

## Green Open Space Quality and Citizen Satisfaction in Public Service Delivery in Bandung: The Role of Psychological Comfort and Pro-Environmental Attitude

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### ABSTRAK

Ruang Terbuka Hijau (RTH) merupakan infrastruktur pelayanan publik perkotaan yang strategis bagi kesejahteraan warga dan keberlanjutan kota. Meskipun penting, penelitian empiris tentang mekanisme evaluasi kualitas RTH dan pembentukan kepuasan publik masih terbatas, khususnya dalam konteks perkotaan Indonesia. Mengacu pada kerangka Stimulus-Organism-Response (S-O-R), penelitian ini mengkaji pengaruh persepsi kualitas RTH terhadap kepuasan publik, dengan kenyamanan psikologis sebagai variabel mediasi dan sikap pro-lingkungan sebagai variabel moderasi. Data dikumpulkan dari 200 warga Kota Bandung menggunakan purposive sampling daring dan dianalisis dengan Partial Least Squares Structural Equation Modeling (PLS-SEM). Hasil penelitian menunjukkan bahwa persepsi kualitas RTH berhubungan positif dengan kepuasan publik, baik secara langsung maupun tidak langsung melalui kenyamanan psikologis. Selain itu, hubungan antara kualitas RTH dengan kenyamanan psikologis dan kepuasan publik lebih kuat pada warga dengan sikap pro-lingkungan yang lebih tinggi. Temuan ini memperkaya literatur pelayanan publik dan manajemen perkotaan dengan mengungkap mekanisme pengalaman dan sikap yang mendasari kepuasan warga terhadap infrastruktur hijau publik. Implikasi praktis bagi pengelolaan RTH perkotaan, termasuk aspek pemeliharaan, aksesibilitas, dan strategi pelibatan warga, dibahas dalam artikel ini.

### ABSTRACT

Green open spaces (Ruang Terbuka Hijau/RTH) represent a critical form of urban public service infrastructure that contributes to citizen well-being and urban sustainability. Despite their importance, limited empirical attention has been given to understanding the mechanisms through which citizens evaluate the quality of these public spaces and form satisfaction judgments, particularly in the Indonesian urban context. Drawing on the Stimulus-Organism-Response (S-O-R) framework, this study examines how perceived RTH quality influences citizen satisfaction, focusing on the mediating role of psychological comfort and the moderating role of pro-environmental attitude. Data were collected from 200 residents of Bandung, West Java, using purposive online sampling and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that perceived RTH quality is positively associated with citizen satisfaction, both directly and indirectly through psychological comfort. Furthermore, the relationships between RTH quality and both psychological comfort and satisfaction are stronger among citizens with higher pro-environmental attitudes. These findings contribute to the public service and urban management literature by elucidating the experiential and attitudinal mechanisms underlying citizen satisfaction with green public infrastructure. Practical implications for municipal RTH management, including maintenance, accessibility, and citizen engagement strategies, are discussed.

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Green Open Spaces; Perceived Quality; Psychological Comfort; Pro-Environmental Attitude; Public Satisfaction

## INTRODUCTION

Green open spaces (Ruang Terbuka Hijau/RTH) are a vital component of urban spatial planning and play a significant role in supporting environmental quality and public well-being (Ajrina & Kustiwan, 2019; S. Zhang et al., 2019). According to Law No. 26 of 2007 on Spatial Planning, RTH refers to open areas with natural or intentionally planted vegetation, including city parks, protected areas, green corridors, recreational spaces, and even cemeteries. Beyond their ecological benefits such as absorbing CO<sub>2</sub>, conserving groundwater, moderating microclimates, and serving as wildlife habitats (Klemm et al., 2015; Rushayati et al., 2020; Zhu et al., 2017), RTH also fulfill important social, economic, and architectural functions that enhance the quality of urban life. More importantly, RTH represent a strategic form of urban public service infrastructure, as their provision, maintenance, and accessibility fall under the mandate of municipal governments in delivering public amenities to citizens (S. Zhang et al., 2019; Van Herzele & Wiedemann, 2003).

Despite these crucial roles, the provision of RTH in Bandung remains far below the mandated standards. Data from the Central Bureau of Statistics (BPS) indicate that in 2020, RTH covered only around 12.25% of Bandung's total area, with a later claim of 12.8%, which is still far from the legally required 30% set forth in Law No. 26/2007 and its implementing regulations (BPS Kota Bandung, 2021). Earlier records even showed percentages dropping below 9% (BPS, 2018). This shortage of green space contributes to several environmental challenges, including urban heat intensification, declining groundwater levels, reduced soil absorption capacity, and increased vulnerability to climate-related risks. During the Bandung Sustainability Summit 2025, the Mayor of Bandung highlighted the urgency of strengthening sustainable and measurable urban development, explicitly emphasizing the improvement of RTH as part of a more resilient spatial planning strategy (Pemkot Bandung, 2025).

