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Assessment of Public Satisfaction and Determinants of Urban Park Use in Kabul City: A Survey-Based Study

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ABSTRACT

Urban and ornamental parks are essential for meeting the recreational, social, and psychological needs of city residents. Ensuring high public satisfaction with these spaces is critical for sustainable urban planning. Despite their importance, there is limited information regarding public satisfaction, current conditions, and key factors affecting parks in Kabul, Afghanistan. This study aimed to assess public satisfaction with Kabul's parks, evaluate their current status, and identify factors influencing user satisfaction. The research was conducted in 2025 across 28 parks, involving 203 respondents through structured interviews and questionnaires. Data were collected using Kobo Toolbox and analyzed in SPSS, employing descriptive statistics, correlation, and regression analyses. Results indicated that the majority of respondents were male, aged 15–35 years, and held a bachelor's degree. Approximately 49.8% reported moderate satisfaction, while around 40% expressed high satisfaction. Key determinants of satisfaction included park facilities, cleanliness, recreational and cultural activities, safety, management, and toilet hygiene. Correlation analyses revealed significant positive relationships between these factors and overall satisfaction, while regression analysis showed that they collectively explained 70.5% of the variance in user satisfaction ($R^2 = 0.705$, $p < 0.001$). Furthermore, the results revealed that Bagh-e Babur and Chehelsaton Garden were identified as the most preferred and highly rated parks in Kabul City. These findings underscore the importance of prioritizing comprehensive improvements in facilities, maintenance, safety, management, and amenities to enhance visitor satisfaction. Future research should examine how parks and urban green spaces support local economies and evaluate the urban value of ornamental parks.

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INTRODUCTION

Rapid urban expansion and continuous population growth have significantly increased the demand for essential urban amenities, particularly recreational parks and green spaces. As cities become more densely populated, access to natural environments is no longer a luxury

but a fundamental necessity for maintaining physical health, psychological well-being, and overall quality of life. Urban parks play a critical role in enhancing environmental quality while simultaneously providing cultural and recreational ecosystem services that strengthen social cohesion and improve human health (Dietz et al., 2025; Zhu et al., 2020).

In modern urban systems, parks are recognized as indispensable components of sustainable development. The ongoing migration from rural to urban areas, coupled with expanding economic activity, has intensified the need for well-designed, functional green spaces. These environments offer opportunities for physical activity, stress reduction, and social interaction, making them essential elements of urban infrastructure. Empirical research consistently demonstrates that access to urban green spaces is strongly associated with improved mental health, reduced stress, and enhanced life satisfaction (Liu & Xiao, 2020; Oh & Park, 2025).

Structurally, urban parks integrate both natural and built elements to meet diverse user needs. Natural components such as trees, shrubs, lawns, and water features contribute to ecological balance and aesthetic value, while built features—including pathways, seating areas, lighting systems, playgrounds, and sports facilities—enhance usability and user comfort. The quality, diversity, and maintenance of these features are among the most influential determinants of user satisfaction. Additionally, effective park management, accessibility, and safety measures are crucial for ensuring consistent public use and positive user experiences (Cheng et al., 2022; Jung et al., 2022).

Beyond their social and recreational roles, urban green spaces provide substantial environmental benefits. They help improve air quality, mitigate the urban heat island effect, and support biodiversity. The effectiveness of parks in pollution reduction depends on factors such as vegetation density, species composition, and spatial distribution. For instance, trees with dense canopies and broad leaves are particularly efficient in capturing airborne particles. Furthermore, strategically located green spaces—especially near roads and high-traffic areas—can significantly reduce human exposure to pollutants (Yang et al., 2025; Jung et al., 2022).

Urban parks also play an essential role in regulating microclimatic and hydrological processes. Vegetation reduces ambient temperatures through shading and evapotranspiration, thereby enhancing thermal comfort in urban environments. At the same time, permeable soils within parks allow rainwater infiltration, contributing to groundwater recharge and reducing surface runoff. These functions are especially important in rapidly urbanizing areas where natural land surfaces are increasingly replaced by impermeable materials (Canteiro et al., 2025; Pavlinec, 2025).

Despite these benefits, the effectiveness of parks is strongly influenced by users' perceptions of safety. Feelings of insecurity—often driven by social disorder, poor lighting, or limited visibility—can discourage park use, particularly in the evening. Conversely, well-maintained environments with clear sightlines, proper lighting, and active management can

significantly enhance perceived safety. Research also indicates that safety perceptions vary across demographic groups, with women and families often expressing greater concern (Chen & Marzbali, 2024; Mak & Jim, 2022; Hou et al.,2025).

In addition to environmental and social contributions, urban parks generate notable economic benefits. They stimulate local economies by attracting visitors, increasing property values, and supporting job creation in recreation and maintenance sectors. Moreover, by promoting physical activity and mental well-being, parks help reduce healthcare costs and improve overall productivity, highlighting their broader economic significance (Marquez, 2020; Wilson & Xiao, 2023).

However, in cities such as Kabul, rapid population growth and unplanned urban expansion have resulted in a noticeable decline in both the quantity and quality of urban green spaces. The lack of comprehensive, reliable data on public satisfaction, park conditions, and user needs poses a major challenge for effective urban planning and management. Addressing these gaps is essential for developing evidence-based strategies that can enhance the performance and sustainability of urban parks. This study aims to explore users' perceptions of urban parks, assess the current conditions of these spaces, and identify the key factors that influence user satisfaction. Understanding these dimensions is critical for improving park quality and maximizing their environmental, social, and health benefits (Addas, 2023; Mushkani & Ono, 2021; Veckalne et al., 2025).

