

Article

The Impact of Temperature on Visitation Rate, Thermal Sensation, and Satisfaction Levels in Urban Parks in a Hot Summer

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Abstract

The ongoing rise in temperatures due to climate change is one of the most critical considerations in the design of outdoor recreational spaces. Thermal conditions can affect people's visitation patterns, satisfaction, health and well-being. In many developing countries, including Jordan, rapid urbanisation often occurs without sufficient planning for public outdoor spaces, thereby diminishing their quality. This study is the first to investigate the effects of temperature on visitor patterns and user satisfaction in Jordanian urban parks. A mixed-methods approach was employed, combining continuous measurements of outdoor temperature (T_a) and relative humidity (Rh) with a survey assessing users' thermal sensation, satisfaction, and preferences across six urban parks in Amman, Jordan. Data were collected from 718 respondents in summer 2025. Visitation records for the surveyed parks were also obtained from local authorities for the monitored period. The results show that the mean T_a exceeded 30 °C in all surveyed parks during the monitoring period, with peak readings exceeding 41 °C. This resulted in a warm-to-hot thermal sensation among participants, with many preferring cooler conditions. A significant inverse relationship between temperature and park visitation rates ($R^2 = 0.67$, $p = 0.001$) was observed, with a 1 °C increase in outdoor temperature associated with approximately a 2.03 visitor decrease. Participants' satisfaction was higher in parks with adequate amenities, such as shading, disability access, and green zones, than in parks with fewer amenities ($p = 0.01$, $d = 0.63$). The most reported areas for improvement included facilities, shaded seating areas, and perceived safety. The findings highlight the importance of considering outdoor thermal conditions when designing urban parks, as they shape public outdoor activity patterns, particularly in hot climates.



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Keywords: urban parks; hot environments; thermal comfort; satisfaction; Jordan

1. Introduction

In densely populated urban areas, heatwaves are occurring more frequently and with greater severity [1]. Rapid urbanisation is leading to the loss of green spaces, increased car traffic, and air pollution [2]. Such conditions may increase heat exposure and pose potential health risks [3]. Recent studies have highlighted the Urban Heat Island effect, in which human activities and infrastructure cause urban areas to experience significantly higher

temperatures than their surrounding rural areas [4]. According to the World Health Organisation (WHO) (2024), heat-related mortality among people aged 65 and over increased by 85% between 2004 and 2021 [3,4]. The urban lifestyles and high population densities can increase the psychotic experience among city dwellers due to psychological and social factors, such as isolation or exclusion [5]. Integrating urban green spaces, such as parks and water reservoirs, has been shown to effectively reduce temperature increases, paving the way to address climate change challenges [6,7]. Green spaces can also provide cooling effects, improve air quality, reduce noise, promote stress relief [8], and enhance mental well-being [9–11]. They also encourage social interaction and offer opportunities for both active and passive recreation [12]. Over the last 10 years, particularly during the COVID-19 pandemic, the importance of accessible urban parks has been highlighted. People relied on nearby urban parks to engage in safe outdoor activities during the period of lockdown to maintain their physical and mental well-being [13].

Several international standards, guidelines, and initiatives have been developed to ensure the appropriate design for urban parks, such as, the Sustainable cities and communities (ISO 37120-2018) [14], Sustainable development in communities (ISO 37101) [15], LEED for Neighborhood Development [16], and Urban Green Spaces Guidelines (WHO) [17]. Further, the significance of individuals accessing green zones, such as urban green parks, is prominently highlighted in Carlos Moreno's concept of the '15-Minute City' [18]. This urban planning framework promotes the design of cities in which all essential amenities, including green spaces, are accessible within a 15 min walk or cycle from a resident's home [19]. This concept enhances environmental sustainability through improving air quality and supporting biodiversity. It also enhances resident health and well-being.

Many studies have investigated how thermal conditions affect visitation patterns in urban parks, showing that temperature and humidity can influence user experience. For example, Song and Wei (2024) found that higher temperatures reduced park visitation, highlighting the importance of thermal comfort in outdoor design [20]. Likewise, Lin et al. (2013) showed that shaded areas increased visitor satisfaction and promoted park visits during hot weather [21]. Additionally, Shishegar (2014) highlighted that green infrastructure, such as vegetation and natural shading elements, can reduce heat-related impacts and attract more visitors to urban parks [22]. Together, these findings highlight the need to prioritise thermal comfort in public space design [23].

Furthermore, other studies have explored factors that may influence visit frequency and user satisfaction in urban parks across various regions [24–28]. Attributes such as users' age, distance from the park, and the availability of sufficient park facilities were identified as key factors affecting park usage and revisits [29]. Liu and Xiao (2021) analysed nine primary elements in urban parks that could affect users' satisfaction, including park size, vegetation, recreation facilities, landscape, maintenance, cleanliness, greenery, facilities, and water features [30]. The impacts of the final three factors were also noted in three additional studies [31–33]. Makowska (2021) examined how park design, including accessibility and available amenities, can influence users' visitation frequency and satisfaction in public urban parks in Greece [29]. The findings showed that well-maintained parks with diverse recreational opportunities increase user satisfaction and visitation rates [30]. In the United States, Kaczynski et al. (2010) conducted a comprehensive analysis of the impact of sociodemographic factors on urban park use [34]. The study found that age, socioeconomic status, and community engagement significantly influence how different populations interact with urban parks. For instance, parks that serve diverse demographics through inclusive amenities are more likely to be widely utilised [31,35,36].

Similarly, research carried out by Ignatieva and Mofrad (2023) emphasised the critical role of natural elements (e.g., trees and water bodies) and recreational features (e.g., walking

paths, playgrounds, and picnic areas) in attracting visitors to urban parks in Australia [23]. In addition, a study by Büyükağaçcı and Arısoy (2024) examined social sustainability in urban parks in Turkey [24]. The findings showed that safety concerns, especially inadequate lighting and security, act as barriers to park use, particularly at night, as safety and comfort more directly influence users' satisfaction [25,26]. Such studies have contributed to a growing understanding of which factors in urban parks can significantly affect visitors' experiences, well-being, and social interaction.

Despite numerous studies on urban park design globally [26], there remains a significant gap in the literature regarding the specific challenges and dynamics of urban park design and utilisation in the Middle East region [27,28]. While extensive research has been conducted in temperate and cold climates, the unique climatic conditions in hot, arid regions have received insufficient attention [29]. This lack of focus is particularly concerning given the extreme temperatures, aridity, and rapid urbanisation occurring in many cities across the Middle East. Such factors influence not only the physical layout of urban parks, but also users' behaviour, activities, thermal comfort, and overall satisfaction [30,31].

In Middle Eastern cities, modernism has influenced the design of urban parks in ways that often overlook local contexts, including social norms and recreational preferences [32], which may lead to a mismatch between the parks' design and the local community's actual needs [29,33]. The absence of tailored strategies that address the region's climatic challenges may hinder the effectiveness of urban parks in promoting well-being and social interaction [34,35]. Considering these challenges, it is essential to comprehensively evaluate urban park design in the Middle East and understand how it can effectively respond to environmental changes and enhance user engagement [36–39].

