Facility and Service Quality Effects on Visitor Satisfaction: Evidence from Indonesia's Sports Complex

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ABSTRACT

The global sports and recreation industry increasingly demands high-quality public facilities that satisfy diverse visitor expectations while maintaining operational sustainability. Despite substantial research on service quality and facility quality effects on customer satisfaction, empirical evidence from public sports complexes in emerging economies remains limited, with prior findings yielding mixed results regarding which quality dimension dominates satisfaction formation. This study examines the direct and simultaneous effects of facility quality and service quality on visitor satisfaction at Indonesia's largest national sports venue. Using a cross-sectional survey design, primary data were collected from 100 visitors at Gelora Bung Karno Sports Complex during 2025 and analyzed using multiple linear regression in SPSS. Results reveal that service quality significantly and positively influences visitor satisfaction, whereas facility quality does not independently predict satisfaction. with both dimensions jointly explaining 6.8% of satisfaction variance. These findings extend service marketing literature by demonstrating service quality primacy in public recreational contexts and provide preliminary guidance for facility managers prioritizing service delivery enhancement over infrastructure investments, though the modest explained variance suggests satisfaction is influenced by broader experiential factors beyond the measured quality dimensions.

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1. INTRODUCTION

The global sports and recreation industry has undergone a notable shift toward experience-oriented public leisure environments, where the physical setting and service encounters jointly shape visitors' affective and behavioral responses. In leisure and sport settings, the quality of the surrounding environment—often conceptualized through servicescape perspectives—has been shown to influence how visitors evaluate the venue, feel comfortable, and form overall judgments about their experience (Bitner, 1992; Wakefield & Blodgett, 1994). Beyond athletic infrastructure, contemporary sports complexes increasingly function as multidimensional public spaces that must satisfy heterogeneous stakeholder expectations, ranging from health-oriented citizens seeking accessible fitness amenities to event organizers requiring reliable venue readiness. In parallel, sports tourism has expanded as an increasingly strategic domain, linking sport

facilities, events, and destination competitiveness with broader urban and regional development agendas (Tian et al., 2023).

This transformation compels public sports facility managers to reorient operational and strategic decisions, placing visitor satisfaction as a visible and monitored outcome. Conceptually, satisfaction reflects an evaluative response that emerges when perceived performance is compared with expectations, producing feelings of pleasure or disappointment depending on the degree of confirmation (Kotler & Keller, 2016; Oliver, 2014). When satisfaction is achieved, public venues can benefit from favorable word-of-mouth and stronger intentions to revisit—behaviors that are critical for facilities whose legitimacy and utilization depend heavily on community engagement and perceived public value (Anderson, 1998; Zeithaml et al., 1996). Conversely, dissatisfaction can undermine reputation and reduce repeat visitation, creating material risks for iconic public facilities that carry symbolic and national significance.

Within this context, two strategic levers are frequently emphasized as drivers of satisfaction in sport and leisure venues: facility quality and service quality. Facility quality concerns visitors' perceptions of the condition, comfort, and functional adequacy of the physical environment (Bitner, 1992; Wakefield & Blodgett, 1994). Well-maintained tangible elements—such as cleanliness, safety, equipment functionality, and accessibility—create an enabling experiential context that supports visitor activities and strengthens value alignment, thereby reinforcing satisfaction judgments (Bitner, 1992; Wakefield & Blodgett, 1994). Meanwhile, service quality reflects visitors' evaluations of the service delivery process and interpersonal encounters. The SERVQUAL framework conceptualizes service quality across reliability, responsiveness, assurance, empathy, and tangibles, which cumulatively shape perceptions of competence, attentiveness, and professionalism during service encounters (Parasuraman et al., 1988; Zeithaml et al., 1996). Because services are produced and consumed through repeated touchpoints, consistency in service delivery becomes central in forming overall satisfaction.

However, prior evidence on satisfaction antecedents in sports-facility contexts remains mixed, particularly when facility and service attributes are tested together. In the GBK context, evidence from the Hutan Kota GBK setting indicates that facilities can significantly enhance visitor satisfaction, emphasizing the importance of physical attributes in shaping public leisure experiences (Cahyo et al., 2024). Additional findings from other Indonesian sport venues also show facilities and service quality can jointly influence satisfaction; for instance, results from a public sport facility setting in Garut demonstrate that both facilities and service quality contribute positively to customer satisfaction (Kurnaeli et al., 2024). Yet, event-based contexts may show different dominance patterns; at a major concert held in GBK, service and facility factors were also found to influence visitor satisfaction, suggesting that the relative weight of service encounters versus physical conditions may vary by visit motive and crowd-event dynamics (Dewi et al., 2024). Similar patterns are reported in Jakarta International Stadium, where facilities, service quality, and accessibility were simultaneously associated with visitor satisfaction (Pramanda et al., 2024). Further local evidence from DKI Jakarta public sports facilities likewise supports the role of service quality in shaping satisfaction outcomes (Dasrul & Firza, 2025). Collectively, these findings imply that contextual factors—venue type, visitor profile, visit frequency, and the nature of service encounters—may condition how facility and service attributes translate into satisfaction.