Given the limited availability of RTH, enhancing their quality becomes increasingly important. However, beyond the physical provision of green spaces, a critical yet underexplored question in urban public management is how citizens evaluate the quality of these public services and what mechanisms shape their satisfaction. From a behavioral and environmental psychology perspective, the way citizens perceive the quality of green spaces significantly shapes their experiences within them (Desai et al., 2025; Yoon et al., 2023). Using the Stimulus–Organism–Response (S-O-R) framework, perceived RTH quality can be conceptualized as an environmental stimulus that influences internal psychological states, particularly psychological comfort, ultimately driving evaluative responses such as public satisfaction. Psychological comfort, encompassing feelings of relaxation, safety, and calmness (Bamberg, 2003; Schertz et al., 2023), is thus a critical mechanism linking environmental quality to citizen perceptions of public services, and, consequently, to their satisfaction with municipal service delivery.

Furthermore, individual differences may shape how people respond to environmental stimuli. Pro-environmental attitude, for instance, may strengthen the effect of RTH quality on psychological comfort and satisfaction, as individuals with stronger environmental orientations tend to be more appreciative and responsive toward ecological features of public spaces. This suggests that the effectiveness of RTH as a public service may not be uniform across citizens but rather conditional upon their attitudinal predispositions, which is an important consideration for targeted service improvement strategies.

Despite the growing body of research on urban green spaces, several gaps remain. Although previous studies have examined the ecological benefits or health impacts of urban green spaces (Gagliardi et al., 2020; Wang et al., 2019; Y. Zhang et al., 2017), empirical research that integrates

perceived RTH quality, psychological comfort, and public satisfaction within the S-O-R framework remains limited. Specifically, the mechanisms through which perceived quality translates into citizen satisfaction, particularly via psychological comfort, have not been adequately examined in the context of urban public service delivery. Moreover, research exploring pro-environmental attitude as a boundary condition that moderates these relationships is also scarce, especially in Indonesian urban contexts where green space scarcity is a pressing governance challenge (Pratiwi & Prabowo, 2021; Hadad, 2017).

Therefore, this study aims to examine how perceived RTH quality influences public satisfaction directly and indirectly through psychological comfort, and to assess whether pro-environmental attitude moderates these relationships. The findings are expected to contribute to the literature on public service delivery and urban environmental management by elucidating the experiential and attitudinal mechanisms underlying citizen satisfaction with green public infrastructure. Practically, this study offers insights for local governments in Bandung and similar urban contexts to design targeted strategies for improving RTH quality, maintenance, accessibility, and citizen engagement, ultimately enhancing the perceived value of green spaces as a public service.

## Literature Review

### Stimulus-Organism-Response (S-O-R) Framework

The Stimulus–Organism–Response (S-O-R) framework, introduced by Mehrabian & Russell (1974), describes how environmental cues (stimuli) influence individuals' internal states (organism), which then determine behavioral or evaluative responses. The model has been widely applied across environmental psychology, servicescape research, and public service experience studies. In physical environments, stimuli such as design, cleanliness, vegetation, lighting, or spatial aesthetics shape emotional and cognitive states, typically comfort, relaxation, or stress (Chan et al., 2021), before culminating in satisfaction, preference, or behavioral intention (Typhina, 2017).

While the S-O-R framework has been predominantly used in consumer behavior and environmental psychology research, its application to public service delivery is increasingly recognized. In the context of urban public services, citizens interact with physical infrastructure such as parks, public spaces, and green amenities, and their evaluations of these services are shaped by both objective attributes and subjective experiential states (de Quadros & Mizgier, 2023; Dipeolu et al., 2021). The S-O-R framework thus offers a valuable lens for understanding how public service environments influence citizen satisfaction, a core concern of urban public management (Van Herzele & Wiedemann, 2003; S. Zhang et al., 2019).

In the context of urban green spaces, the S-O-R framework provides a useful lens to understand how environmental qualities of public parks and green open spaces shape the psychological experiences of visitors. Perceived environmental quality (stimulus) triggers feelings of calmness, safety, and relaxation (organism), which then influence assessments of public service outcomes such as satisfaction (response). This structure aligns naturally with the experiential nature of urban green spaces, where users' affective states mediate their evaluation of the environment (Aprile & Punzo, 2023; Satriawan et al., 2023; Bratina Jurkovič, 2014). Therefore, S-O-R serves as the theoretical backbone of this study, positioning RTH quality as the stimulus, psychological comfort as the organism, and public satisfaction as the response.

## Hypothesis Development

Perceived RTH quality refers to citizens' subjective evaluation of the physical, social, and aesthetic attributes of green open spaces, including cleanliness, maintenance, safety, accessibility, and the availability of amenities (Kurniawan & Roychansyah, 2023; Yoon et al., 2023). It is important to distinguish perceived quality from objective RTH quality. While objective quality refers to measurable physical or ecological characteristics—such as the actual area of green space, vegetation density, biodiversity, or air quality indices—perceived quality captures citizens' experiential and evaluative judgments of these spaces (Desai et al., 2025; Yoon et al., 2023). This distinction is critical in public service research because citizen satisfaction is largely shaped by perceptions rather than objective conditions alone (Parasuraman et al., 1988). Two citizens may experience the same physical space differently based on their expectations, past experiences, or personal values.