Jordan, as part of the Middle East, has developed local codes and policies to enhance the public parks and climate-responsive strategies [40,41], such as the City Beauty Code [42], the Amman Green City Action Plan [43], and the Jordan National Urban Policy [44]. Although recent Jordanian efforts have aimed to create urban parks that provide recreational opportunities while mitigating extreme temperatures and water scarcity [45,46], the implementation of these codes and policies is not yet fully effective, and significant gaps remain. Many parks lack a cohesive design strategy that considers high summer temperatures and the social and ecological contexts, resulting in spaces that do not adequately meet community needs [47]. Furthermore, no research has been conducted in this context to collect feedback from urban park users, which hinders the establishment of benchmarks for the effective development and improvement of these spaces, thereby limiting their use [37,38]. Addressing this gap will enhance the academic discourse and guide policymakers and urban planners in creating user-centred urban parks that meet the specific needs of communities in hot climates [39].

Therefore, this study aims to examine the dynamics of urban parks in Amman, Jordan, with a particular focus on usage patterns, users' thermal sensation, satisfaction, and preferences during summer heat. It also investigates the relationship between outdoor temperature and the frequency of visits during summer, which is essential because temperature can significantly influence visitation rates and activities in urban parks.

Research Objectives

This research is designed to achieve the following objectives:

- To assess outdoor thermal conditions (i.e., temperature and relative humidity) and users' thermal sensation in Amman's urban parks during the summer.
- To examine the link between outdoor temperature and park visitation rate during the heat days.

- To evaluate users' satisfaction levels with the amenities of urban parks and to investigate the limitations on visiting urban parks in Amman, Jordan.

2. Study Context

This study was conducted in Amman (31.95° N, 35.93° E), the capital of Jordan. Amman has experienced substantial growth in recent years due to rapid urbanisation, economic opportunities, and several waves of migration [40]. In 2022, Amman's population was 4.6 million, accounting for about 42% of Jordan's total population [41], with a population density of approximately 528.8 inhabitants per square kilometre. As a result, Amman has significant urban growth, often with little comprehensive planning for green spaces as a cohesive system [45,46].

Amman has a hot, arid climate, with long, hot, dry summers and cold winters [47]. Like many other cities around the world, it has been affected by climate change, leading to an increase in the number of heat days, with temperatures often exceeding 30 °C in summer, and a decrease in annual precipitation. Despite the challenges posed by a hot climate and limited water resources, efforts are made to preserve and expand urban parks and public gardens [48]. The Jordanian government has launched several initiatives to improve urban green infrastructure [49], including establishing and rehabilitating urban parks and adopting innovative irrigation methods to conserve water.

The distribution of urban parks in Amman reflects broader socio-economic disparities within the city [50]. For instance, the eastern region has experienced significant population growth and urban development in recent years, attracting many young, educated individuals. However, this area generally has fewer public green spaces and urban parks than the western part of the city, which benefits from a more extensive forested environment. Despite recent efforts to improve urban planning and develop green infrastructure in East Amman, the historical imbalance in resource allocation has left the eastern districts with a relative shortage of green spaces compared with the western districts. Recent investigations have suggested that urban park design in Jordan sometimes lacks a user-centric approach and sufficient engagement with local communities, potentially limiting the effectiveness and utilisation of these spaces [40]. Outdoor public areas were categorised into three main classes: (i) public parks, which serve community, regional, and national scales and offer a range of recreational facilities for residents [50]; (ii) Green parks, which serve as venues for learning about biodiversity and environmental stewardship, including botanical gardens, nature reserves, and environmental parks [51]; and (iii) urban parks, typically located within urban areas, providing green space and recreational amenities for city residents. These parks often feature walking paths, seating areas, and public art. Our study will primarily focus on the latter category [52].

3. Methods and Materials

Studies of thermal comfort in outdoor spaces often rely on subjective metrics such as the Predicted Mean Vote or Adaptive Thermal Comfort models, which depend on individuals' reported thermal sensation in response to environmental factors such as temperature and humidity [53,54]. In contrast, research on actual visitation behaviour typically uses quantitative, objective data, such as visitor counts, to correlate observable actions, such as park attendance, with measured environmental variables, such as thermal conditions [55]. Although perception affects behaviour, the two are distinct; for instance, visitors might perceive conditions as slightly uncomfortable yet still choose to visit because of strong external motivations, or they might adapt to maintain comfort despite differing perceptions [56]. Therefore, integrating these two data types (i.e., subjective and objective)

enables a more accurate analysis of both the user experience and the measurable effect on park visitation rates.

For this study, a mixed-methods design was employed (Figure 1), combining objective measurements of outdoor temperature and relative humidity with subjective data from visitors to surveyed urban parks. Quantitative visitation records were also obtained from municipal authorities [57]. This approach enabled the simultaneous collection and analysis of diverse data types, supporting a more comprehensive understanding of the complex relationships between park visitation patterns and outdoor thermal conditions in Amman's urban parks [58].

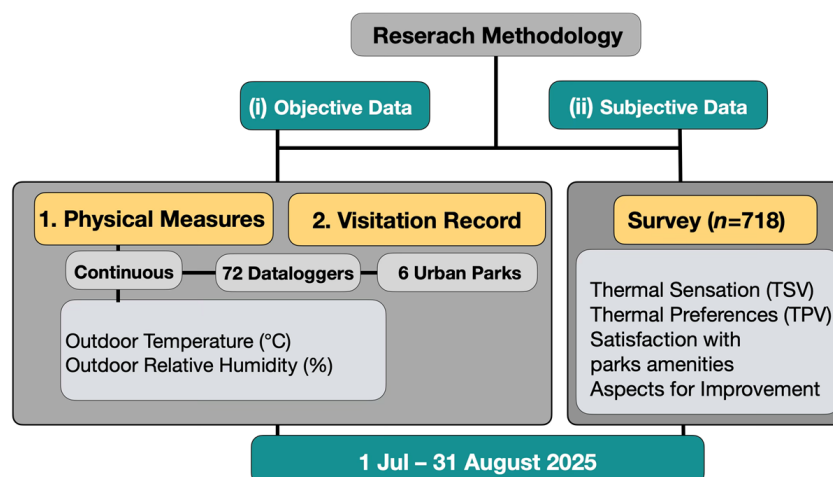


Figure 1. The used research methodology.