Such mixed evidence motivates a focused examination of how facility quality and service quality simultaneously and independently affect visitor satisfaction in a specific, underexplored public sports complex. The Gelora Bung Karno (GBK) Sports Complex, as Indonesia's most iconic national sports venue and a large-scale public recreation space, represents an important setting for extending services marketing perspectives into public-sector leisure facilities. Accordingly, this study advances prior work by testing facility quality and service quality as parallel predictors of visitor satisfaction among GBK visitors, enabling comparative assessment of their relative contributions and providing evidence relevant for managerial prioritization and public resource allocation.

This study pursues three objectives: (1) to examine the direct effect of facility quality on visitor satisfaction at the GBK Sports Complex; (2) to examine the direct effect of service quality on visitor satisfaction at the GBK Sports Complex; and (3) to test whether facility quality and service quality simultaneously influence visitor satisfaction, enabling comparative evaluation of their effects. Theoretically, the study extends established constructs of servicescape/facility environment and service quality into a public sports facility context (Bitner, 1992; Parasuraman et al., 1988; Wakefield & Blodgett, 1994). Practically, findings can inform GBK management regarding the prioritization of facility maintenance, service training, and operational standards to enhance visitor outcomes and sustain the venue's public value.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS

2.1 Theoretical Foundations

This study draws on expectancy–disconfirmation theory (EDT), the SERVQUAL framework, and servicescape/sportscape perspectives to explain how facility quality and service quality influence visitor satisfaction in public sports facility settings. EDT posits that satisfaction emerges from a cognitive comparison between perceived performance and prior expectations; when performance exceeds expectations, positive disconfirmation increases satisfaction, whereas performance below expectations produces dissatisfaction (Oliver, 1980; Churchill & Surprenant, 1982). In the context of sports complexes, this logic implies that both facility quality and service quality affect satisfaction through their ability to meet or surpass visitors' expectations regarding the physical environment and service encounters.

Service quality is conceptualized using the SERVQUAL framework, which operationalizes perceived service quality through reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman et al., 1988). This framework builds on the earlier conceptual model of service quality that distinguishes between expected service and perceived service and highlights gaps that can degrade perceived quality (Parasuraman et al., 1985). Because service experiences are produced and evaluated across multiple touchpoints, perceived service quality is formed cumulatively and tends to shape satisfaction and subsequent behavioral intentions (Zeithaml et al., 1996). As a broader theoretical anchor, service quality scholarship also recognizes the diversity of models while confirming SERVQUAL's foundational role for measuring perceived service quality across sectors (Seth et al., 2005).

To explain the role of physical surroundings, this study adopts servicescape and sportscape perspectives. The servicescape framework argues that ambient conditions, spatial layout/functionality, and signs/symbols act as environmental cues that influence customers' cognitive and affective responses, thereby shaping evaluation outcomes such as satisfaction (Bitner, 1992). In leisure service settings, servicescape quality is shown to influence affective responses and behavioral outcomes, indicating that the physical environment is integral to perceived experience quality (Wakefield & Blodgett, 1994). In sport facility contexts, the sportscape concept provides a measurement approach for how spectators/visitors perceive facility attributes and how those perceptions relate to evaluative outcomes (Wakefield et al., 1996). Together, these theoretical lenses suggest that visitor satisfaction in public sports facilities is determined by the combined quality of (i) the physical environment/facility and (ii) service delivery processes.

2.2 Facility Quality and Visitor Satisfaction

Facility quality refers to visitors' perceptions of the condition, functionality, and adequacy of tangible infrastructure within the service environment. Consistent with servicescape and sportscape perspectives, facility quality captures how the physical setting provides functional support and comfort and communicates organizational competence (Bitner, 1992; Wakefield et al., 1996). In public sports complex settings, facility attributes such as cleanliness and maintenance, safety features, spatial adequacy, comfort, and accessibility function as environmental cues that can reduce discomfort, lower perceived risk, and enable visitors to conduct intended activities smoothly (Bitner, 1992; Wakefield & Blodgett, 1994).

The mechanism linking facility quality to satisfaction can be explained through EDT. Visitors arrive with expectations shaped by prior experiences, venue reputation, and word-of-mouth. When perceived facility performance meets or exceeds those expectations—e.g., clean and functional amenities, safe and comfortable spaces, and accessible pathways—positive disconfirmation occurs and satisfaction increases (Oliver, 1980; Churchill & Surprenant, 1982). Conversely, facility shortcomings can produce negative disconfirmation and reduce satisfaction even if some service elements are adequate.