Perceived quality represents visitors' overall evaluation of how well a public space fulfills their functional and experiential needs (Knight et al., 2022; Y. Zhang et al., 2017). In the context of green open spaces (RTH), quality encompasses physical attributes such as cleanliness, maintenance, availability of amenities, natural aesthetics, safety, and accessibility (Kurniawan & Roychansyah, 2023; Yoon et al., 2023). Prior studies on urban green spaces show that well-maintained parks with adequate facilities and appealing natural features are consistently associated with positive user evaluations, including greater satisfaction, place attachment, perceived value, and willingness to revisit (Budruk et al., 2009; Sun & Shao, 2020; Typhina, 2017).

From a public service perspective, RTH are part of the government's visible infrastructure, and citizens often use their experiences within these spaces to evaluate the performance of local authorities (de Quadros & Mizgier, 2023; Dipeolu et al., 2021; Mansor et al., 2017). This aligns with the concept of public service quality, which emphasizes that citizens form satisfaction judgments based on their direct experiences with service delivery (Parasuraman et al., 1988; Van Ryzin, 2004). Higher perceived quality signals effective public management and responsiveness to environmental and social needs. When citizens perceive RTH as clean, safe, and enjoyable, they tend to interpret these attributes as indicators of government competence and care, which then leads to higher public satisfaction (Ajrina & Kustiwan, 2019; Jiang & Huang, 2022; Nahdatunnisa et al., 2023; Sun & Shao, 2020). Conversely, poorly maintained green spaces can generate dissatisfaction and reinforce negative perceptions of local governance. Thus, consistent with environmental evaluation literature and public service logic, perceived RTH quality is expected to exert a positive influence on citizen satisfaction.

H1. Perceived green open space (RTH) quality positively influences public satisfaction.

Psychological comfort is a central construct in environmental psychology, encompassing feelings of relaxation, calmness, mental ease, and perceived safety within a space (Desai et al., 2025; Klemm et al., 2015). Natural environments have long been shown to promote restorative experiences by reducing stress, lowering cognitive fatigue, and enhancing emotional well-being (Budruk et al., 2009; Schertz et al., 2023). Drawing on Attention Restoration Theory (Kaplan & Kaplan, 1989) and the broader restorative environments literature, high-quality green spaces provide shade, greenery, visual coherence, and opportunities for leisure or passive contemplation—all of which contribute to increased psychological comfort (Klemm et al., 2015; Schertz et al., 2023). This theoretical grounding is particularly relevant to public space research, as it explains why certain environmental

attributes generate psychological benefits that, in turn, shape citizen evaluations of public services.

Within the Stimulus–Organism–Response (S-O-R) framework, perceived environmental quality functions as the stimulus, psychological comfort represents the internal organismic state, and satisfaction serves as the response. Positive environmental stimuli such as cleanliness, greenery, and good facilities can activate emotional and cognitive processes that make visitors feel safe, relaxed, and mentally restored. These internal states subsequently shape how individuals evaluate the public service experience.

Empirical studies show that comfort acts as a bridge between environmental attributes and user satisfaction in various physical settings, including parks, tourism sites, and public facilities (Budruk et al., 2009; Peng et al., 2021; Spake et al., 2003). In the public service context, this means that psychological comfort is not merely a personal experience but a mechanism through which service quality translates into citizen satisfaction (Chan et al., 2021; Van Ryzin, 2004). When people feel comfortable within a green open space, they are more likely to view the space favorably and report higher satisfaction with the managing authority. Accordingly, psychological comfort is expected to mediate the relationship between RTH quality and satisfaction.

H2. Psychological comfort mediates the relationship between perceived RTH quality and public satisfaction.

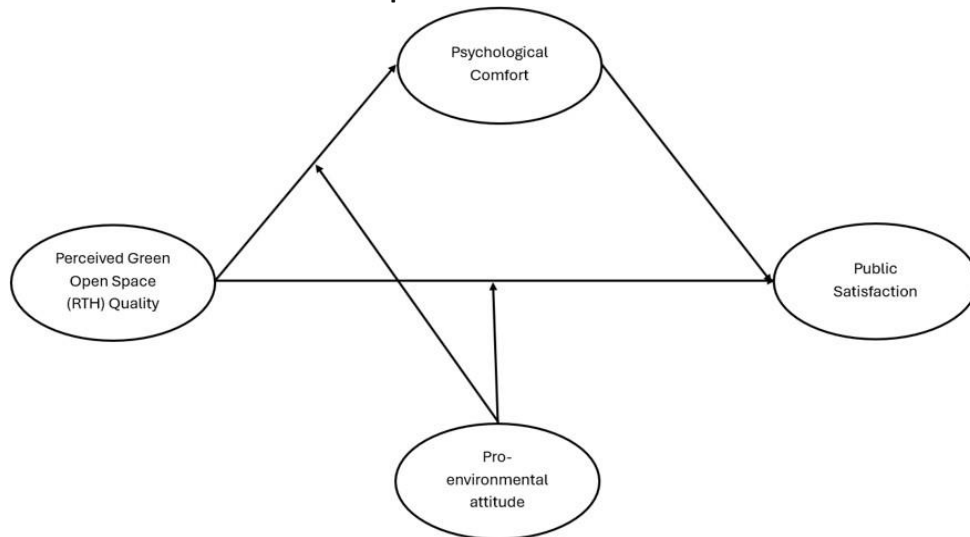
Pro-environmental attitude reflects individuals' values, concerns, and predispositions toward environmental protection and ecological well-being (Bohlmann et al., 2018; Dunlap et al., 2000). Individuals with strong pro-environmental attitudes tend to be more appreciative of natural features, more emotionally connected to green spaces, and more sensitive to the environmental quality of public spaces (Endangsih et al., 2022; L. Zhang et al., 2021). Prior research suggests that these individuals derive greater emotional restoration, sense of meaning, and psychological benefits from green environments compared to those with weaker environmental orientations (Lucarelli et al., 2020; Zeng et al., 2023).