To achieve these objectives, the study is guided by the following three fundamental research questions:

- What is the current level of public satisfaction with urban parks in Kabul, and how does it vary across different demographic groups?
- What is the present condition of urban parks in terms of facilities, environmental quality, and management practices?
- Which physical, environmental, and managerial factors most significantly contribute to improving park quality and enhancing user satisfaction?

METHODS AND MATERIALS

This study was conducted in 2025 in Kabul city's parks to assess public satisfaction with the parks, evaluate their current condition, and identify factors affecting improvements in their condition. This study was conducted in 28 parks in Kabul city, listed in Table 1.

Table 1. *Collected data from 28 parks in Kabul city(Research site)*

No	Park Name	NR	No	Park Name	NR
1	Ahmad Shah Baba Min a Parks	31	15	Wazir Mohammad Akbar Khan Park	7
2	Ariana Kabul Park	7	16	Sayed al-Nasiri Park II	3
3	Baber Garden	7	17	Kotal Kheirkhaneh Park	6
4	Qazi Garden Park	6	18	Tappeh Maranjan Park	4
5	Bagrami Hill	8	19	Charahi Qambar Block Parks	7
6	Baharestan Park	6	20	Chehelston Garden	7

7	Hesa Awal Kheirkhaneh Park	7	21	Khushal Khan Park	6
8	Saadat Park	3	22	Dehbori Park	6
9	Sayed al-Nasiri Park I	4	23	Rahman Mina	7
10	Paghman Hill	8	24	Karte Mamorin Park	8
11	Shahr-e Now Park	7	25	Makrorian Ferdowsi Park	7
12	Qala Ahmad Khan Park	7	26	Nowruz Park	6
13	Qalamuddin Park	7	27	Wazirabad Park	7
14	Karte Se Park	7	28	Wazir Mohammad Akbar Khan Hill	7

NR: Number of Respondents.

In the parks where questionnaires were distributed and interviews were conducted, the GPS coordinates were also recorded and illustrated on the map, as shown in Figure 1.

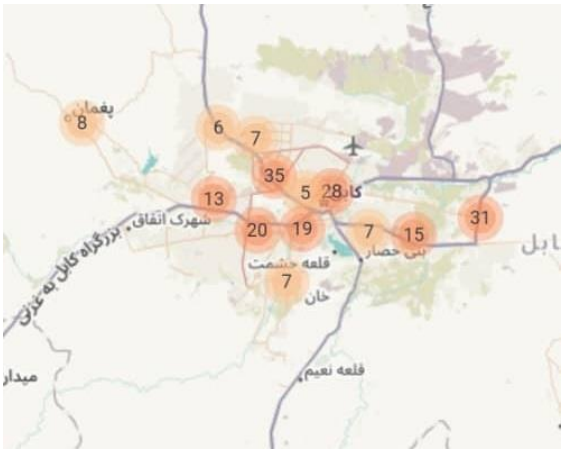

Figure 1. *The locations of the parks from which the data were collected*

Data Collection Tools

This study utilized structured questionnaires, smartphones, Kobo Toolbox software, and GPS devices to collect data from selected parks in Kabul city. The Park locations were recorded and later mapped for spatial analysis.

A comprehensive and relevant questionnaire was developed for this study, carefully aligned with the research objectives. To ensure greater validity and reliability, the questionnaire design was informed by previous empirical studies that have widely applied survey-based approaches in urban park research. Survey questionnaires are commonly used to assess users' satisfaction, perceptions, and behavioral patterns in public parks through structured data collection methods (Alamasi et al., 2024; Roberts et al., 2019). The questionnaire was designed based on established literature highlighting key park evaluation dimensions such as accessibility, safety, facilities, environmental quality, and user satisfaction (Alamasi et al., 2024; Xiao et al., 2024). Previous studies have also demonstrated that Likert-scale survey instruments combined with correlation and regression analysis are effective for examining relationships between park attributes and user satisfaction (Cheng et al., 2022; Wang et al., 2025).

Accordingly, the questionnaire was structured into multiple thematic sections to capture both direct and indirect factors influencing park satisfaction, following methodological

approaches commonly used in recent urban park studies published in peer-reviewed journals (Alamasi et al., 2024; Mohamed & Kronenberg, 2025).

Research Design

This study employed a descriptive-analytical research design, based on a social survey aimed at collecting public opinions on their satisfaction with urban parks. Correlation analysis was used to examine relationships among variables, while regression analysis was conducted to identify key influencing factors and assess their relative effects on satisfaction (Hong et al., 2025; Wang et al., 2025; Xiao et al., 2024).

Data Collection Procedure

The target population of this study was the urban population of Kabul city, estimated at approximately 5 million. Data were collected from 28 selected parks using a structured questionnaire. For illiterate respondents, interviews were conducted, and their responses were recorded directly in the Kobo Toolbox system. For literate participants, the questionnaire was self-administered and then collected after completion. The required sample size was determined using Cochran's formula, and 203 respondents were selected for data collection (Lorber et al., 2023).

