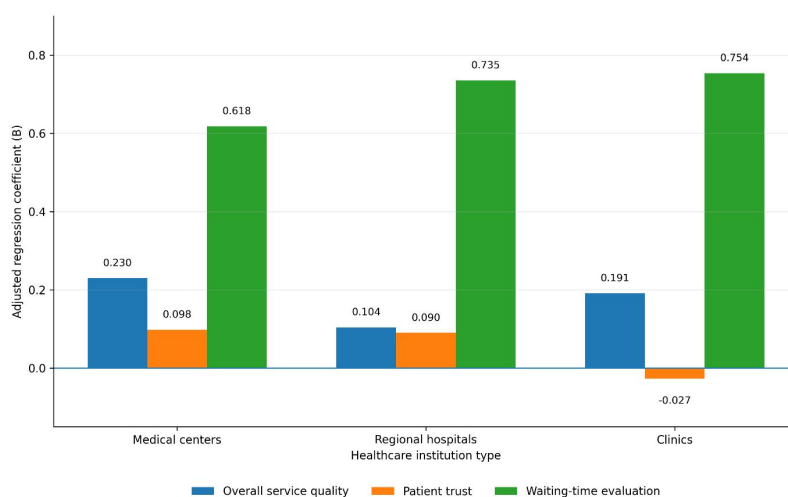


Figure 3. Institution-Specific Adjusted Predictors of Outpatient Satisfaction Across Medical Centers, Regional Hospitals, and Clinics

4. Discussion

This study's results showed that the service quality, patient trust, and satisfaction of outpatients were not significantly different between the medical centers, regional hospitals, and clinics in Taiwan. The type of institution accounted for only 1% of the variance in satisfaction, suggesting that the type of facility was less important than changes in service attributes. The small effect sizes for the nonsignificant results indicated that these results

were not due to lack of power. In fact, satisfaction is not exclusively determined by the type of institution, as operational factors like registration, navigation, communication, and waiting also play a significant role in satisfaction (Yadav et al., 2024) in the outpatient environment. Perceived waiting-time evaluation was the strongest independent predictor of satisfaction both for the full sample and for each type of institution. Waiting that is acceptable, predictable, and managed can impact the overall evaluation of care. Perceptions of responsiveness, respect, and organizational competence may be impacted by the wait before the consultation. Tertiary outpatient studies have also found that increased wait time is correlated with a reduction in satisfaction, leading to the importance of effective patient flow and communication around wait time (Singh et al., 2020). Similarly, based on the meta-analysis, waiting time has been consistently found to be a factor affecting the satisfaction of the patient at the outpatient department of the hospital (Safitri et al., 2024).

After adjustment, both overall service quality and satisfaction were found to be positively associated with satisfaction, and only process quality was found to have an independent association in the domain-specific model. When viewed as a whole, the registration, coordination, reliability, and continuity of services in the outpatient phases may be more important than the individual characteristics of the environment or of the interpersonal contacts. Process improvement can help to minimize uncertainty and make care feel more organized. In hospital environments, structured quality improvement interventions have been effective in enhancing patient-reported communication domains in relation to communication, workflow, and service failures (Carsten et al., 2023). There is also evidence that satisfaction is related to perceived quality, but the most important factors differ from care organization to care organization and from patient to patient (Alibrandi et al., 2023).

Trust in the hospital was high in all types of institutions and was not independently related to satisfaction when service quality and waiting time were taken into account. Furthermore, there was no statistically significant mediation between service quality and satisfaction for trust. The findings indicate that there are overlaps between trust, service quality, and general care assessments. Although the unique statistical contribution of trust may become non-significant in fully adjusted models, the role of trust as a relational outcome still may remain important. Communication research reveals that the four elements of communication—clarity, attentiveness, respect, and responsiveness—are important factors that impact both perceived quality and satisfaction, and trust is hard to separate from the communication interactions in which trust develops (Adu Gyamfi et al., 2023).