3.1. Urban Parks Selection

To examine the relationship between urban park use and outdoor thermal conditions, six urban parks in Amman, Jordan, were selected for this study, including Al-Shoura Park, Press Park, Al-Wefaq Park, Al-Momaniyah Park, Princess Rahmeh Park, and Manhal Park (Figure 2). These parks are hereafter referred to as Parks A, B, C, D, E, and F to ensure anonymity. The selected parks show notable variations in their location across Amman, total area, available amenities, and plant coverage (Figure 3). These disparities enable a deeper understanding of urban park dynamics in Amman during summer, capturing a broader range of user thermal sensation, satisfaction, and preferences. For example, Park A has an area of 12,450 m², the largest among the analysed parks, whereas Park B has a total area of 2383 m². The proportion of tree cover ranges from 11% to 24%, a crucial factor affecting parks' microclimates and visitors' thermal comfort, especially in summer. The vegetation area was assessed by measuring the percentage of tree cover using aerial imagery and on-the-ground observations [59,60]. The amenities vary significantly; for instance, Parks D and E offer extensive facilities, including playgrounds, sports fields, and accessibility features, whereas Parks B, C, and F provide more limited resources. Most surveyed parks lack essential infrastructure, such as restrooms, food vendors, and water fountains. They also lack built-in shaded structures, such as pergolas, gazebos, and awnings, which may affect user satisfaction and usage patterns. However, natural shading elements, including tree canopies, were observed in the surveyed parks. Table 1 compares the characteristics of the surveyed parks.

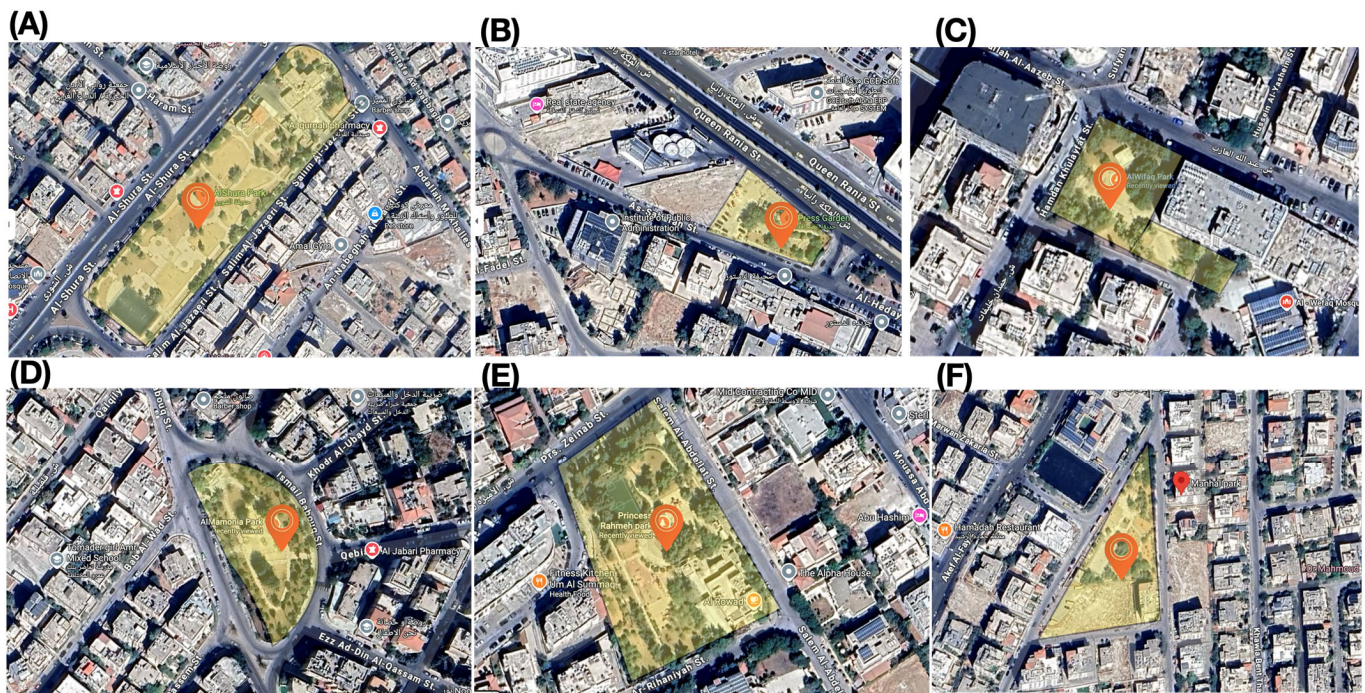


Figure 2. Satellite imagery showing the surveyed urban park areas within the city, highlighting their locations. (A) Alshoura Park, (B) Press Park, (C) Al-Wefaq Park, (D) Al-Momaniyah Park, (E) Princess Rahmeh Park, (F) Manhal Park, Source: Google Maps, v26.3.1 (a), 2026.

Table 1. The main characteristics and facilities of the surveyed urban parks in this study, (*) referred to the location of the park within Amman city; (**) vegetated tree area included the natural shading elements, like tree canopies, (***) referred to the built shade structures, such as pergolas and awnings. $n = 6$.

Item	(A) Alshoura Park	(B) Press Park	(C) Al-Wefaq Park	(D) Al-Momaniyah Park	(E) Princess Rahmeh Park	(F) Manhal Park
Construction date	2010	2015	2012	2011	2014	2016
Location *	Abdun Al Shamli	Telaa alali	Aljubihaa	Jabal Al-Hussein	Om Al-Summaq	Al-Jubiha
Total area (m ²)	12,450	2383	4800	6000	8000	4000
Vegetated tree area (%) **	11%	15%	24%	15%	18%	14%
Playground (n)	3	1	1	2	2	1
Sports fields (n)	1 (soccer)	-	-	-	1 (soccer)	-
Lighting	✓	✓	✓	✓	✓	✓
Water fountain	×	×	×	×	×	×
Restrooms	✓	×	×	✓	×	×
Food services (n)	×	×	×	1	1	×
Seating areas	✓	✓	✓	✓	✓	✓
Shading elements ***	×	×	×	×	×	×
Disability solutions	✓	×	×	✓	✓	×



Figure 3. The surveyed urban parks in this study; $n = 6$.

3.2. Monitoring of Outdoor Thermal Conditions

Outdoor air temperature (T_{out}) and relative humidity (Rh_{out}) were monitored in all surveyed urban parks to assess thermal conditions. Although other factors, such as wind speed, solar radiation, and cloud cover, are important for understanding thermal conditions in the surveyed parks, we relied on readily available meteorological data that adequately represented the core conditions associated with thermal comfort. In addition, while thermal indices such as the Universal Thermal Climate Index (UTCI) and the Physiological Equivalent Temperature (PET) can provide valuable information [61,62], they require complex computations and additional parameters; therefore, relying on air temperature and relative humidity offers a simpler and more efficient approach.