1. **Cochran's Formula (for Large Populations)**

$$n_0 = \frac{Z^2 \, x \, p(1-p)}{e^2}$$

Parameters:

- **Z = 1.96** (95% confidence level)
- **p = 0.5** (maximum variability, when unknown)
- **e = 0.07** (acceptable margin of error = 7%)

2. **Initial Sample Size Calculation:**

$$n_0 = \frac{1.96^2 \, x \, 0.5(1-0.5)}{0.07^2} =>$$

$$n_0 = \frac{3.84 \, x \, 0.25}{0.0049} =>$$

$$n_0 = 195.9$$

3. **Finite Population Correction (for population = 5,000,000):**

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}} =>$$

Where:

- **N = 5,000,000**

4. Final Result:

$$n = \frac{195.9}{1 + \frac{195.9 - 1}{5000000}} => \mathbf{195.89}$$

Based on the above calculations, it was determined that 196 questionnaires were required. However, to ensure reliability and account for potential data loss or incomplete responses, 203 questionnaires were distributed.

Data Analyses

The collected data were analyzed using SPSS software (Version 25). Initially, descriptive statistics were applied to summarize the main characteristics of the data. Reliability analysis (Cronbach's alpha) was conducted to assess the questionnaire's internal consistency. Subsequently, correlation analysis was performed to examine the relationships among variables. Finally, regression analysis was used to identify the key factors influencing the study outcomes. These analytical techniques were employed to ensure the accuracy, consistency, and reliability of the research findings.

FINDINGS

Socio-Demographic Information

The socio-demographic characteristics of the respondents were examined in terms of gender, education level, income level, and age (Table 2).

***Table** 2. The socio-demographic information of respondents*

Variable	Categories	Frequency	Percent
Gender	Male	198	97.5
	Female	5	2.5
Education Level	Illiterate	23	11.3
	School students	55	27.1
	High school graduate	58	28.6
	Bachelor	61	30.0
	Master	5	2.5
	PhD	1	0.5
Income Level	Very low	49	24.1
	Low	85	41.9
	Medium	68	33.5
	High	1	0.5
Age	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
	15.00	72.00	31.1823	±12.58

Among the 203 respondents, the majority were male (97.5%), with only 2.5% female participants. Most respondents held a bachelor's degree (30.0%), followed by Grade 12

(28.6%) and students (27.1%), while doctorate holders represented the smallest group (0.5%). In terms of income, low-income individuals accounted for the largest proportion (41.9%), followed by medium-income (33.5%) and very low-income (24.1%), with only 0.5% reporting high income. Participants' ages ranged from 15 to 72 years (mean = 31.18 ± 12.58). The largest age group was 15–25 years (43.8%), while the fewest respondents were over 55 years old (Figure 1).

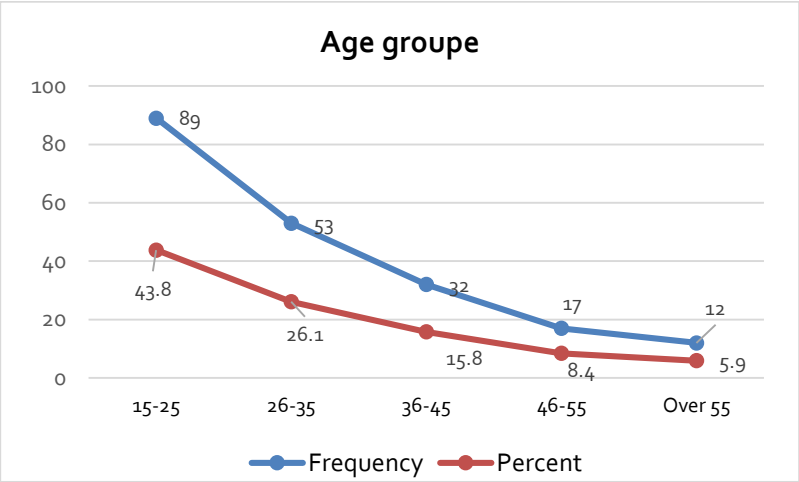

Figure 1. *Frequency and percentage distribution of respondents by age group*

Pearson correlation analysis showed a significant relationship between overall satisfaction and socio-demographic characteristics Table 3. Gender showed a significant negative correlation with satisfaction (r = −0.185, p = .008), indicating lower satisfaction among females than among males. In contrast, age, education, and income showed weak, non-significant positive relationships with overall satisfaction.

Table 3. *Correlation between socio-demographic variable and overall satisfaction*

Variable	Correlation	Overall Satisfaction	Gender	Age	Education Level
Gender	Pearson	-٠.185**			
	p	0.008			
Age	Pearson	0.076	٠.155*		
	p	0.282	0.028		
Education Level	Pearson	0.074	0.020	-0.082	
	p	0.292	0.780	0.247	
Income Level	Pearson	0.081	-.146*	٠.215**	٠.233**
	p	0.250	0.038	0.002	0.001

p: significance, *: p ≤ 0.05, **: p ≤ 0.01.

Multiple regression analysis showed that the model was statistically significant (R^2 = .053, p = 0.028), explaining 5.3% of the variance in overall satisfaction. Among the predictors, only gender had a significant effect (B = −0.691, p = 0.005), while age, education, and income showed positive but non-significant relationships.

Park Accessibility

Park access was assessed based on distance from home and visit frequency. Most users lived within 0–300 m (n = 79), followed by those at 300–600 m, while the fewest lived beyond 1000 m. In terms of visitation, "several times a week" was most common (n = 70), followed by irregular visits (n = 56) Table 4.

Table 4. *Frequency distribution of distance from home to park and park visitation*

Variable	Categories	Frequency	Percent
Distance from Home to Park	0–300 m	79	38.9
	300–600 m	64	31.5
	600–1000 m	31	15.3
	Over 1000 m	29	14.3
Visiting of Park	Daily	45	22.2
	Once a week	32	15.8
	Several times a week	70	34.5
	Irregularly	56	27.6

The results show a significant positive relationship between distance from home and park visitation. Distance also showed a positive, but non-significant, relationship with overall satisfaction. In contrast, park visitation showed a weak, negative, and non-significant correlation with overall satisfaction Table 5.