In the S-O-R logic, pro-environmental attitude is theorized as a boundary condition, or a moderator, rather than a direct predictor or mediator. This is because we conceptualize attitude not as an outcome of environmental experience, nor as a mechanism that explains the translation of quality to satisfaction, but rather as a disposition that amplifies or attenuates the strength of these relationships (Kalhor et al., 2021; Trihastuti et al., 2019). For individuals with high pro-environmental attitudes, high-quality RTH may evoke stronger feelings of comfort, relaxation, and satisfaction because these individuals value and recognize the importance of ecological attributes (Kalhor et al., 2021; Trihastuti et al., 2019; Yıldırım et al., 2020). Conversely, individuals with lower environmental attitudes may not notice or appreciate subtle quality differences, resulting in weaker emotional and evaluative responses. In other words, pro-environmental attitude functions as a sensitivity amplifier: it makes individuals more responsive to the environmental quality of public spaces. Thus, pro-environmental attitude is expected to amplify both the impact of perceived RTH quality on psychological comfort and its subsequent impact on public satisfaction.

H3a. Pro-environmental attitude moderates the relationship between perceived RTH quality and psychological comfort, such that the relationship is stronger when pro-environmental attitude is high.

H3b. Pro-environmental attitude moderates the relationship between perceived RTH quality and public satisfaction, such that the relationship is stronger when pro-environmental attitude is high.

**Figure 1.**  
**Conceptual Framework**



Source: Author Processed

## RESEARCH METHODS

This study employed a quantitative, cross-sectional research design to examine the relationships among perceived green open space (RTH) quality, psychological comfort, pro-environmental attitude, and public satisfaction. The Stimulus–Organism–Response (S-O-R) framework served as the theoretical basis for structuring the model. Given the cross-sectional design, this study examines associational relationships rather than causal effects (Spector, 2019). Data were collected using a structured online questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM), which is suitable for predictive models, complex relationships, and latent variables measured with multiple indicators.

The target population of this study consisted of residents of Bandung who had visited a green open space (RTH) within the last 30 days. A purposive sampling technique was applied to ensure that respondents had recent and relevant experience with RTH and could provide meaningful evaluations of its quality and their psychological comfort. Respondents were recruited through various online platforms, including social media groups, community networks, and messaging channels. A screening question (“Have you visited a green open space/RTH in Bandung in the past 30 days?”) was included at the beginning of the survey to ensure eligibility. Data were collected during July-August 2025. To prevent duplicate responses, the survey platform was configured to restrict multiple submissions from the same IP address and device. A total of 200 valid responses were collected and used for data analysis. This sample size exceeds the minimum requirement for PLS-SEM. An a priori power analysis using G\*Power indicated that a sample of 179 respondents would be sufficient to detect a medium effect size ( $f^2 = 0.15$ ) with statistical power of 0.80 at  $\alpha = 0.05$ , confirming that our sample of 200 exceeds the minimum requirement.

All constructs were measured using multi-item Likert scales adapted from validated instruments. Respondents rated each item on a 7-point scale (1 = strongly disagree, 7 = strongly agree). All items were reflective indicators of their respective latent constructs. Perceived RTH quality was

adapted from Zhang et al. (2017), covering aspects such as facilities, amenities, natural features, accessibility, cleanliness, and maintenance. Psychological comfort was measured using items adapted from Desai et al. (2025) and Spake et al. (2003), capturing feelings of relaxation, safety, calmness, and overall mental ease while visiting RTH. Pro-environmental attitude was adapted from Bamberg (2003), Dunlap et al. (2000), and Lucarelli et al. (2020) measuring values, personal responsibility, environmental preferences, and eco-friendly tendencies. Finally, public satisfaction was measured using items adapted from Bhattacharjee & Premkumar (2004) and adjusted for the context of green open spaces. All scales were translated into Bahasa Indonesia using a forward-backward translation procedure to ensure linguistic and conceptual equivalence. A pilot test was conducted with 30 respondents to assess clarity and face validity; minor wording adjustments were made based on pilot feedback (Hair et al., 2019).

For the data collection, the survey was administered online using Google Forms. Respondents were given an explanation of the research objectives, informed consent, and assurances of anonymity and confidentiality. Participation was voluntary, and no personal identifying information was collected. The average time to complete the survey was approximately 5–7 minutes. Ethical approval for this study was obtained from the research ethics committee of Sekolah Tinggi Ilmu Sosial dan Ilmu Politik Guna Nusantara Cianjur.