For monitoring, 72 iButtons (i.e., Hygrochron DS1923, iButtonLink, LLC., Whitewater, WI, USA) were used [63]. Each data logger was equipped with dual sensors that measure temperature and relative humidity simultaneously. The iButton was used for its small size (16.0 mm diameter), durability, and suitability for harsh outdoor conditions and long-term tracking. The dataloggers were distributed across the surveyed parks, based on park size, landscape, and visitation patterns. The data were collected over two months, from 1 July to 31 August 2025, representing the summer season in Amman. Measurements were taken at 5 min intervals. The iButtons were strategically positioned in the surveyed parks to capture representative microclimatic conditions, considering three factors: (i) areas with varying levels of shade, (ii) locations near playgrounds and sports fields, and (iii) proximity to seating areas and walking paths [64]. The iButtons were mounted on existing structures within the parks, such as lamp posts, signposts, fences, or sturdy tree branches, whenever feasible, at a height of 1.8 m, to represent typical human exposure [65]. The iButtons were protected from direct sunlight with solar shields that still allowed sufficient airflow, and UV-resistant zip ties secured the iButtons and shields to their mounting points. For smooth surfaces, a strong adhesive pad (e.g., 3 M VHB tape) was used for added security. The internal clocks of each iButton were synchronised to ensure precise data correlation.

Each iButton was given a unique code, and its location was recorded to facilitate data analysis. Regular inspections were conducted at the iButton mounting sites to ensure the solar shields remained in place and the iButtons continued to function correctly. Permission from the relevant parks' authorities was obtained to conduct the research (i.e., physical monitoring and questionnaire). Parks' staff were informed of the research objectives and procedure, which helped to increase support for the research. Appendix A provides technical information on the dataloggers used.

3.3. Survey Design

A survey was conducted to investigate how people use and interact with urban parks during the hot and dry season [66]. The survey consisted of three sections as follows (see Appendix B):

- i. The socio-demographic characteristics of the park visitor sample were assessed using 10 items. These included measures of gender, age, education level, employment status, having children, distance between home and the visited park, nationality, marital status, household income level, and disability status.
- ii. Thermal sensation votes (TSV) and thermal preference votes (TPV) of participants were assessed using the ASHRAE-55 scale, which ranges from -3 to 3 , where -3 denotes a sensation of cold, and 3 indicates a sensation of heat [65].
- iii. Satisfaction with park facilities and preferences to assess the parks' quality from users' perception, including 17 items. This section seeks to understand the most critical factors influencing visitors' satisfaction and their preferences for potential

improvements. A 7-point Likert scale and open-ended questions were included to gather comprehensive responses.

The survey was initially designed in English and subsequently translated into Arabic by a sworn translator, as most target participants have Arabic as their first language [11]. The survey was distributed in paper form to increase response rates during three time periods: [8:00–12:00], [12:00–16:00], and [16:00–20:00] [67]. These time periods were selected as they correspond to daily opening hours, activity patterns, and thermal comfort levels in urban parks. For instance, from 8:00 to 12:00, park usage typically increases, with people walking and jogging. The 12:00 to 16:00 period corresponds to Amman’s peak heat hours during the summer, when thermal stress can become a major concern and park visits may decline [68]. Temperature begins to cool between 16:00 and 20:00, and park usage may increase as people seek outdoor recreation after work or school.

Prior to the survey, a pre-test with 19 participants was held in May 2025 to evaluate and refine the questionnaire. The G*power tool (v 3.1.9.7) was used to determine the required sample size [69]. The required sample size was 620 responses. In this study, 718 respondents participated to ensure the results were generalizable and to address any missing data or unanswered questions. In addition to increasing the statistical power of the analysis [70], it enables the detection of even small effect sizes and increases confidence in the findings [71]. Multiple visits to the selected parks were strategically scheduled between July and August to coincide with the periods of physical measurements of outdoor thermal conditions (Table 2). This allows direct correlation between subjective survey responses and objective environmental data (Figure 4). The survey was randomly distributed to the park’s visitors to minimise selection bias. Both active and resting individuals were included in this study. Each respondent provided only one response, ensuring that we collected unique data points free of repeated-measurement bias.

Table 2. Distribution of survey respondents and schedule of site visits across the surveyed urban parks, $n = 6$.

Park	A	B	C	D	E	F
Number of respondents (n)	150	130	120	110	108	104
Number of visits (n)	6	5	4	4	4	5
Date of visits	8, 15, 22 July; 5, 15, 27 August	9, 16, 23 July; 6, 16 August	10, 17, 24 July; 31 August	11, 18 July; 1, 25 August	12, 19, 26 July; 2 August	13, 20, 27 July; 3, 27 August

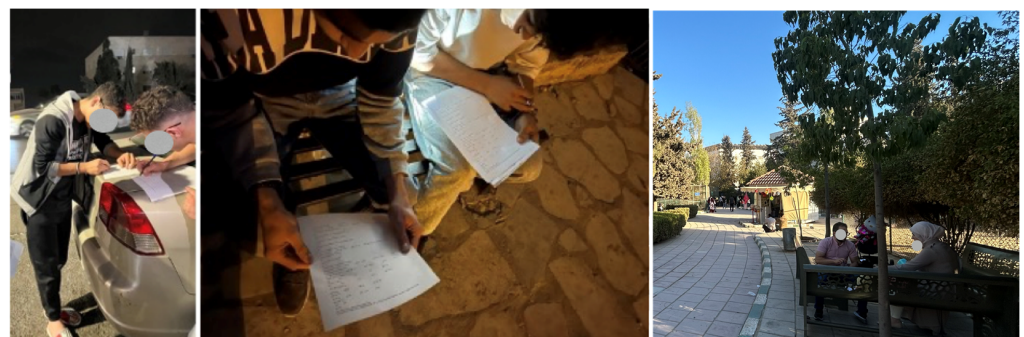


Figure 4. Survey distribution process in the surveyed urban parks ($n = 718$).

3.4. Visitation Records

To understand the relationship between outdoor temperature and visitation patterns, it was essential to obtain objective data on park attendance. To achieve this, formal requests were submitted to the Greater Amman Municipality (GAM) [57], the governing body

responsible for managing the surveyed parks. The visitation data processing involved several steps to ensure the integrity and reliability, as follows:

1. The municipality provided a dataset of individual visitation records covering the study period from 1 July to 31 August 2025. Each record included a timestamp of the visit (local date and time), a site identifier, and an anonymised visitor identifier. Records with missing or invalid site identifiers and timestamps were excluded ($n = 32$).
2. Duplicate records (identical visitor identifier, site identifier, and timestamp) were removed. To prevent data inflation of visit counts from repeated recordings of the same visitor within very short intervals, we applied a conservative revisit filter: multiple consecutive records for the same anonymised visitor at the same site within a 10 min window were combined into a single visit event. This 10 min threshold was chosen based on prior research [67], which showed negligible changes to aggregated hourly counts for thresholds between 5 and 30 min.
3. For visitor records with timestamps exactly on an hour boundary (e.g., 11:00:00), we assigned those events to the hour starting at that timestamp (i.e., 11:00–11:59) for aggregation purposes. After preprocessing, visits were aggregated by site and hour. For each site and each hourly interval (e.g., 00:00–00:59 on 202X-XX-XX), we counted the number of unique visit events assigned to that interval. The hourly time series thus produced was the main dependent variable used in time-varying analyses.
4. To validate the aggregated hourly series, weekly patterns for selected sites were plotted to confirm the expected diurnal patterns. Additionally, municipal counts were compared with an independent manual-count subset for two sample days (correlation $r = 0.87$). Throughout this process, we ensured strict adherence to all relevant data protection regulations and policies.