Table 5. *Correlation between overall satisfaction, park visitation, and the distance from home to the park*

Variable	Correlation	Distance from Home to Park	Visiting of Park
Visiting of Park	SCC	0.394**	
	p	0.000	
Overall Satisfaction	SCC	0.106	-0.127
	p	0.134	0.072

SCC: Spearman's Correlation Coefficient.

Regression analysis showed a statistically significant model (p = 0.001) with a low explanatory power (R^2 = 0.064). Although distance to the park and visitation frequency had significant effects on overall satisfaction, they explained only 6.4% of the variance, indicating that other factors likely play a stronger role in determining user satisfaction.

Park Facilities and Usage Attributes

This section explores the purposes of park visitation, preferred facilities, and factors contributing to mental relaxation Table 6. Most respondents visited parks primarily for mental relaxation (55.2%), followed by physical exercise (25.1%), while studying was the least common purpose. In terms of preferred facilities, the majority (52.7%) favored a combination of features, including green spaces, seating areas, pathways, sports facilities, and cleanliness, whereas only 12.8% preferred greenery alone. For mental relaxation, green spaces were the most frequently reported factor (30.5%), followed by physical activity (21.7%), while flowers were the least cited (8.4%).

Table 6. *Purposes for visiting parks, facilities, and the factors contributing to mental relaxation*

Variable	Categories	Frequency	Percent
Purpose of visitation	Mental relaxation	112	55.2
	Physical exercise	51	25.1
	Visiting friends	24	11.8
	Studying	16	7.9
Park facilities	Green space only	26	12.8
	Green space, Seating, Paved paths, Sports facilities, and Cleanliness	107	52.7
	Green space, Paved paths, and Cleanliness	70	34.5
Factors contributing to mental relaxation	Lawn/grass	20	9.9
	Social interaction	30	14.8
	Green space	62	30.5
	Green space and bird sounds	30	14.8
	Flowers	17	8.4
	Physical exercise	44	21.7

Correlation analysis showed a negative, but non-significant, relationship between overall satisfaction and the purpose of park visitation (Table 7). In contrast, a significant positive correlation was found between overall satisfaction and the availability of park facilities. Other relationships, including park facilities with visitation purpose, satisfaction with mental relaxation factors, and visitation purpose with mental relaxation factors, were either positive or negative but not statistically significant. Preferred Park facilities also showed a negative, non-significant relationship with mental relaxation factors.

Table 7. *Correlation coefficients between overall satisfaction and park facilities and usage attributes*

Variable	Correlation	Overall satisfaction	Purpose of visitation	Park facilities
Purpose of visitation	SCC	-0.009		
	p	0.898		
Park facilities	SCC	.449**	-0.062	
	p	0.000	0.378	
Factors contributing to mental relaxation	SCC	-0.051	0.123	-0.069
	p	0.471	0.081	0.327

Regression analysis showed a statistically significant model ($p < 0.001$) with moderate explanatory power ($R^2 = 0.21$). This indicates that purpose of park visitation, preferred park facilities, and mental relaxation factors together explain 21% of the variation in overall satisfaction.

Park Safety

This section examines factors contributing to perceived insecurity in the park. Most respondents identified drug use as the main cause of feeling unsafe (52.2%), followed by uncertainty about the source of insecurity (41.4%). The least reported factor was the presence of stray dogs (6.4%) Figure 2.

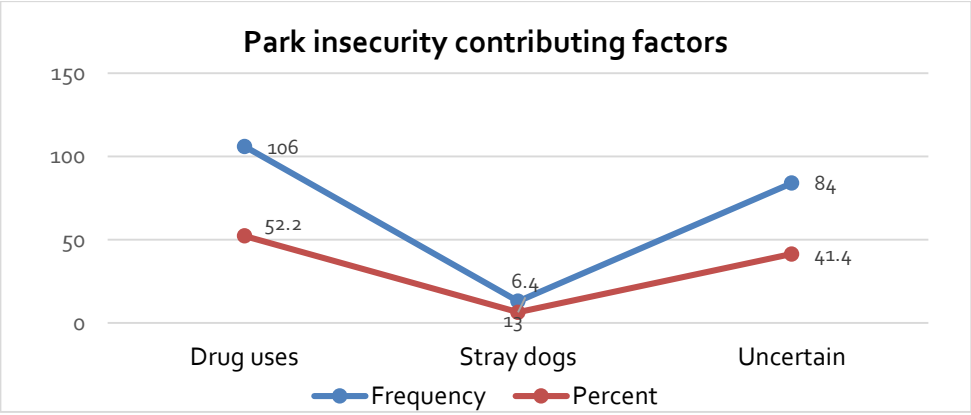

Figure 2. *Frequency and percentage distribution of park insecurity contributing factors*

Correlation analysis showed a significant relationship between public satisfaction and perceived park insecurity Table 8. Regression results further confirmed a statistically significant model ($p < 0.001$) with moderate explanatory power ($R^2 = 0.177$), indicating that park safety factors explain 17.7% of the variation in overall satisfaction.