Empirical evidence in Indonesian contexts generally supports a positive relationship. At the GBK area (Hutan Kota GBK), facilities were found to significantly influence visitor satisfaction, indicating that physical infrastructure and supporting elements can materially shape public leisure experiences (Cahyo et al., 2024). Evidence from other sport venues similarly shows that facilities and service quality can jointly contribute to satisfaction (Kurnaeli et al., 2024). In educational tourism settings, facilities and service quality were also reported to significantly influence visitor satisfaction (Sugiarto & Utari, 2024). However, context can alter relative dominance; in an event setting at GBK, service aspects exhibited a stronger role while facility factors still contributed to satisfaction (Dewi et al., 2024). Overall, the theoretical logic and the preponderance of evidence support a positive facility quality–satisfaction relationship. Therefore:

H1: Facility quality has a positive effect on visitor satisfaction.

2.3 Service Quality and Visitor Satisfaction

Service quality reflects visitors' assessments of how services are delivered, including interpersonal interactions, responsiveness, and the reliability of procedures. The SERVQUAL framework specifies five dimensions—reliability, responsiveness, assurance, empathy, and tangibles—through which visitors evaluate service performance (Parasuraman et al., 1988). Service encounters influence satisfaction through both cognitive confirmation of expected performance and affective responses generated during

interaction. When staff provide reliable and prompt assistance, demonstrate competence and courtesy, and deliver empathetic attention, visitors experience reduced uncertainty and stronger positive affect, which elevates satisfaction judgments (Parasuraman et al., 1985; Zeithaml et al., 1996).

In sport and leisure settings, service quality may exert strong effects because it involves direct human interaction, which can intensify emotional reactions relative to purely environmental attributes. Nevertheless, the impact of service quality can vary depending on service standardization, staff training, and operational consistency, which influence how uniformly visitors experience service processes.

Empirical studies in Indonesian sport facility contexts provide consistent support. In a large-scale entertainment event at GBK, service quality showed a dominant influence on visitor satisfaction, highlighting the central role of service encounters under high-crowd and time-sensitive conditions (Dewi et al., 2024). At Jakarta International Stadium, service quality was also positively associated with visitor satisfaction within a model that simultaneously included facilities and accessibility (Pramanda et al., 2024). Evidence from public sports facilities in DKI Jakarta likewise confirms significant service quality effects on visitor satisfaction (Dasrul & Firza, 2025). Accordingly:

H2: Service quality has a positive effect on visitor satisfaction.

2.4 Simultaneous Effects of Facility Quality and Service Quality

Facility quality and service quality may jointly influence visitor satisfaction through additive rather than interactive mechanisms. Servicescape theory suggests that the physical environment frames and shapes how visitors interpret service encounters; a well-maintained and functional facility can enhance perceived professionalism and amplify positive evaluations of staff interactions (Bitner, 1992; Wakefield & Blodgett, 1994). Conversely, high service quality may partially compensate for facility limitations by managing expectations and providing supportive interpersonal experiences. From an EDT perspective, visitors form overall satisfaction holistically by integrating confirmation/disconfirmation across multiple experience components rather than evaluating each component in isolation (Oliver, 1980; Churchill & Surprenant, 1982).

Empirical evidence supports these combined effects. Studies in sport venue contexts report that facilities and service quality jointly contribute to satisfaction outcomes (Kurnaeli et al., 2024; Pramanda et al., 2024). Similar results are reported in educational tourism settings where facilities and service quality simultaneously influence visitor satisfaction (Sugiarto & Utari, 2024). Therefore:

H3: Facility quality and service quality simultaneously have a positive effect on visitor satisfaction.
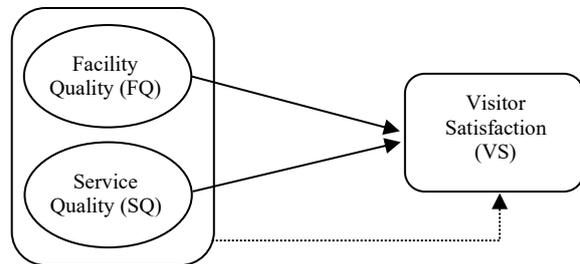
2.5 Conceptual Framework

Figure 1. Conseptual Framework

Figure 1 presents the conceptual framework guiding this study. Facility quality (FQ) and service quality (SQ) are hypothesized to influence visitor satisfaction (VS) both independently (H1–H2) and simultaneously (H3). The framework reflects the combined logic of EDT (overall satisfaction as confirmation / disconfirmation), SERVQUAL (service quality dimensions), and servicescape / sportscape (physical environment cues) in explaining satisfaction formation in sports facility contexts.