3.5. Data Analysis Methods

The data analysis plan involves the following steps:

- For continuous data (T_{out}) (°C) and ratio data (Rh_{out}) (%), the one-way ANOVA test was used to assess differences in mean scores across multiple independent groups [71]. The Shapiro–Wilk test was used to assess normality before conducting the ANOVA. A p -value of 0.21 was reported, indicating a normal distribution across the data [72].
- For open-ended questions, thematic analysis was employed. To identify recurring themes, each response was reviewed to become familiar with the data. Subsequently, a coding framework was developed by grouping responses into pre-established categories based on common concepts. To ensure consistency, two researchers independently conducted a reliability check after coding the responses. Disagreements were resolved through discussion and consensus. Finally, themes were quantified to determine the most frequent observations and incorporated into our results.
- The nonparametric Kruskal–Wallis H test was selected to assess differences in participants' responses on a categorical or ordinal scale (e.g., satisfaction level) [71]. It was used to test the null hypothesis that there is no difference in the mean response between the investigated parks, assuming that the groups follow the same distribution. It also offers robustness against outliers, enhancing the reliability of the data analysis.
- To investigate the relationship between the monitored outdoor temperature and the obtained park visitation rate in the surveyed parks, a linear regression was calculated [71], using the following equation:

$$y = mx + b \quad (1)$$

where y = park visitation rate, x = outdoor temperature ($^{\circ}\text{C}$), and m = slope of the line (indicates the change in visitation rate for each degree increase in temperature).

- The Pearson correlation was calculated after testing the data for normality using the Shapiro–Wilk test [72].
- The reported visitation rates in this study were absolute counts and were not normalised by park size, allowing direct representation of the total number of visitors in each park [73,74].
- The hourly visitation counts were modelled using a negative binomial generalised linear mixed-effects model (GLMM) to accommodate overdispersed count data and the non-independence of repeated observations within parks. Fixed effects included the intercept, hourly temperature, relative humidity, park-level covariates (park size, amenities index, percent tree cover), and temporal controls for hour of day and day of week. The model incorporated a park-level random intercept to account for repeated measures and between-park heterogeneity. In sensitivity analyses, alternative specifications were estimated, including (i) an additional random slope for temperature at the park level, (ii) models with an offset for sensor uptime, and (iii) Poisson/quasi-Poisson variants.
- The R software (v R-4.5.3) was used for statistical analysis, including mixed-effects models, using the glmmTMB package (v 1.1.14). The sensitivity models were re-run with the lme4 package. The visualisation was done using packages including ggplot2 (v 4.0.2) [75], cowplot (v 1.2.0) [76], and plotly (v 6.6.0) [77].

4. Results and Discussion

This section analyses both subjective and objective data and examines the findings in the context of the existing literature.

4.1. Characteristics of the Study Sample

The study sample showed a slight gender skew towards female participants (55.5%), suggesting higher park usage among women for family-related activities or accompanying children to the park (see Appendix C). However, this finding contradicts established observations in other surveyed regions, which generally indicate that males are more often present in urban parks and engage in vigorous physical activities [78]. The largest proportion of respondents falls within the 18-to-25-year age group (31.56%), followed by the 36-to-45-year age group (29.71%). The over-46 age group accounts for only 12.2% of the sample. This aligns with Jordan's national demographic profile, where younger populations are more prominent [79,80].

Regarding educational level, a significant proportion of the sample (43.2%) held a university degree, with an additional 19.9% having a master's degree or PhD. This aligns with Jordan's relatively high literacy rate and suggests that higher levels of education may be associated with greater awareness and appreciation of urban green spaces [81]. Over half of the respondents (54.0%) were married, while 39.3% were not. The majority of participants (66.3%) had children under 18 years old, which could influence their park usage patterns and preferences [79]. Employment status varied, with private-sector employees (41.4%) and state employees (22.5%) comprising the largest segments of the sample. The proportion of unemployed individuals (9.3%) was lower than the national unemployment rate of 21.3% reported by the Department of Statistics for the same period in 2025 [82], suggesting possible under-representation of this group in the sample.

A significant proportion of respondents (30.2%) earned between 0 and 500 Jordanian Dinars (JOD), while 25.2% earned between 501 and 800 JOD, and 21.49% earned over 1201 JOD per month. According to the Department of Statistics (2022), the national average

monthly wage in Jordan is approximately 544 JOD [83]. Consequently, the observed income distribution suggests that a substantial proportion of the surveyed participants may earn below the national average, which could influence their discretionary spending and leisure activities [84] and subjective perceptions of park quality and amenities [85].

4.2. Thermal Conditions

Figure 5a shows the mean daily outdoor air temperature across the surveyed parks. Mean T_{out} ranged from 30.2 °C at Park C to 33.5 °C at Park E, indicating a moderate degree of thermal differentiation across the surveyed parks ($\Delta M = 3.3$). The highest maximum T_{out} temperature recorded at Park B was 41.0 °C, suggesting it may receive more direct sunlight or have fewer shading features than other parks (Table 3). In comparison, Park C reported the lowest minimum temperatures of 23.2 °C during the monitored period. This could be attributed to the higher green cover (24%, see Table 1) in Park C, due to shading and evapotranspiration [86,87].