Table 8. *Correlation between overall satisfaction and contributing factors of park insecurity*

Variable	Correlation	Overall satisfaction
Park insecurity contributing factors	SCC	·.457**
	p	0.000

Sufficiency of Park Areas

This section examines whether existing parks meet community needs. Nearly half of the respondents (44.3%, n = 90) reported that current parks are insufficient, while 23.6% (n = 48) believed they adequately serve the community (Figure 3). These results suggest a clear public demand for improvements and expansions in park facilities.

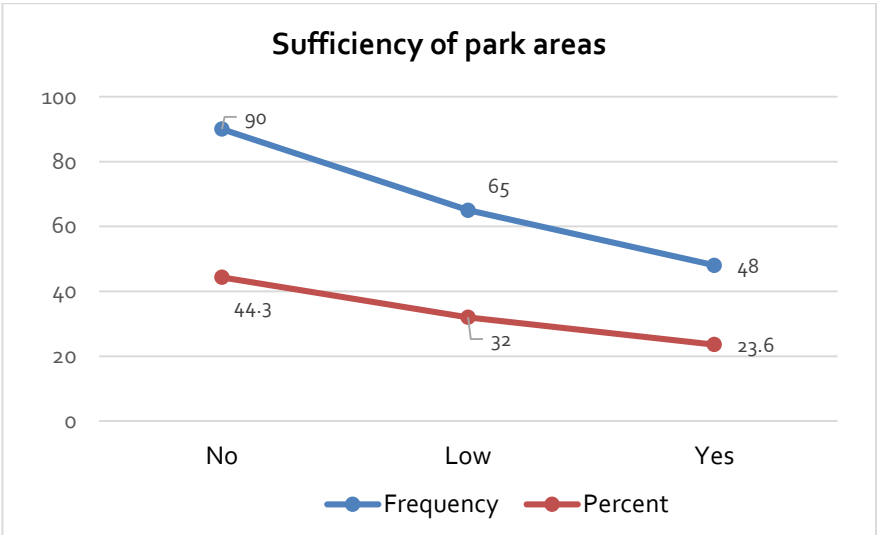

Figure 2. *Frequency and percentage distribution of respondents' views on the Sufficiency of existing parks*

The correlation analysis indicated a weak, non-significant relationship between the adequacy of existing parks and overall satisfaction (Table 9). This suggests that factors beyond the current park facilities more strongly influence residents' satisfaction.

Table 9. *The correlation between overall satisfaction and the sufficiency of existing parks*

Variable	Correlation	Overall satisfaction
Sufficiency of existing parks	SCC	0.113
	p	0.110

The regression analysis indicated that the adequacy of existing parks did not have a statistically significant effect on overall satisfaction ($p = 0.293$, $R^2 = 0.006$). This means that the adequacy of current parks accounts for only 0.6% of the variance in residents' satisfaction, suggesting minimal influence on overall satisfaction.

Parks Effect on Local Economy

This section explores perceptions of parks' economic impact and opinions on park fees. Most respondents (39%) believed that parks significantly contribute to the local economy, while only 1% reported no impact. Regarding fees, 51.7% supported a small or nominal charge, whereas 23.2% preferred free access Table 10.

Table 10. *Frequencies and percentages for impact of parks on the local economy park fees*

Variable	Categories	Frequency	Percent
Impact of parks on the local economy	No	2	1.0
	Moderate	16	7.9
	Low	61	30.0
	High	81	39.9
	Very high	43	21.2
Park fee preference	No	47	23.2
	Low fee	105	51.7
	Yes (full fee)	51	25.1

The correlation analysis indicated a positive but non-significant relationship between overall satisfaction and the imposition of park fees. Similarly, a positive, non-significant correlation was observed between overall satisfaction and the perceived impact of parks on the local economy (Table 11).

Table 11. *Correlation between overall satisfaction, park fee, and the impact of parks on the local economy*

Variable	Correlation	Overall satisfaction	Parks on the local economy
Parks on the local economy	SCC	0.088	
	p	0.212	
Park fee preference	SCC	0.125	0.123
	p	0.075	0.081

Regression analysis showed that the model for perceived economic impact of parks was not statistically significant ($p = 0.257$; $R^2 = 0.006$), accounting for only 0.6% of the variance in

satisfaction. Similarly, the model for park fee preferences was also non-significant (p = 0.077, R^2 = 0.016), accounting for just 1.6% of the variation. Overall, these results suggest that economic perceptions and fee considerations have minimal influence on respondents' satisfaction.

General Satisfaction with Urban Parks

This section assessed overall public satisfaction with parks and identified key influencing factors, including facilities, cleanliness, recreational activities, safety, and management. Reliability analysis using Cronbach's Alpha showed a value of 0.701, indicating acceptable internal consistency and confirming that the items reliably measure the same underlying construct.

Table 12. *Frequency and percentage distribution of variables influencing general public satisfaction*

Variable	Categories	Frequency	Percent
Overall level of public satisfaction	Dissatisfied	21	10.3
	Neutral	101	49.8
	Satisfied	81	39.9
Satisfaction with Available Park Facilities	Dissatisfied	40	19.7
	Satisfied	107	52.7
	Very Satisfied	56	27.6
	Very Dissatisfied	10	4.9
Satisfaction with Park Cleanliness	Dissatisfied	29	14.3
	Neutral	78	38.4
	Satisfied	77	37.9
	Very Satisfied	9	4.4
Satisfaction with Sports and Cultural Activities	Dissatisfied	18	8.9
	Neutral	73	36.0
	Satisfied	112	55.2
Satisfaction with Park Security	Dissatisfied	19	9.4
	Neutral	90	44.3
	Satisfied	94	46.3
Satisfaction with Park Management	Dissatisfied	2	1.0
	Satisfied	90	44.3
	Very Satisfied	111	54.7
Satisfaction with Cleanliness of Park Toilets	Dissatisfied	50	24.6
	Neutral	60	29.6
	Satisfied	74	36.5
	Very Satisfied	19	9.4