3. RESEARCH METHOD

3.1 Research Design

This study adopts a quantitative, cross-sectional survey design to test the proposed hypotheses. The unit of analysis is individual visitors at the GBK Sports Complex in Jakarta, Indonesia. Data were collected from February to August 2025. The empirical strategy estimates the direct effects of facility quality (FQ) and service quality (SQ) on visitor satisfaction (VS). The cross-sectional approach is appropriate for examining associations among perceived quality attributes and satisfaction within a specific service setting using standardized self-report measures (Creswell & Creswell, 2018).

3.2 Population and Sampling

The population comprises all visitors utilizing facilities and services at the GBK Sports Complex, including jogging tracks, stadium areas, sports courts, and supporting amenities (e.g., restrooms and parking). Because GBK is a public open-access space with high and fluctuating visitation, the population size cannot be precisely enumerated.

Regarding minimum sample size, this study uses pragmatic and regression-oriented guidance. First, Roscoe's guideline commonly cited in behavioral research suggests that a sample size greater than 30 and less than 500 is generally adequate for many survey studies (Roscoe, 1975, as summarized in Memon et al., 2020). Second, for multiple regression, Green (1991) recommends $N \geq 50 + 8m$ (for testing

overall multiple correlation) and N ≥ 104 + m (for testing individual predictors), where *m* is the number of predictors. With two predictors (facility quality and service quality), the guideline supports a minimum that is comfortably below the achieved sample.

This study collected 100 respondents, which is consistent with the above guidance and provides a reasonable basis for estimation in a two-predictor regression model (Green, 1991).

Purposive sampling was applied using the following inclusion criteria: (1) minimum age 17 years; (2) having visited GBK at least once in the preceding three months; and (3) having used at least one facility/service at GBK. These criteria ensure respondents have sufficiently recent experience to evaluate facility/service attributes and overall satisfaction.

3.3 Data Collection Procedures

Primary data were collected using a structured questionnaire distributed on-site and via Google Forms to broaden reach. The questionnaire consisted of four sections: respondent demographics, facility quality items, service quality items, and visitor satisfaction items. All substantive items were measured using closed-ended statements.

Instrument quality (pilot validity and reliability). Prior to the main survey, a pilot test (n = 31) was conducted to screen items. Item validity was assessed via corrected item–total correlation using Pearson correlation. For n = 31, the critical correlation threshold is determined by df = n − 2 (df = 29) at α = 0.05, and items meeting the minimum criterion were retained. For practical scale development and item screening, this approach is consistent with standard measurement guidance (DeVellis, 2016) and common SPSS-based practice (Pallant, 2020).

Internal consistency reliability was evaluated using Cronbach's alpha. The alpha coefficient originates from Cronbach (1951), and the commonly used benchmark of α ≥ 0.70 for acceptable reliability in early-stage/applied research follows Nunnally and Bernstein (1994). The constructs showed satisfactory reliability in the pilot: Facility Quality (α = 0.891), Service Quality (α = 0.893), and Visitor Satisfaction (α = 0.902).

3.4 Variable Definition and Measurement

All substantive variables were measured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The Likert-type scaling approach follows the original measurement logic introduced by Likert (1932). Higher scores indicate more favorable evaluations.

Table 1. Variable Operationalization

Variable	Definition	Dimensions	Items
Facility Quality (FQ) Bitner, (1992); Wakefield & Blodgett (1996)	Perceptions of the physical environment / servicescape attributes that shape user experience in a service setting	Cleanliness, Completeness, Comfort, Safety, Accessibility	10
Service Quality (SQ) Parasuraman et al. (1988)	Consumer perceptions of service quality based on SERVQUAL dimensions	Reliability, Responsiveness, Assurance, Empathy, Tangibles	10
Visitor Satisfaction (VS) Oliver (1980)	Satisfaction as a function of expectation and (dis)confirmation in post-consumption evaluation	Expectation confirmation, Overall satisfaction, Revisit intention, Recommendation intention, Pleasant experience	5

Source: adapted from various journals

Facility quality was framed as the servicescape / physical environment shaping visitors' experience evaluations (Bitner, 1992) and leisure-service setting outcomes (Wakefield & Blodgett, 1996). Service quality was operationalized using SERVQUAL's five dimensions (Parasuraman et al., 1988). Visitor satisfaction was defined using the expectancy-disconfirmation logic in satisfaction research (Oliver, 1980). Control variables included gender, age category, and visit frequency category.