Furthermore, PLS-SEM using SmartPLS 4.0 was applied to test the proposed structural model. The analysis consisted of two stages, namely measurement model evaluation and structural model evaluation. The measurement model was assessed based on indicator loadings, internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2019). For the structural model, path coefficients ( $\beta$ ), coefficient of determination ( $R^2$ ), effect sizes ( $f^2$ ), and predictive relevance ( $Q^2$ ) were reported. Bootstrapping with 5,000 resamples was used to estimate standard errors and confidence intervals for the path coefficients (Hair et al., 2019). Mediation was tested using the bootstrap-based approach, and moderation was estimated using the product-indicator approach, with simple slope analyses conducted to probe significant interactions. Common method bias was assessed using Harman's single-factor test (Podsakoff et al., 2003).

## RESULTS AND DISCUSSIONS

### Respondents Characteristics

A total of 200 respondents participated in this study. As shown in Table 1, the sample consisted of 56% male and 44% female participants. The majority were within the productive age groups of 21–30 years old (39%) and 31–40 years old (29%), followed by other age categories. In terms of educational background, respondents were dominated by high school/vocational school graduates (43%) and bachelor's degree holders (32%), with the rest coming from other educational levels. Regarding occupation, most respondents were private-sector employees (36%), followed by entrepreneurs (21%), students (14%), civil servants (9%), housewives (8%), and various other professions. The frequency of visits shows that most people visit RTH 1–2 times per month (37%) or 3–4 times per month (29%).

**Table 1.**  
**Respondents Characteristics**

Characteristics	Category	Frequency	Percentage
Gender	Male	112	56.0%
	Female	88	44.0%
	< 20 years old	14	7.0%

Characteristics	Category	Frequency	Percentage
<b>Age</b>	21–30 years old	78	39.0%
	31–40 years old	58	29.0%
	41–50 years old	32	16.0%
	> 50 years old	18	9.0%
<b>Education</b>	Junior High School	12	6.0%
	Senior High School	86	43.0%
	Diploma	22	11.0%
	Bachelor (S1)	64	32.0%
	Postgraduate (S2/S3)	16	8.0%
<b>Occupation</b>	Student	28	14.0%
	Private Employees	72	36.0%
	Civil Servants	18	9.0%
	Entrepreneurs	42	21.0%
	Housewife	16	8.0%
	Others	24	12.0%
<b>Frequency of Visit</b>	< 1 time/month	22	11.0%
	1–2 times/month	74	37.0%
	3–4 times/month	58	29.0%
	> 4 times/month	46	23.0%

Source: Author Processed

### Measurement Model Evaluation

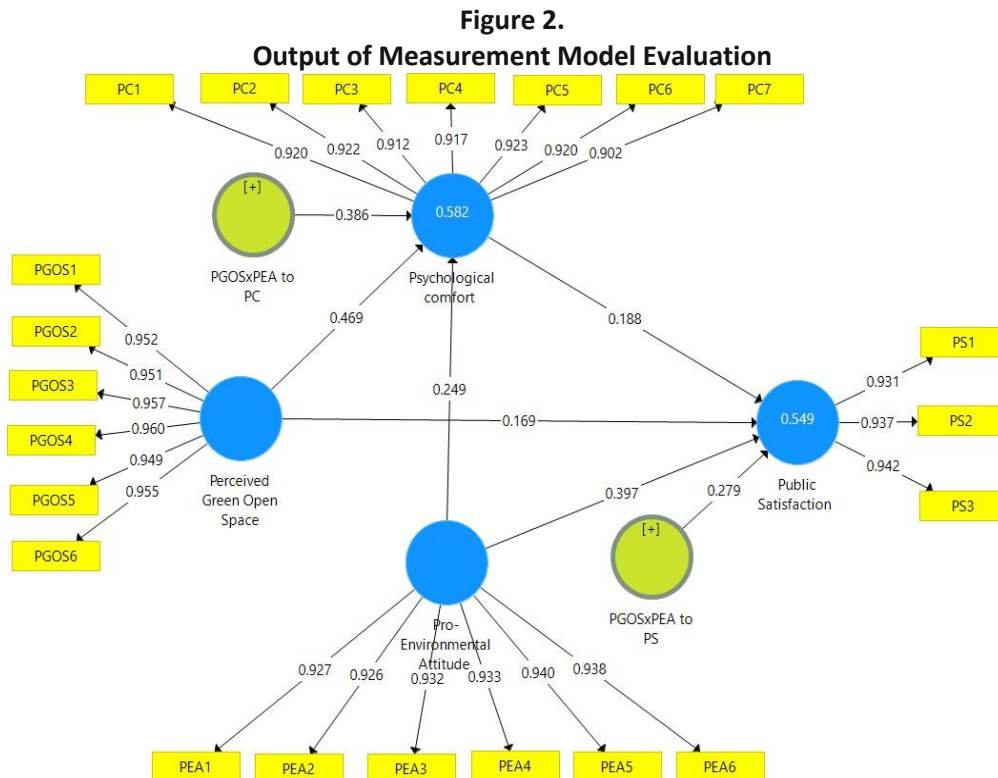
The results of the measurement model evaluation presented in Table 2 indicate that all indicators across the four constructs exhibit high factor loadings, ranging from 0.902 to 0.960. These values far exceed the minimum threshold of 0.70 (Hair et al., 2019). Specifically, the factor loadings for Psychological Comfort range from 0.902 to 0.923; Pro-Environmental Attitude from 0.926 to 0.940; Perceived Green Open Space Quality from 0.949 to 0.960; and Public Satisfaction from 0.931 to 0.942. These findings confirm that all indicators contribute significantly to their constructs, with no items requiring elimination. In terms of reliability, the Composite Reliability (CR) values for all constructs are highly satisfactory, ranging from 0.956 to 0.984, well above the minimum criterion of 0.70 (Hair et al., 2019). This indicates excellent internal consistency for each construct. Meanwhile, the Average Variance Extracted (AVE) values are also high, ranging from 0.840 to 0.910, exceeding the recommended minimum of 0.50, confirming strong convergent validity.