The descriptive analysis revealed that the majority of the public reported moderate satisfaction with the parks. Specifically, 49.8% of respondents reported neutral satisfaction, while 39.9% reported satisfaction. Regarding the available park facilities, 52.7% of respondents were satisfied, while 19.7% were dissatisfied. Regarding park cleanliness, 38.4% reported neutral satisfaction, 37.8% were satisfied, and 14.3% were dissatisfied. For sports

and cultural activities, 55.2% of respondents reported being satisfied, while 8.9% were dissatisfied. Regarding park security, 46.3% were satisfied and 9.4% were dissatisfied. Regarding park management, 54.7% of respondents reported being very satisfied, while only 1% reported dissatisfaction. Finally, for the cleanliness of park toilets, 36.5% were satisfied, while 24.6% were dissatisfied Table 12.

Table 13. *Correlation between various variables and overall public satisfaction*

Variable	Correlation	OPS	SAF	SPC	SSC	SPS	SPM
SAF	SCC	0.716**					
	p	0.000					
SPC	SCC	0.640**	0.480**				
	p	0.000	0.000				
SSC	SCC	0.569**	0.364**	0.299**			
	p	0.000	0.000	0.000			
SPS	SCC	0.546**	0.427**	0.262**	0.192**		
	p	0.000	0.000	0.000	0.006		
SPM	SCC	0.420**	0.278**	0.179*	0.255**	0.092	
	p	0.000	0.000	0.011	0.000	0.190	
SCPT	SCC	0.208**	0.133	0.213**	0.175*	.187**	0.036
	p	0.003	0.059	0.002	0.013	0.008	0.607

OPS: Overall level of public satisfaction; **SAF**: Satisfaction with Available Park Facilities; **SPC**: Satisfaction with Park Cleanliness; **SSC**: Satisfaction with Sports and Cultural Activities; **SPS**: Satisfaction with Park Security; **SPM**: Satisfaction with Park Management; SCPT: Satisfaction with Cleanliness of Park Toilets.

The correlation analysis revealed that overall public satisfaction showed a strong, significant positive correlation with several park-related factors, including satisfaction with available facilities, park cleanliness, the provision of sports and cultural activities, park security, and park management. In contrast, the correlation between public satisfaction and toilet cleanliness was positive and significant, but of moderate strength (Table 13).

The regression analysis further demonstrated that the model was highly significant ($p = 0.000$, $R^2 = 0.705$). This indicates that the regression model is robust and that approximately 70.5% of the variation in public satisfaction can be explained by the combined effects of satisfaction with park facilities, cleanliness, sports and cultural activities, security, management, and toilets cleanliness.

Most and Least Preferred Parks

To determine which parks generated the highest public satisfaction, we conducted a mean comparison. The results indicated that, on average, respondents reported the highest satisfaction with Baber Garden, Chehelsoton Garden, and Karte Mamorin Park, with mean satisfaction scores of 4, 4, and 3.88, respectively. The primary reasons for this high

satisfaction were the parks' cleanliness, available facilities, security, management, cultural and sports activities, and restroom hygiene.

Conversely, the lowest average satisfaction scores were observed for Wazirabad Park and Charahi Qambar Block Park, with mean scores of 2.29 and 2.14, respectively. The main cause of dissatisfaction in these parks was the lack of adequate facilities. One-way ANOVA results further confirmed significant differences in public satisfaction across the parks. While some parks received high satisfaction ratings, others had lower ratings. In most parks, respondents reported a moderate level of satisfaction, indicating a neutral perception—neither fully satisfied nor dissatisfied Table 14.

Table 14. *Mean public satisfaction by park*

Park Name	Mean Satisfaction	N	Std	Park Name	Mean Satisfaction	N	Std
Ahmad Shah Baba Mini Parks	3.4	31	0.72	Wazir Mohammad Akbar Khan Park	3.6	7	0.53
Ariana Kabul Park	2.9	7	0.38	Sayed al-Nasiri Park II	2.67	3	0.58
Baber Garden	4	7	0	Kotal Kheirkhaneh Park	3.17	6	0.41
Qazi Garden Park	3.3	6	0.52	Tappeh Maranjan Park	3.5	4	0.58
Bagrami Hill	2.6	8	0.52	Charahi Qambar Block Parks	2.14	7	0.38
Baharestan Park	3.7	6	0.52	Chehelston Garden	4	7	0
Hesa Awal Kheirkhaneh Park	3.4	7	0.53	Khushal Khan Park	3.17	6	0.41
Saadat Park	3	3	0	Dehbori Park	3.33	6	0.52
Sayed al-Nasiri Park I	3.3	4	0.5	Rahman Mina	3.43	7	0.53
Paghman Hill	3.6	7	0.53	Karte Mamorin Park	3.88	8	0.35
Shahr-e Now Park	3.43	7	0.53	Makrorian Ferdowsi Park	3.29	7	0.49
Qala Ahmad Khan Park	3.14	7	0.69	Nowruz Park	3.5	6	0.55
Qalamuddin Park	3.14	7	0.38	Wazirabad Park	2.29	7	0.49
Karte Se Park	3.43	7	0.53	Wazir Mohammad Akbar Khan Hill	3.14	7	0.38

1 = Very Dissatisfied; **2** = Dissatisfied; **3** = Neutral; **4** = Satisfied; **5** = Very Satisfied; N = Number of respondents; **Std** = Standard deviation.