3.5 Analytical Procedures

Data analysis proceeded as follows. First, descriptive statistics summarized respondent profiles and variable distributions. Second, classical assumption checks were conducted for multiple linear regression: (1) normality of residuals (Kolmogorov–Smirnov test as a practical diagnostic in applied settings), (2) multicollinearity using VIF and tolerance diagnostics (common applied cutoffs include VIF thresholds such as 10 and tolerance above 0.10, used as practical screening rules), and (3) heteroscedasticity using the Glejser approach (Glejser, 1969). Hypothesis testing employed multiple linear regression analysis with the following model specification:

$$Y = α + β_1X_1 + β_2X_2 + ε$$

Where:
- Y = Visitor Satisfaction
- α = Constant (intercept)
- $β_1$ = Regression coefficient for Facility Quality
- $β_2$ = Regression coefficient for Service Quality
- X_1 = Facility Quality
- X_2 = Service Quality
- ε = Error term

H1 and H2 were tested using t-tests on $β_1$ and $β_2$, while H3 was tested using the F-test for joint significance of predictors. The coefficient of

determination (R^2) was reported to indicate the proportion of variance in visitor satisfaction explained by the predictors, as standard in regression reporting and applied multivariate analysis practice (Tabachnick & Fidell, 2019; Field, 2018). All analyses were performed using SPSS (version 27).

4. RESULTS AND DISCUSSIONS

4.1 Results
4.1.1 Respondent Characteristics
Table 2 presents the demographic profile of respondents. The sample comprised 100 visitors to GBK Sports Complex, with males representing 56% and females 44%, indicating relatively balanced gender distribution with slight male predominance. This pattern aligns with typical sports facility visitor profiles where male participation tends to exceed female participation in recreational activities.

Table 2. Respondent Demographics

Characteristic	Category	Frequency	Percentage
Gender	Male	56	56.0%
	Female	44	44.0%
Age	< 20 years	25	25.0%
	21-25 years	63	63.0%
	26-30 years	12	12.0%
	> 30 years	0	0.0%
Visit Frequency	Daily	18	18.0%
	Weekly	55	55.0%
	Monthly	19	19.0%
	Rarely	8	8.0%

Data processed by the author (2025)

Age distribution reveals concentration in the young adult segment, with 63% aged 21-25 years and 25% below 20 years. This pattern suggests GBK attracts predominantly younger visitors seeking recreational and fitness opportunities. Regarding visit frequency, 55% visit weekly, 19% monthly, and 18% daily, indicating substantial visitor engagement with facilities. Only 8% reported rare visitation, confirming that most respondents possess sufficient experience to evaluate facility and service quality meaningfully.

4.1.2 Variable Descriptive Statistics
Table 3 summarizes descriptive statistics for the study variables.

Table 3. Descriptive Statistics

Variable	N	Min	Max	Mean	Std. Dev.
FQ	100	18	50	40.650	9.027
SQ	100	16	50	39.510	9.158
VS	100	7	25	20.770	4.699

Note: VS = Visitor Satisfaction; FQ = Facility Quality; SQ = Service Quality; Data processed by the author (2025)

Facility quality scores ranged from 18 to 50 (M = 40.650, SD = 9.027), indicating generally favorable perceptions with moderate heterogeneity. The standard deviation relative to the mean suggests reasonable variation in facility quality assessments across respondents, reflecting diverse experiences with different GBK amenities. Service quality demonstrated similar patterns (M = 39.510, SD = 9.158), with the slightly lower mean suggesting

marginally less favorable service perceptions compared to facility assessments. The comparable standard deviations indicate similar response heterogeneity across both quality dimensions.

Visitor satisfaction scores ranged from 7 to 25 (M = 20.770, SD = 4.699), reflecting generally positive satisfaction levels. The mean approaching the upper range suggests most visitors experienced satisfactory outcomes. The moderate standard deviation indicates meaningful individual differences in satisfaction assessments, providing adequate variance for regression analysis.

Examination of item-level means reveals specific quality and satisfaction patterns. For facility quality, the highest-rated item was "GBK facilities are comfortable for physical activities" (M = 4.210), while the lowest was "Public areas such as toilets and changing rooms are well-maintained" (M = 3.960). Both scores fall within the "Agree" category, indicating overall positive facility perceptions with room for improvement in public amenity maintenance.

For service quality, "Staff appearance is neat and professional" received the highest rating (M = 4.060), whereas "Service delivery is always accurate and consistent" scored lowest (M = 3.850). These findings suggest visitors perceive staff presentation favorably while identifying service consistency as an improvement area.