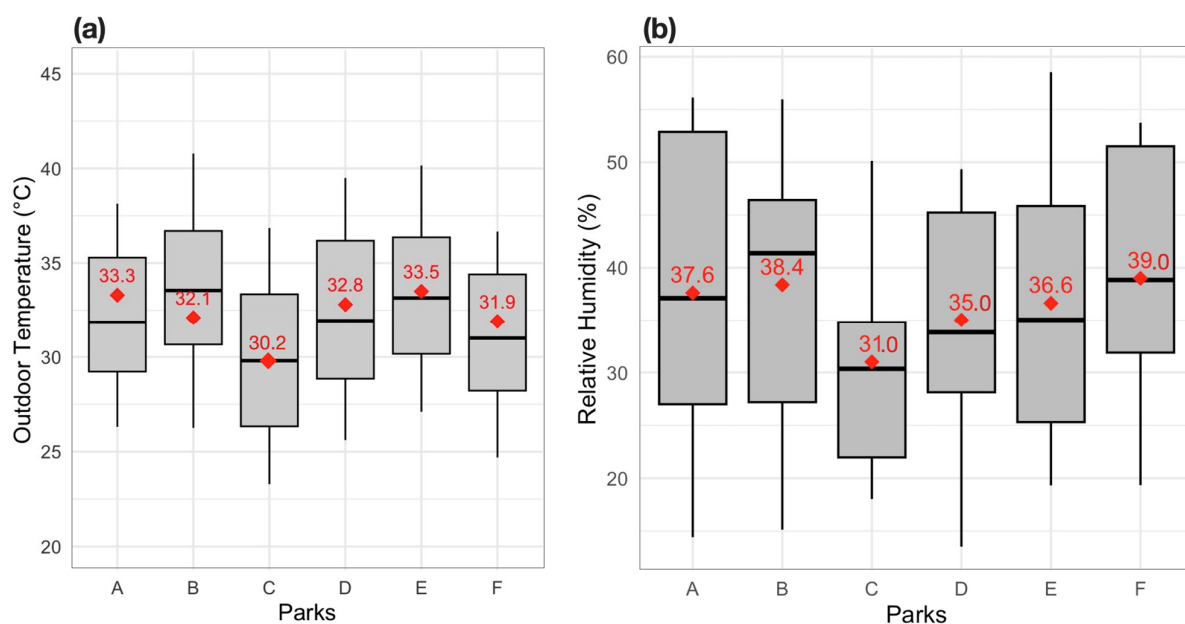


Figure 5. (a) Box plot showing the data of continuous monitoring for outdoor temperatures (°C), and (b) outdoor relative humidity (%), across six surveyed urban parks (A, B, C, D, E, F) between 1 July and 31 August 2025. The line inside each box represents the median temperature. The red diamonds indicate the mean temperatures for each park.

Table 3. The recorded outdoor temperature (T_{out}) and relative air humidity (Rh_{out}) in the surveyed urban public parks during the survey period (1 July and 31 August 2025).

Park	A	B	C	D	E	F
Data logger (n)	15	10	12	13	12	10
T_{out} (°C)						
Mean	33.3	32.1	30.2	32.8	33.5	31.9
Max.	38.2	41.0	37.1	39.5	40.2	36.8
Min.	26.3	26.1	23.2	25.5	27.1	24.5
Range	[26.3, 38.2]	[26.1, 41.0]	[23.2, 37.1]	[25.5, 39.5]	[27.1, 40.2]	[24.5, 36.8]
RH_{out} (%)						
Mean	37.6	38.4	31.0	35.0	36.6	39.0
Max.	58.1	56.2	54.1	57.5	59.2	55.5
Min.	12.5	14.1	16.3	13.5	15.2	17.0
Range	[12.5, 58.1]	[14.1, 56.2]	[16.3, 54.1]	[13.5, 57.5]	[15.2, 59.2]	[17.0, 55.5]

Figure 5b presents the daily outdoor relative humidity (Rh_{out}) in the surveyed urban parks during the monitored period. The mean values varied from 31.0% at Park C to 39.0% at Park F. The observed variations in mean score Rh_{out} likely reflect differences in park size, vegetation density, and the influence of surrounding urban morphology (see Table 1), all of which can contribute to the formation of distinct microclimates.

Moreover, an ANOVA test was conducted to determine whether there were significant differences in mean outdoor temperature across the surveyed parks. The results indicated a statistically significant difference in mean temperatures across parks [$F(5, 114) = 11.16, p < 0.001$]. Further, the post hoc comparisons using Tukey's HSD test revealed that Parks A and C had significantly different mean temperatures ($p = 0.001$) (Table 4). At the same time, Parks A and B also showed a significant difference ($p = 0.02$). However, no significant differences were found between Parks A and E ($p = 0.95$) or Parks B and D ($p = 0.99$). These findings indicated that certain parks experience notably different outdoor temperatures, which could be attributed to the varied vegetation cover and surface materials [88].

Table 4. The results of the post hoc test, p -value adjustment: Tukey method for a family of 6 estimates; n.s., indicates not significant, * indicates $p < 0.001$.

Contrast	Estimate	t-Ratio	p-Value
A–B	1.67	3.18	0.02
A–C	3.29	6.24	0.00 *
A–D	1.96	3.71	0.00 *
A–E	0.45	0.86	0.95 (n.s.)
A–F	2.54	4.83	0.00 *
B–C	1.61	3.06	0.03
B–D	0.28	0.53	0.99 (n.s.)
B–E	−1.21	−2.31	0.19
B–F	0.87	1.65	0.56 (n.s.)
C–D	−1.33	−2.53	0.12 (n.s.)
C–E	−2.83	−5.38	0.00 *
C–F	−0.74	−1.41	0.71 (n.s.)
D–E	−1.502	−2.85	0.05
D–F	0.588	1.11	0.87 (n.s.)

4.3. Impact of Temperature on Visit Rate

Figure 6 presents scatter plots of the relationship between measured outdoor temperature ($^{\circ}\text{C}$) and visitation rates. The linear regression results revealed a negative correlation across all parks. As outdoor temperatures increase, visitation rates tend to decline [$R^2 = 0.67, p < 0.01, y = 150.86 + (-2.02)x$]. This means that for every 1°C increase in outdoor temperature, the visitation rate decreases by approximately 2.03 visitors per hour. Among all parks, correlation coefficients ranged from 0.55 to 0.74, indicating moderate-to-strong negative relationships. For instance, Park C exhibited the highest correlation coefficient ($R^2 = 0.74$), indicating that even minor temperature increases may lead to a significant decline in summer visitation. Conversely, Park A showed a notable negative correlation ($R^2 = 0.54$), indicating a slightly less pronounced effect and suggesting that factors specific to each park (e.g., size, available services, and green cover) may also influence visitation rates [89]. To address the non-independence introduced by repeated sampling across sources, the linear mixed-effects model was used. Table 5 shows that the temperature intercept is significant, with an estimate of 50.3 [95% CI: 40.1 to 60.5]. Temperature had a negative effect on visitation, with each 1°C increase associated with a decrease of 2.1 visitors per hour ($z = -7.00, p < 0.001$). In addition, relative humidity showed a positive relationship, with an estimate of 1.5 [95% CI: 1.1 to 1.9], indicating that

higher humidity is associated with higher visitation ($z = 7.50, p < 0.001$). Park size has a small positive effect (0.05), suggesting that larger parks may attract slightly more visitors ($z = 5.00, p < 0.001$). Amenities significantly influence visitation, with an estimate of 3.2 [95% CI: 2.2 to 4.2], indicating that parks with more amenities attract more visitors ($z = 6.40, p < 0.001$). Lastly, tree cover has a moderate positive effect, with an estimate of 0.8 [95% CI: 0.4 to 1.2], indicating that parks with more tree cover tend to have higher visitation rates ($z = 4.00, p < 0.001$). The total residual variance across all variables is consistently 5.0, suggesting the model's stability across the different park conditions.