There was no relationship between process and environmental quality and patient trust, except that process quality was independently associated, and environmental quality was not associated. Reliability of procedures and maintenance of the environment could be an indication of competence, safety, and credibility of the institution. The quality of interaction was not significant when it was analyzed separately, which may be due to interaction effects with process and environmental perceptions. However, practitioner communication, patient-centered care, institutional environment, and trust can be considered as interrelated factors of satisfaction, as revealed by evidence from public hospitals (Jameel et al., 2025). Trust could thus be part of a larger evaluative process based on the cumulative experience of repeated interactions with the organization and cues it provides.

A medical center, regional hospital, and clinic were found to be institution-specific, in which the association between waiting-time evaluation and satisfaction remained. Association was only significant in the service quality in medical centers; interaction tests indicated no difference in this association by setting. So, the significance of the subgroups did not create a real institutional difference. The shared pattern facilitates system-wide interventions such as appointment scheduling, queue management, delay notification, process coordination, and communication. Trust and communication have also been found to impact patient satisfaction in the patient-provider relationship synergistically, which warrants increases in operational efficiency and relationship quality in tandem (Hameed et al., 2025).

Balanced institutional groups, complete item-level data, reliable scales, strong regression methods, and direct measures of the title constructs were strengths. Some limitations were identified, which included: cross-sectional study design, self-reported measures, no objective waiting times, missing named facility identifiers, and not accounting for clustering within institutions. The results would not be representative of the entire outpatient population in Taiwan, and no causal and temporal conclusions could be drawn. The findings align with the need to progressively enhance the processes and waiting experiences of outpatients across the various levels of the institutions, and to ensure that they are communicated in an appropriate way, provided the environment is suitable, and the building of trust is in line.

5. Conclusion

The overall service quality and patient trust and satisfaction were similar among medical centers, regional hospitals, and clinics in Taiwan. However, the type of institution was not a factor in itself, suggesting that satisfaction was more related to the nature of the services than to the quality of the service. After adjustment, overall service quality continued to be positively related to patient satisfaction for the outpatient, and process quality became the most significant dimension of service quality. The perceived waiting time evaluation was the most consistent and strongest factor to predict satisfaction among the three types of institution, indicating the importance of efficient waiting time, patient flow coordination, and communication of waiting time. The level of patient trust was generally high, although it did not wholly explain satisfaction or come between service quality and satisfaction. However, process quality and environmental quality were positively related to trust. These data corroborate a systems-wide strategy of quality improvement for processes in the outpatient setting, waiting time, communication, and environment, and not assuming that one category of institutions is better than another. More objective waiting time periods and recognisable facility features must be included in both longitudinal and institution-level studies to verify these connections and lead specific policy actions.

References

1. Adu Gyamfi, MS, P., Lippert, PhD, L., Baldwin, PhD, J. R., & Hooker, PhD, J. F. (2023). Predictors of patient satisfaction and perceived quality of healthcare: College healthcare providers and students' communication. *Journal of American College Health*, 71(2), 373-380.
2. Ai, Y., Rahman, M. K., Newaz, M. S., Gazi, M. A. I., Rahaman, M. A., Mamun, A. A., & Chen, X. (2022). Determinants of patients' satisfaction and trust toward healthcare service environment in general practice clinics. *Frontiers in Psychology*, 13, 856750.
3. Al-Hilou, M., & Suifan, T. (2023). The mediating effect of patient trust on the relationship between service quality and patient satisfaction. *International journal of health care quality assurance*, 36(1-2), 1-16.
4. Alibrandi, A., Gitto, L., Limosani, M., & Mustica, P. F. (2023). Patient satisfaction and quality of hospital care. *Evaluation and program planning*, 97, 102251.
5. Carsten, B. F., Bhandari, P., Fortney, B. J., Wilmes, D. S., Nelson, C. M., Brien, A. L., ... & Anil, G. (2023). Quality improvement initiative to improve communication domains of patient satisfaction in a regional community hospital with Six Sigma methodology. *BMJ Open Quality*, 12(4), e002306.