For visitor satisfaction, "Visiting GBK provides a pleasant experience" achieved the highest mean (M = 4.280), while "Facilities and services at GBK meet my expectations" scored lowest (M = 4.020). This pattern indicates visitors derive enjoyment from GBK experiences despite expectations not being fully met, suggesting experiential factors beyond quality dimensions contribute to satisfaction

4.1.3 Validity and Reliability Assessment
Table 4 Item Validity (Item-Total Correlation) and Reliability Assessment

Variable	Items	Validity	Cronbach's Alpha	Results
FQ	10	0.485 – 0.847	0.891	Valid & Reliable
SQ	10	0.441 – 0.836	0.893	Valid & Reliable
VS	5	0.662 – 0.835	0.902	Valid & Reliable

Note: VS = Visitor Satisfaction; FQ = Facility Quality; SQ = Service Quality; Data processed by the author (2025)

The comprehensive assessment demonstrates adequate psychometric properties. Regarding item validity, corrected item-total correlation analysis confirms that every item yields an r-calculated value exceeding the critical r-table threshold of 0.355 (df = 29, α = 0.05). This consistency indicates satisfactory item discrimination, ensuring that individual items correlate adequately with their respective scale totals. However, this procedure assesses item-level validity rather than construct-level convergent validity, which

would require confirmatory factor analysis (CFA) or average variance extracted (AVE) assessment—approaches beyond the scope of this study. Simultaneously, the reliability testing results are robust, with all Cronbach's Alpha coefficients exceeding not only the minimum acceptability threshold of 0.70 but also falling within the high-reliability range above 0.89. Specifically, Visitor Satisfaction achieved the highest internal consistency with an alpha of 0.902. Consequently, the measurement instrument is confirmed to be both valid (at the item level) and reliable, providing a solid foundation for the subsequent hypothesis testing stages.

4.1.4 Classical Assumption Diagnostics
Table 5 Classical Assumption Diagnostics

Diagnostic Test	Method	Result	Conclusion
Normality	Kolmogorov-Smirnov (Lilliefors Correction)	Asymp. Sig. = 0.112 (> 0.05)	Normal Distribution. Residuals follow a normal distribution.
Multicollinearity	Tolerance & VIF	Tolerance = 0.982; VIF = 1.018	No Multicollinearity. Predictors are independent and not redundant.
Heteroscedasticity	Glejser Test	Sig. values > 0.05 for all predictors	Homoscedasticity. Variance of residuals is constant across observations.

Data processed by the author (2025)

The diagnostic assessment confirms that the regression model satisfies all required classical assumptions, ensuring the validity of the subsequent analysis. First, the normality of the data is established through the Kolmogorov-Smirnov test with Lilliefors correction, where the asymptotic significance value of 0.112 exceeds the 0.05 threshold, indicating that the residuals are normally distributed. Second, the model demonstrates a complete absence of multicollinearity issues, as evidenced by Tolerance values of 0.982 and Variance Inflation Factor (VIF) values of 1.018. These figures are well within safe limits, confirming that Facility Quality and Service Quality are distinct predictors that do not exhibit problematic intercorrelation. Finally, the Glejser test results show significance values greater than 0.05 for all variables, proving that the model is free from heteroscedasticity and that the variance of the residuals remains constant. Consequently, the model is statistically robust and suitable for unbiased hypothesis testing.

4.1.5 Hypothesis Testing
Table 8 presents the multiple linear regression results testing the hypothesized relationships.

Table 8. Hypothesis Testing Results

Path	Pred. Dir.	β	t-stat	p-value	Result
Constant		12.327	4.598	0.000	
FQ → VS	+	0.035	0.667	0.506	H1 Not Supported
SQ → VS	+	0.142	2.839	0.006	H2 Supported
FQ + SQ → VS	+	—	F = 4.589	0.013	Supported
R²		0.068			
Adj. R²		0.049			

Note: VS = Visitor Satisfaction; FQ = Facility Quality; SQ = Service Quality; Data processed by the author (2025)

The regression equation is expressed as: **VS = 12.327 + 0.035FQ + 0.142SQ + ε**

In analyzing the individual determinants, the results reveal that facility quality exerts a positive but statistically insignificant effect on visitor satisfaction ($\beta = 0.035$, t = 0.564, p = 0.574). Since the probability exceeds the 0.05 alpha level and the confidence interval crosses zero [-0.088, 0.158], Hypothesis 1 is not supported. This indicates that facility quality improvements alone do not reliably predict satisfaction increases in this model.

Conversely, service quality demonstrates a significant positive effect on visitor satisfaction ($\beta = 0.142$, t = 2.328, p = 0.022). The standardized coefficient ($\beta = 0.277$) for service quality indicates a small-to-medium effect size, wherein a one standard deviation increase in service quality is associated with a 0.277 standard deviation increase in visitor satisfaction. The 95% confidence interval [0.021, 0.263] does not cross zero, further confirming the robustness of this positive relationship, supporting Hypothesis 2.