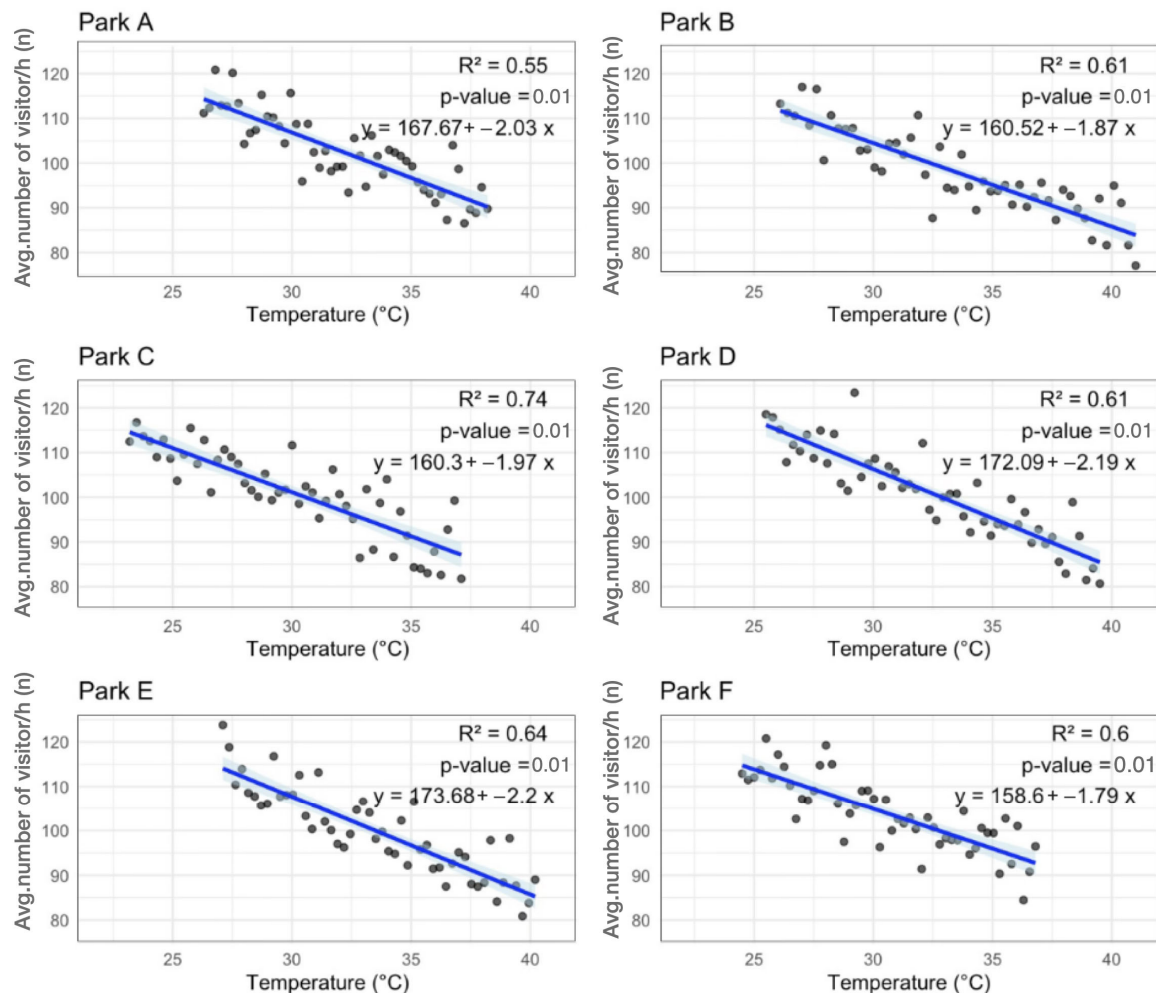


Figure 6. Scatter plots illustrate the relationship between temperature (°C) and park visitation rates for surveyed parks. Each plot features a fitted linear regression line, along with the correlation coefficient (R^2) and p -value. In the equation, y denotes the park visitation rate, and x denotes outdoor temperature, black dots represent the observed average number of visitors at each measured temperature, and the blue line is the fitted linear regression (with the shaded area showing the 95% confidence interval).

Results suggested that specific temperature thresholds may trigger significant changes in visitor behaviour, providing crucial insights for management. Park managers should prepare for variations in attendance driven by temperature changes [90]. Our findings are consistent with existing research highlighting the effects of thermal conditions on public engagement with urban parks. A study conducted at a public park in southern Taiwan found that rising temperatures can discourage people from using parks and other outdoor areas, mainly due to heat-related discomfort [91]. Further research by Kabisch and Kraemer (2020) found that higher temperatures can lead to notable drops in outdoor activities, especially during the peak summer months [92]. This finding suggests that park

design should incorporate more blue and green spaces, as well as shaded zones, to enhance thermal comfort and encourage higher park attendance. Moreover, it is essential to account for thermal stress and associated health risks when examining how thermal conditions affect the behaviour of urban parks [93]. Thermal stress can cause serious physiological strain, increasing the likelihood of heat-related illnesses, such as heat exhaustion and heat stroke, particularly among vulnerable individuals.

Furthermore, Figure 7 shows the average number of visits throughout the day in the surveyed parks between July and August 2025, illustrating the influence of time of day on park attendance. Results revealed that most parks exhibit a distinct daily cycle, with visitor numbers increasing in the late morning and early afternoon. Parks A, B, and E, in particular, experience significant peaks around midday, highlighting these times as especially popular. Additionally, visitors to Parks D and F appeared to prefer outdoor activities after work or school, as the heat begins to dissipate. However, Park F is distinctive in exhibiting a noticeable decline in attendance around midday, indicating that visitors favour morning or late-afternoon visits over lunchtime. Overall, although each park shows its own visitation trends, a clear pattern emerges. Visitor numbers usually increase in the morning and peak in the late afternoon [94]. These results emphasise how time affects park attendance and suggest opportunities for targeted engagement and resource planning to enhance visitor experiences.