6. Chen, L. H., Chen, C. H., Loverio, J. P., Wang, M. J. S., Lee, L. H., & Hou, Y. P. (2024). Examining soft and hard attributes of health care service quality and their impacts on patient satisfaction and loyalty. *Quality Management in Healthcare*, 33(3), 176-191.
7. Fan, Q. Q., Feng, X. Q., & Jin, J. F. (2021). Nursing rounds: a quality improvement project to improve outpatient satisfaction. *Journal of Nursing Management*, 29(2), 177-185.
8. Ferreira, D. C., Vieira, I., Pedro, M. I., Caldas, P., & Varella, M. (2023, February). Patient satisfaction with healthcare services and the techniques used for its assessment: a systematic literature review and a bibliometric analysis. In *Healthcare* (Vol. 11, No. 5, p. 639). Mdpi.
9. Hameed, S. A., Klyueva, A., Kusters, I. S., & Dean, J. M. (2025). Examining the roles of communication and trust in patient-provider relationships and their association with patient satisfaction with care. *Health communication*, 40(14), 3226-3237.
10. Jameel, A., Sahito, N., Guo, W., & Khan, S. (2025). Assessing patient satisfaction with practitioner communication: patient-centered care, hospital environment and patient trust in the public hospitals. *Frontiers in Medicine*, 12, 1544498.
11. Olesen, K., & Bathula, H. (2022). A meta-analysis of the determinants of patient satisfaction and loyalty. *Health Marketing Quarterly*, 39(2), 191-210.
12. Persai, D., Balu, R. K., Singh, K., Prabhu, R. R., Lahoti, S., Rout, S., & Panda, R. (2022). Patient satisfaction with quality of primary care health services-findings from India. *The International journal of health planning and management*, 37(4), 2256-2265.
13. Safitri, F., Murti, B., & Ichsan, B. (2024). Meta analysis: effect of waiting time and outpatient's satisfaction in hospitals. *Journal of Health Policy and Management*, 9(2), 187-196.
14. Setyaningrum, D., Sariatmi, A., & Arso, S. P. (2024). Patient satisfaction on hospital outpatient service quality based on the Donabedian model. *Journal of Public Health for Tropical and Coastal Region*, 7(3), 229-234.
15. Shie, A. J., Huang, Y. F., Li, G. Y., Lyu, W. Y., Yang, M., Dai, Y. Y., ... & Wu, Y. J. (2022). Exploring the relationship between hospital service quality, patient trust, and loyalty from a service encounter perspective in the elderly with chronic diseases. *Frontiers in public health*, 10, 876266.
16. Singh, M., Dixit, S., Ranjan, R., Sharma, R., Singla, R., & Goyal, P. (2020). Correlation between waiting time and satisfaction among those attending outpatient departments of a tertiary care social security hospital, Faridabad, Haryana. *Medical Journal of Dr. DY Patil Vidyapeeth*, 13(5), 480-485.
17. Thach Phuong, N., Vu Hoang, P., Mac Dang, T., Nguyen Thi Huyen, T., & Ngo Thi, T. (2023). Improving hospital's quality of service in Vietnam: the patient satisfaction evaluation in multiple health facilities. *Hospital topics*, 101(2), 73-83.
18. Tsai, Gwo Yang (2026), "Service quality, patient trust, and satisfaction across outpatient care settings: Evidence from a stratified healthcare system", Mendeley Data, V1. <https://data.mendeley.com/datasets/yv72bvx6n5/1>

19. Xintong, Z., Tao, X., Shuying, W., Huq, K. E., Huiying, G., & Michiko, M. (2024). An evaluation of outpatient satisfaction based on the national standard questionnaire: a satisfaction survey conducted in a tertiary hospital in Shenyang, China. *Frontiers in Public Health*, 12, 1348426.
20. Yadav, K., Goyal, P., Parashar, L., & Nassa, K. (2024). Patient satisfaction with the outpatient department services at a tertiary care hospital in Northern India and root cause analysis of the lowest-scoring attribute using fishbone diagram. *Indian Journal of Public Health*, 68(1), 55-59.
21. Zhang, H., Ma, W., Zhou, S., Zhu, J., Wang, L., & Gong, K. (2023). Effect of waiting time on patient satisfaction in outpatient: An empirical investigation. *Medicine*, 102(40), e35184.