The correlation analysis indicated a negligible, non-significant negative relationship between public satisfaction and the specific park used by respondents (Table 15). Similarly, the regression analysis showed that the model was not significant for predicting satisfaction based on the park of use ($p = 0.572$, $R^2 = 0.002$). This indicates that the model explains only

0.2% of the variation in public satisfaction, suggesting that the choice of park used has virtually no impact on overall satisfaction.

Table 14. *Correlation between public satisfaction and park of use*

Variable	Correlation	Overall public satisfaction
Park of se	SCC	-0.053
	p	0.456

Park Management & Improvement

This section identifies key factors for improving park conditions. The majority of respondents (91.6%) emphasized improvements in lighting, sports facilities, and cleanliness, while a smaller proportion (8.4%) highlighted increasing greenery alongside better sports facilities as important for enhancing overall park quality Figure 4.

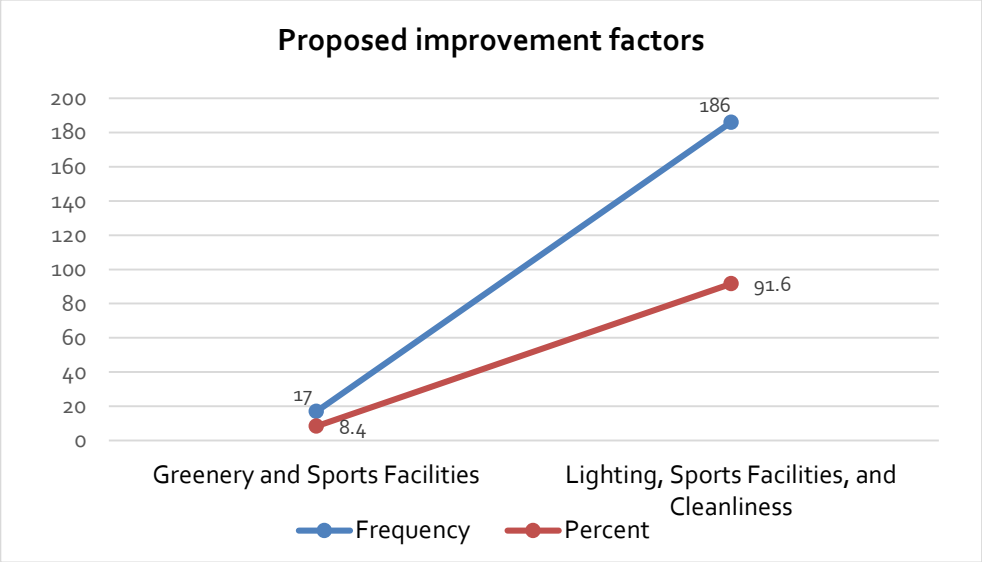

Figure 4. *Proposed improvement factors frequency and percentage*

The correlation analysis indicated that there was no statistically significant relationship between public satisfaction and the improvement factors proposed by respondents Table 16. Similarly, the regression analysis showed that the model was not significant ($p = 0.119$, $R^2 = 0.012$. This suggests that the proposed improvement factors explain only 1.2% of the variation in public satisfaction, indicating a minimal, non-significant influence on overall satisfaction.

Table 16. *Correlation between public satisfaction and proposed improvement factors*

Variable	Correlation	Overall public satisfaction
Proposed improvement factors	SSC	-0.114
	p	0.105

DISCUSSION

Socio-demographic characteristics are widely recognized as key variables in social and environmental research, as they provide essential context for interpreting differences among respondents and improving the robustness of statistical analyses (Mak & Jim, 2019, 2022; Wang et al., 2021). In this study, data on gender, age, education, and income were collected

to characterize the sample and assess its representativeness. The findings show that most respondents were young (15–35 years old), male, educated to the bachelor's level, and predominantly from low- to middle-income groups. Accordingly, the results mainly reflect the perceptions of this demographic group and should be generalized with caution. Correlation and regression analyses revealed that socio-demographic variables had weak and mostly non-significant effects on park satisfaction, suggesting limited predictive power. This aligns with previous research indicating that demographic factors alone are not strong determinants of satisfaction (Cheng et al., 2022; Liu & Xiao., 2021; Wang et al., 2022). Notably, while green space benefits may vary across age groups, stronger positive effects are often observed among older adults, particularly those aged 65 and above (Bahr, 2024; Sánchez-Nieto et al., 2026). Overall, socio-demographic variables explained less than 6% of the variation in satisfaction, indicating that physical and environmental attributes—such as facilities, maintenance, and landscape quality—play a more dominant role (Liu & Xiao, 2020; Yang et al., 2025).

Proximity to parks was found to play a key role in shaping visitation behaviours, consistent with prior studies that emphasize accessibility as a major determinant of park use (Liu & Xiao, 2020; Cheng et al., 2022). The observed inverse relationship between distance and visitation frequency supports the distance-decay theory, which suggests that park use declines as travel distance increases (Shu et al., 2024; Lee & Kang, 2025). However, neither distance nor visitation frequency significantly influenced overall satisfaction (Wang & Hu, 2024; Wu et al., 2025). This indicates that satisfaction is driven more by qualitative attributes such as facilities, maintenance, and environmental quality rather than accessibility alone (Sim & Lee, 2013; Liu & Xiao, 2020). The model's low explanatory power further suggests that additional social and psychological factors may also shape user perceptions (Mak & Jim, 2019; Zhang et al., 2024). Overall, while accessibility increases park use, it is insufficient to ensure satisfaction without high-quality park environments.