**Table 4.**  
Validity and Reliability Testing

Variable	Indicators	Loading Factor	Composite Reliability	AVE
<b>Psychological Comfort</b>	PC1	0.920	0.974	0.840
	PC2	0.922		
	PC3	0.912		
	PC4	0.917		
	PC5	0.923		
	PC6	0.920		
	PC7	0.902		

<b>Pro-Environmental Attitude</b>	PEA1	0.927		
	PEA2	0.926		
	PEA3	0.932		
	PEA4	0.933	0.976	0.870
	PEA5	0.940		
	PEA6	0.938		
<b>Perceived Green Open Space Quality</b>	PGO1	0.952		
	PGO2	0.951		
	PGO3	0.957	0.984	0.910
	PGO4	0.960		
	PGO5	0.949		
	PGO6	0.955		
<b>Public Satisfaction</b>	PS1	0.931		
	PS2	0.937	0.956	0.878
	PS3	0.942		

Source: Data Processed (2025)



Source: Data Processed (2025)

### Discriminant Validity

Discriminant validity was assessed using both the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio of correlations (Henseler et al., 2015). Based on the Fornell-Larcker criterion reported in Table 3, the square root of the AVE for each construct appears on the diagonal and shows values above 0.90: 0.954 for Perceived Green Open Space Quality, 0.933 for Pro-Environmental Attitude, 0.917 for Psychological Comfort, and 0.937 for Public Satisfaction. All diagonal values are greater than the corresponding inter-construct correlations, confirming that each construct is empirically distinct.

**Table 5.**  
**Discriminant Validity Fornell – Larcker Criterion**

	<b>Perceived Green Open Space Quality</b>	<b>Pro-Environmental Attitude</b>	<b>Psychological Comfort</b>	<b>Public Satisfaction</b>
<b>Perceived Green Open Space Quality</b>	0.954			
<b>Pro - Environmental Attitude</b>	0.677	0.933		
<b>Psychological Comfort</b>	0.650	0.572	0.917	
<b>Public Satisfaction</b>	0.568	0.623	0.622	0.937

Source: Data Processed (2025)

Furthermore, are HTMT values are below the conservative threshold of 0.85 (Henseler et al., 2015), with values ranging from 0.600 to 0.690. The bootstrap confidence intervals (95% bias-corrected) for all HTMT values do not include 1, further confirming that discriminant validity is established. These results provide additional evidence that each construct is conceptually distinct.

**Multicollinearity**

**Table 6.**  
**Multicollinearity and Common Method Bias**

	<b>Psychological Comfort</b>	<b>Public Satisfaction</b>
<b>Perceived Green Open Space Quality</b>	1.847	2.372
<b>Pro - Environmental Attitude</b>	1.845	1.993
<b>Psychological Comfort</b>		2.390

Source: Data Processed (2025)

The results of Harman’s Single Factor Test in Table 7 show that no single factor dominates the total variance in the data. The first factor accounts for only 36.609% of the total variance, which is well below the critical threshold of 50% commonly used to indicate the presence of serious common method variance (CMV). The remaining factors contribute relatively evenly, with 21.750% for Pro-Environmental Attitude, 21.228% for Psychological Comfort, and 20.413% for Public Satisfaction, bringing the cumulative total to 100%. This proportional distribution of variance indicates that the variables in the study are not substantially affected by single-source bias, and CMV is not a concern in the tested model. Therefore, the data meet the assumption of being free from single-factor dominance and are suitable for subsequent structural model analysis.

**Table 7.**  
**Harman's Single Factor Test Initial Eigenvalues**

<b>Component</b>	<b>Total % of Variance</b>		<b>Cumulative %</b>
<b>Perceived Green Open Space</b>	1.464	36.609	36.609
<b>Pro - Environmental Attitude</b>	0.870	21.750	58.359
<b>Psychological Comfort</b>	0.849	21.228	79.587
<b>Public Satisfaction</b>	0.817	20.413	100.000

Source: Data Processed (2025)

#### Structural Model Evaluation

The results of the coefficient of determination presented in Table 6 indicate that the predictor variables explain 58.2% of the variance in Psychological Comfort ( $R^2 = 0.582$ ) and 54.9% of the variance in Public Satisfaction ( $R^2 = 0.549$ ). These values fall within the moderate to strong range for social and behavioral research (Hair et al., 2019), suggesting that the model exhibits good explanatory power.