Moving from individual to collective impact, the F-test confirms that facility quality and service quality simultaneously affect visitor satisfaction (F = 4.589, p = 0.013). However, the coefficient of determination ($R^2 = 0.068$) indicates that the model explains only 6.8% of variance in visitor satisfaction. This modest explanatory power suggests that numerous unmeasured factors—such as crowding conditions, event quality, social atmosphere, value for money, accessibility, and personal motivations—substantially influence satisfaction formation in this public leisure context. Accordingly, managerial interpretations should treat these findings as preliminary directional indicators rather than definitive prioritization guidelines.

4.1.6 Exploratory Moderation Analysis
To explore potential boundary conditions, supplementary analysis examined whether visit frequency moderates the quality-satisfaction relationships. The sample was split into frequent visitors (daily/weekly, n = 73) versus occasional visitors (monthly/rare, n = 27). For frequent visitors, service quality remained significant ($\beta = 0.312$, p = 0.018) while facility quality was non-significant ($\beta = 0.045$, p = 0.691). For occasional visitors, neither predictor achieved significance at conventional thresholds, though the small subsample size limits interpretability. These exploratory patterns suggest that the service quality primacy finding may be most

robust among frequent visitors who have habituated to facility conditions and whose satisfaction is more responsive to service encounter variations. However, formal moderation testing with adequately powered samples is needed to confirm these preliminary indications.

4.2 Discussions

4.2.1 Summary of Findings

This study examined the effects of facility quality and service quality on visitor satisfaction at the GBK Sports Complex. Three key results emerged. First, facility quality did not have a statistically significant effect on visitor satisfaction in the partial (t-test) model. Second, service quality had a positive and significant effect on visitor satisfaction, indicating that interpersonal and process-based service encounters are central determinants of visitors' overall evaluations. Third, the simultaneous model achieved statistical significance, indicating that the combined quality dimensions explain more variance than a null model. However, this joint significance is driven predominantly by service quality; facility quality's contribution remains non-significant in the partial model. Thus, the results do not provide direct evidence of complementary or synergistic mechanisms between facility and service quality—such claims would require interaction testing or relative importance analysis beyond the current design.

4.2.2 Theoretical Mechanisms

The results can be interpreted using expectancy–disconfirmation theory (EDT), which argues that satisfaction results from comparing perceived performance with prior expectations; positive disconfirmation increases satisfaction and negative disconfirmation decreases it (Oliver, 1980). In this framework, the significant role of service quality implies that service encounters are more likely to generate salient disconfirmation experiences than the physical environment. Responsive and empathetic staff behavior, clear information provision, and reliable service processes can exceed expectations in real time, producing immediate positive affect and stronger satisfaction judgments.

The non-significant facility quality effect can be understood through servicescape reasoning. Servicescape theory suggests that physical surroundings shape users' cognitive and affective responses, influencing evaluation outcomes such as satisfaction (Bitner, 1992). However, in many leisure settings, once physical conditions meet a minimum "functional adequacy" threshold, incremental improvements can yield diminishing returns for satisfaction, especially for routine recreational visits. Empirically, research in leisure service contexts shows that servicescape influences behavioral intentions and evaluations, but its strength can vary depending on activity type, intensity of service contact, and visitor profiles (Wakefield & Blodgett, 1996). In the GBK context, visitors may perceive facilities as broadly adequate for intended activities; as a result, facility attributes become "background conditions" unless they fall below acceptable standards, while service encounters remain more visible and memorable.

The findings also reinforce the SERVQUAL logic that service quality is formed through reliability, responsiveness, assurance, empathy, and tangibles (Parasuraman et al., 1988). Because service interactions involve direct human contact, they tend to trigger stronger emotional responses and shape overall impressions more strongly than relatively stable physical attributes. Moreover, the established relationship between perceived service quality and behavioral consequences (e.g., favorable word-of-mouth, intentions to revisit) provides a theoretical bridge linking service quality improvements to satisfaction-related outcomes (Zeithaml et al., 1996).

4.2.3 Comparison with Prior Studies

The dominance of service quality is consistent with evidence from GBK-related settings where service quality was found to exert a stronger influence on satisfaction than facilities in a large-scale entertainment event context (Dewi et al., 2024). This convergence across different GBK usage contexts suggests that service encounters represent a robust driver of satisfaction at this venue.

However, the non-significant facility quality effect diverges from findings reported for the GBK Urban Forest setting, where facilities significantly influenced visitor satisfaction (Cahyo et al., 2024). This divergence may reflect differences in experience composition: urban park experiences can be more sensitive to physical conditions (cleanliness, comfort, amenity availability), whereas sport-complex visits oriented toward routine exercise may be less facility-sensitive as long as basic functionality is present. The simultaneous significance of facility and service quality is also consistent with studies reporting joint effects of facilities and service-related attributes on satisfaction at other venues, such as Jakarta International Stadium (Pramanda et al., 2024) and in educational tourism contexts (Sugiarto & Utari, 2024). Collectively, these comparisons suggest that facility quality may matter contextually and interactively rather than as a dominant independent predictor in all settings.