Mental relaxation was the primary reason for park visits, followed by physical exercise and social interaction, highlighting the restorative function of urban parks (Oh & Park, 2025; Huang et al., 2021). Respondents preferred a mix of facilities, including greenery, seating, pathways, sports areas, and cleanliness, confirming the importance of multifunctional, well-maintained park environments (Liu & Xiao, 2020; Wang et al., 2022). Green space was identified as the most important factor for psychological relaxation, reinforcing its role in emotional restoration and well-being (Oh & Park, 2025; Huang et al., 2021; Tae et al., 2022). However, satisfaction was more strongly associated with facility quality than with visitation purpose or relaxation motives. Regression results showed limited explanatory power, suggesting that additional contextual and environmental variables contribute to satisfaction (Li et al., 2023; Wang et al., 2022). Overall, park satisfaction is shaped more by infrastructure and environmental quality than by user motivation alone.

Drug use was identified as the main source of perceived insecurity, indicating that social disorder is more influential than physical conditions in shaping safety perceptions (Fagarazzi

et al., 2026; Evensen et al., 2021). A significant positive relationship was found between perceived safety and satisfaction, confirming that safety is a key determinant of park experience (Chen & Marzbali, 2024; Hou et al., 2025). Regression analysis showed that safety explained 17.7% of the variation in satisfaction, highlighting its important but partial role. Other factors such as design and maintenance remain equally relevant (He et al., 2025; Ge et al., 2024; Liu & Xiao, 2020).

Most respondents perceived park areas as insufficient, yet no significant relationship was found between park size and satisfaction. This suggests that spatial adequacy alone does not determine user experience (Kothencz & Blaschke, 2017; Liu & Xiao, 2020). Regression results confirmed that park size does not significantly influence satisfaction, reinforcing the importance of usability, facilities, and environmental quality over physical scale (Rey-Gozalo et al., 2019; Liu & Xiao, 2020; Wang et al., 2022).

Although respondents generally perceived parks as economically beneficial and preferred low fees, the statistical analysis showed no significant relationships among economic perceptions, fees, and satisfaction. This indicates that economic beliefs do not translate into measurable satisfaction outcomes (Mohamed & Kronenberg, 2025; Yang et al., 2025; Behfar et al., 2026). Consistent with Alamasi et al. (2024), Yao et al. (2024) and hao & Weng, 2024, experiential and environmental factors are more influential than economic considerations. Overall, satisfaction is more strongly shaped by the park experience than by perceived economic value.

Overall satisfaction was moderate to high, with most respondents either neutral or satisfied. Facilities, activities, security, and management received relatively positive ratings, while cleanliness—especially toilets—was weaker. Correlation analysis confirmed strong associations between satisfaction and multiple park attributes, highlighting its multidimensional nature. The regression model ($R^2 = 0.705$) demonstrates that combined park features explain most variation in satisfaction (Jung et al., 2022; Liu & Xiao, 2020). These findings confirm that satisfaction depends on integrated environmental, social, and service-related factors rather than any single attribute.

Babur Garden, Chehelsitoon Garden, and Karte Mamorin Park achieved the highest satisfaction scores, while Wazirabad Park and Charahi Qambar Block Park ranked lowest. Better cleanliness, facilities, safety, and management characterized high-performing parks. ANOVA confirmed significant differences across parks. However, regression results showed that park identity had minimal influence ($R^2 = 0.002$), indicating that satisfaction depends on perceived quality rather than location alone (Yang et al., 2025; Huang et al., 2025).

Respondents prioritized improvements in lighting, sports facilities, and cleanliness, with fewer emphasizing greenery. These preferences reflect a demand for functional and visible improvements (Mak & Jim, 2019; Alamasi et al., 2024; Asfour & Hossain, 2025). However, these improvement variables did not significantly predict satisfaction, suggesting that satisfaction is shaped by broader integrated perceptions rather than isolated factors

(Cheshmehzangi et al., 2021; Barreira et al., 2023; Ni et al., 2025). Overall, improving satisfaction requires a holistic approach that covers cleanliness, facilities, safety, and management, rather than focusing on single interventions (Bahr, 2024; Cheng et al., 2022).

CONCLUSION

This study aimed to assess public satisfaction with parks in Kabul city. The results indicated that approximately 49.8% of respondents reported moderate satisfaction, while around 40% expressed high satisfaction. Key factors influencing public satisfaction included park facilities, cleanliness, sports and cultural activities, safety, management, and the condition of park toilets. Statistical analyses revealed a significant positive relationship between these factors and overall satisfaction, indicating that improvements in these areas lead to higher public contentment. Regression analysis further demonstrated that these factors collectively explained approximately 70.5% of the variance in user satisfaction ($R^2 = 0.705$, $p = 0.000$). Based on these findings, it is recommended that policymakers and park managers prioritize enhancing park facilities, maintaining cleanliness, providing diverse recreational and cultural activities, ensuring safety, improving management practices, and ensuring that toilets are kept clean. Future research should also explore the role of parks and urban green spaces in local economic development and assess the value of ornamental parks in urban areas.

Authors Contributions

- Masood Sayeed conceptualized and supervised the study.
- Naqibullah Momand investigated, analyzed data and wrote the manuscript with input from all authors.

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Conflict of Interest Statement

The authors declare that they have no conflict of interest.

Data Availability Statement

Data are available upon request from the corresponding author, subject to the approval of the relevant ethics committee.

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