**Table 8.**  
**Coefficient of Determination Test**

	<b>R Square</b>	<b>R Square Adjusted</b>
<b>Psychological Comfort</b>	0.582	0.575
<b>Public Satisfaction</b>	0.549	0.539

Source: Data Processed (2025)

The model fit results presented in Table 9, assessed using the Standardized Root Mean Square Residual (SRMR), show that the SRMR value for the Saturated Model is 0.026 and for the Estimated Model is 0.029. Both values are below the recommended threshold of 0.08 in PLS-SEM (Hair et al., 2019), indicating acceptable model fit. While these values suggest that the model fits the data reasonably well, it is important to note that SRMR is a measure of approximate fit rather than a definitive test of model correctness (Henseler et al., 2014).

**Table 9.**  
**Model Fit**

	<b>Saturated Model</b>	<b>Estimated Model</b>
<b>SRMR</b>	0.026	0.029

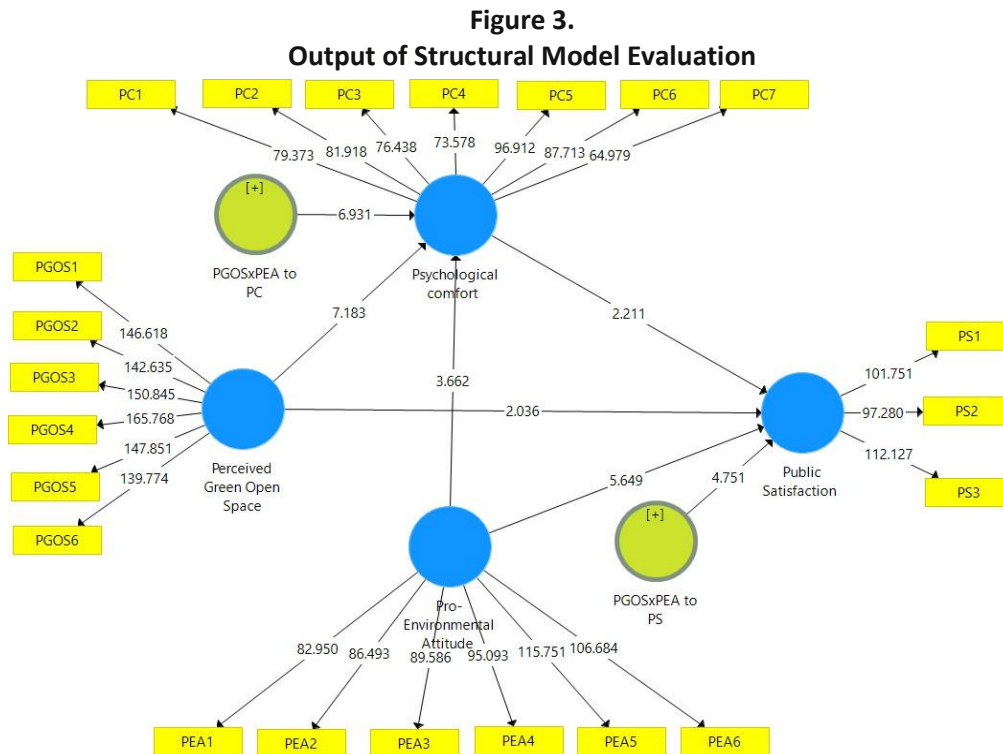
Source: Data Processed (2025)

The path coefficient analysis presented in Table 10 shows that all hypothesized relationships in the model are statistically significant. The direct path from Perceived Green Open Space Quality to Public Satisfaction has a coefficient of 0.169 ( $t = 2.036$ ,  $p = 0.042$ ), indicating a positive but small association. The indirect relationship through Psychological Comfort is also significant ( $\beta = 0.088$ ,  $t = 2.105$ ,  $p = 0.036$ ), confirming that PC partially mediates the relationship. The moderating effects of Pro-Environmental Attitude are significant in both pathways. The interaction  $PGOS \times PEA \rightarrow PC$  has a coefficient of 0.386 ( $t = 6.931$ ,  $p < 0.001$ ), indicating that PEA amplifies the influence of PGOS on psychological comfort. Similarly,  $PGOS \times PEA \rightarrow PS$  yields a coefficient of 0.279 ( $t = 4.751$ ,  $p < 0.001$ ), confirming that PEA also strengthens the effect of PGOS on public satisfaction.

**Table 10.**  
**Path Coefficient (Hypothesis Test)**

Hypothesis	Original	Sample T	Statistics	P Values
<b>PGOS → PS</b>	0.169	2.036		0.042
<b>PGOS → PC → PS</b>	0.088	2.105		0.036
<b>PGOS x PEA → PC</b>	0.386	6.931		0.000
<b>PGOS x PEA → PS</b>	0.279	4.751		0.000

Source: Author Processed



### Discussion

This study examined how perceived green open space (RTH) quality influences public satisfaction, drawing on the Stimulus–Organism–Response (S-O-R) framework to explain the psychological mechanisms and boundary conditions underlying citizen evaluations. The findings provide several key insights for both theory and practice.

First, the results confirm that perceived RTH quality has a significant positive effect on public satisfaction. This aligns with prior studies suggesting that attributes such as cleanliness, maintenance, natural features, accessibility, and supporting facilities enhance users’ perceptions of urban green spaces (Ajrina & Kustiwan, 2019; Jiang & Huang, 2022; Nahdatunnisa et al., 2023; Sun & Shao, 2020). In the context of public services, RTH acts as a visible government provision, and citizens interpret its quality as an indicator of government responsiveness, care, and management capability. This finding reinforces the notion that environmental quality plays an essential role in shaping evaluations of public service performance.