4.2.4 Explaining the Non-significant Facility Quality Effect

Several contextual and methodological explanations may account for the non-significant facility quality effect. First, the respondent profile was dominated by young adults with relatively frequent

visits. Such visitors may prioritize convenience, social interaction, and service responsiveness over detailed assessments of facility attributes, especially when facilities are perceived as "good enough." Second, GBK is a large, heterogeneous complex with multiple facility zones and varying quality levels. Aggregated facility measures may mask zone-specific effects, reducing the likelihood of detecting a strong overall relationship. Third, as a national landmark, GBK may carry high baseline expectations; when expectations are elevated, even objectively good facilities may produce limited positive disconfirmation, resulting in weak or non-significant effects on satisfaction. Finally, a threshold mechanism is plausible: once minimum physical quality is met, satisfaction becomes more strongly driven by service experiences and situational factors.

4.2.5 Why These Findings Matter

The findings indicate that in a major public sports complex, improving visitor satisfaction may be more effectively achieved through strengthening service delivery than through costly facility upgrades, provided that basic facility standards are consistently met. At the same time, the significant simultaneous effect suggests that facilities and services should not be treated as substitutes. Instead, facility conditions provide the context that enables positive service experiences, while high-quality service can prevent minor facility issues from escalating into dissatisfaction. Therefore, a balanced strategy—maintaining reliable baseline facilities while prioritizing service quality improvements—appears most appropriate for maximizing visitor satisfaction within public-sector resource constraints.

5. CONCLUSION

5.1 Research Summary

This study investigated how facility quality and service quality influence visitor satisfaction at the GBK Sports Complex, Indonesia's largest and most iconic public sports venue. Using a cross-sectional survey of GBK visitors, the results show that service quality has a positive and statistically significant effect on visitor satisfaction, whereas facility quality does not significantly predict satisfaction in the partial regression model. Nonetheless, facility quality and service quality jointly exert a significant simultaneous effect on satisfaction, indicating that both dimensions contribute to satisfaction formation when considered together.

These conclusions suggest that in this public recreational context, service encounters are the primary driver of satisfaction, while facility conditions play a contextual enabling role rather than operating as a strong independent predictor.

5.2 Practical Implications

The results offer preliminary directional implications for GBK management, though the modest explained variance warrants cautious interpretation. First, the significant service quality effect suggests that service-related investments may yield relatively stronger marginal returns for satisfaction compared to facility enhancements in this sample. However, given that over 93% of satisfaction variance remains unexplained, managers should recognize that visitor satisfaction is likely driven by a broader constellation of factors—including crowding, event quality, value perceptions, and social atmosphere—that warrant integrated consideration alongside quality dimensions.

Within this context, specific service improvements such as staff training, responsiveness, and communication clarity are likely to have direct impacts. Simultaneously, facility management should focus on ensuring baseline standards—cleanliness, safety, and accessibility—so that the physical environment does not become a latent source of dissatisfaction. Integrated quality management remains essential as facilities frame service encounters, and effective service delivery can potentially mitigate minor facility shortcomings. Finally, feedback systems should monitor service encounters as explicitly as physical conditions to identify specific pain points.

These implications should be treated as incremental guidance rather than definitive resource allocation prescriptions. The small effect sizes indicate that quality improvements alone may not substantially transform satisfaction outcomes without complementary attention to unmeasured experiential factors.

5.3 Key Contributions

The study contributes to the service and satisfaction literature in three ways. Theoretically, it extends EDT and SERVQUAL-based reasoning to a public sports complex context and indicates that the relative strength of facility and service effects can be context-dependent. Empirically, it provides evidence from an underrepresented setting—Indonesia's premier public sports venue—helping to address geographic imbalance in satisfaction research. Practically, it informs public facility managers about the relative leverage of service-related interventions compared with capital-intensive facility upgrades when aiming to increase visitor satisfaction.

5.4 Limitations and Future Research

Several limitations provide directions for future research. First, the cross-sectional design limits causal inference; longitudinal studies could examine how expectations and satisfaction evolve over time. Second, the model explains a modest portion of satisfaction variance, indicating that additional factors—such as crowding, social atmosphere, event

quality, perceived value, and emotional responses—should be incorporated in future models. Third, qualitative or mixed-method approaches could clarify why facility quality was not significant in the partial model by capturing nuanced visitor interpretations. Fourth, comparative studies across different public sports venues and cross-national settings would help identify boundary conditions and cultural influences on quality–satisfaction relationships. Finally, future research could test non-linear patterns (e.g., threshold effects or diminishing returns) that linear regression may not capture.

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