Second, the findings demonstrate that psychological comfort mediates the relationship between RTH quality and public satisfaction. Consistent with the S-O-R model, RTH quality functions as an environmental stimulus that triggers positive affective states such as calmness, relaxation, and mental ease, which in turn shape evaluative responses. It is in line with the previous studies

which have found that psychological comfort can act as the bridge between perceived quality of green spaces and public satisfaction (Budruk et al., 2009; Peng et al., 2021; Spake et al., 2003). This emphasizes the importance of emotional and experiential factors in public service settings. Regardless of the physical attributes present, the extent to which RTH can evoke psychological comfort determines how citizens ultimately assess their experience. This highlights comfort as a core mechanism through which environmental design translates into public satisfaction.

Third, pro-environmental attitude was found to strengthen the effects of perceived RTH quality on psychological comfort and public satisfaction. Individuals with stronger environmental orientations appear more sensitive to ecological cues and more appreciative of well-maintained natural features. This suggests that the influence of environmental stimuli is not uniform across visitors; rather, personal values shape the intensity of environmental perception and emotional response. The moderating effect highlights the role of individual differences in shaping public evaluations of green infrastructure, offering a nuanced understanding of how citizens interpret and respond to environmental quality.

Taken together, these findings advance theoretical understanding by integrating S-O-R with attitudinal moderators in the context of public environmental services. While previous studies have examined ecological benefits or recreational functions of green spaces, this study contributes by positioning RTH as a public service experience shaped by environmental stimuli, psychological mechanisms, and personal environmental values. It also demonstrates that public satisfaction with green spaces is influenced not only by structural quality but also by emotional processes and individual orientations.

From a practical standpoint, the findings suggest that improving the quality of RTH—through better maintenance, cleanliness, natural aesthetics, and user-friendly facilities—can significantly enhance public satisfaction. Urban planners and local governments should prioritize strategies that elevate both the functional and experiential aspects of RTH, especially given the scarcity of green space in cities like Bandung. Furthermore, efforts to educate and engage citizens in environmental awareness may amplify the positive impacts of green space investments, as individuals with stronger environmental attitudes derive greater comfort and satisfaction from high-quality RTH. Enhancing public communication about the ecological value of RTH may also strengthen citizen engagement and appreciation. Overall, this study underscores the importance of viewing RTH not merely as environmental infrastructure but as a public service that contributes to psychological well-being and citizen satisfaction.

## **CONCLUSIONS**

This study examined how perceived green open space (RTH) quality shapes public satisfaction by applying the Stimulus–Organism–Response (S-O-R) framework. Specifically, this research aimed to: (1) examine the direct effect of perceived RTH quality on public satisfaction; (2) test the mediating role of psychological comfort in this relationship; and (3) assess whether pro-environmental attitude moderates these relationships.

The results provide evidence that high-quality RTH, which is characterized by cleanliness, maintenance, natural features, accessibility, and amenities, serves as an important environmental stimulus that enhances citizens' psychological comfort. In turn, this comfort significantly contributes to higher levels of public satisfaction, confirming the mediating role of psychological comfort (H2 supported). The findings further show that pro-environmental attitude strengthens both the effect of RTH quality on psychological comfort (H3a supported) and its direct impact on public satisfaction (H3b supported). Individuals with stronger environmental orientations respond more positively to high-quality green spaces, highlighting

the importance of personal values in shaping citizens' interpretations of public environmental services. Finally, the direct effect of perceived RTH quality on public satisfaction was also confirmed (H1 supported), though the effect size was relatively small ( $\beta = 0.169$ ).

Theoretically, this study contributes to the literature by integrating environmental psychology and public service logic through the S-O-R framework. It extends the application of S-O-R to public service delivery by demonstrating how environmental stimuli shape citizen satisfaction through experiential mechanisms (psychological comfort), an application that remains underexplored in public administration. The study also contributes by introducing pro-environmental attitude as a boundary condition, explaining for whom these relationships are strongest.

Practically, the findings offer insights for urban planners and policymakers seeking to maximize the benefits of limited green spaces. Specifically, the results suggest that municipal governments should prioritize: (1) regular maintenance of existing RTH to ensure cleanliness and safety; (2) improving accessibility to green spaces across different neighborhoods; (3) providing adequate amenities (benches, lighting, pathways) to enhance user comfort; and (4) fostering environmental awareness through community engagement programs to strengthen citizens' appreciation of green spaces. These strategies are particularly relevant for densely populated cities like Bandung, where RTH coverage remains limited.

Despite its contributions, this study has several limitations. First, the cross-sectional design precludes causal inference; future studies could adopt longitudinal or experimental approaches. Second, the use of purposive online sampling may limit generalizability; on-site and more diverse sampling strategies could yield broader insights. Third, this study relied on perceived rather than objective RTH quality; future research could integrate physical audits or geospatial data to compare subjective and objective assessments. Fourth, only one mediator and one moderator were examined; future work could explore additional mechanisms such as place attachment, perceived safety, or environmental identity, as well as demographic and contextual moderators. Addressing these limitations would further advance understanding of how urban green spaces contribute to citizen well-being and public service outcomes.

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