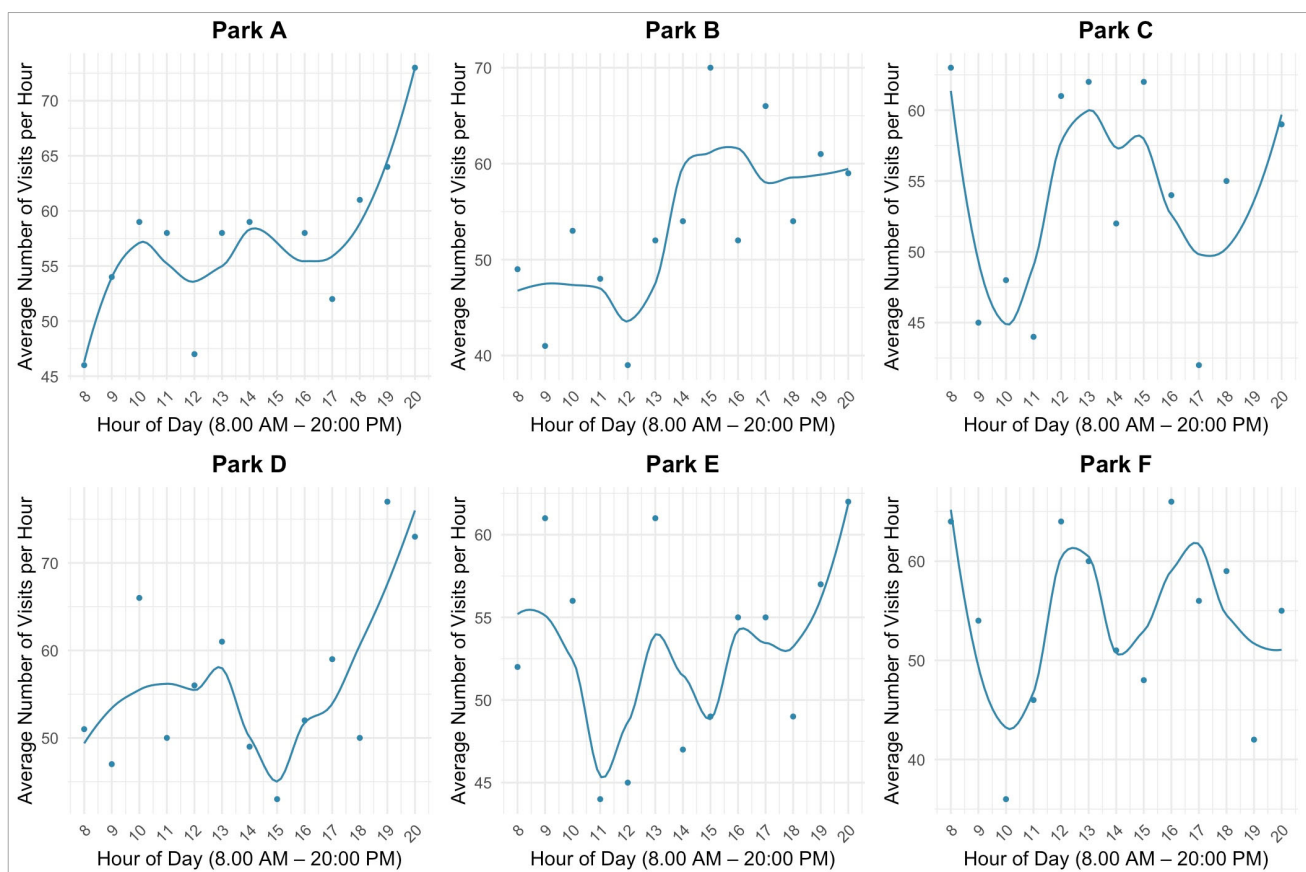


Figure 7. The average number of visits per hour between 1 July and 31 August 2025 in the surveyed parks illustrates the influence of time of day on park attendance. The blue line represents the estimated average number of visits per hour across the day based on the observed data points.

Table 5. The results of the mixed-effects models.

Variable	Intercept (95% CI)	Effect of Park	Total Residuals Variance	Unexplained Variance	Std Err	z-Value
Temperature (°C)	50.3 (40.1, 60.5)	−2.1	5.0	1.5	0.3	−7.00
Humidity (%)	1.5 (1.1, 1.9)	1.5	5.0	0.8	0.2	7.50
Park Size	0.05 (0.03, 0.07)	0.05	5.0	0.2	0.01	5.00
Amenities	3.2 (2.2, 4.2)	3.2	5.0	0.6	0.5	6.40
Tree Cover	0.8 (0.4, 1.2)	0.8	5.0	0.4	0.2	4.00

4.4. Thermal Sensation and Preference Votes

Figure 8a presents the thermal sensation votes (TSV) obtained from participants among the surveyed parks during the monitored period. Notably, most reported mean TSV scores were around (+1.0), indicating that participants experienced a warm thermal sensation [95].

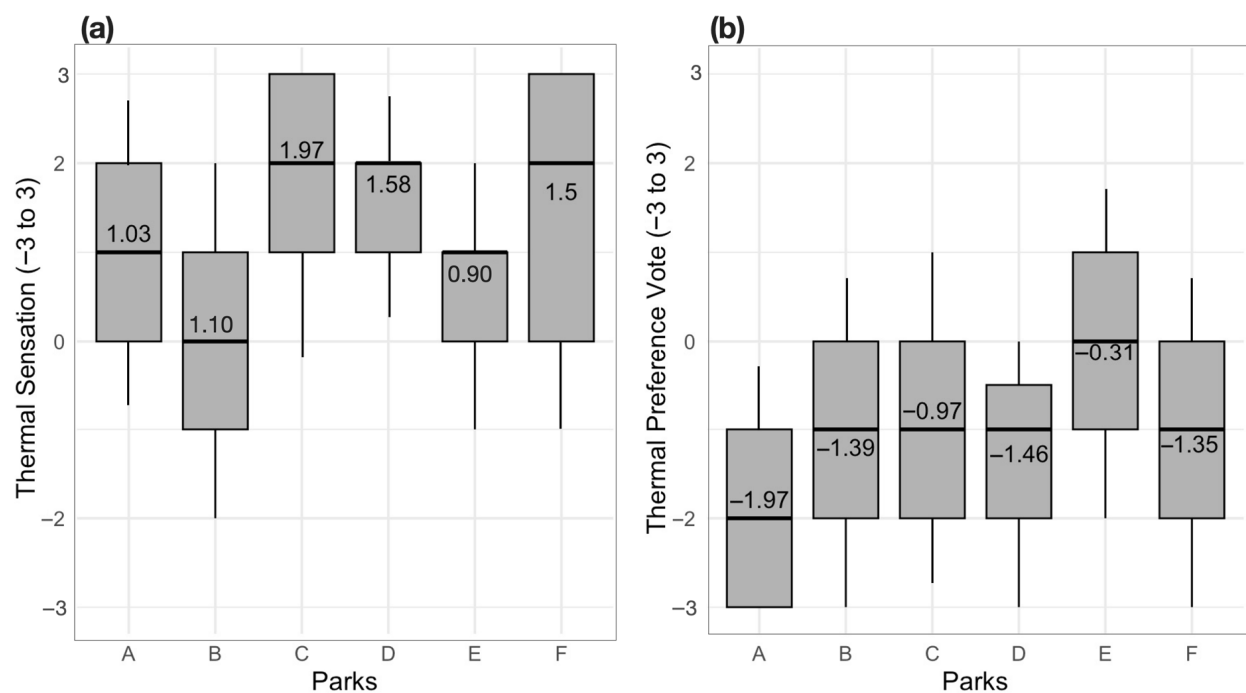


Figure 8. (a) Box plot showing thermal sensation votes, (b) thermal preference votes from visitors across six urban parks (A, B, C, D, E, and F) on a scale from −3 (cold) to 3 (hot). Data were collected during physical monitoring of temperature and relative humidity from July to August 2025.

Although Park C has the lowest reported mean outdoor temperature score ($M = 30.2$), its TSV mean score of 1.97 indicates a warm thermal environment. This suggests that factors beyond temperature, such as humidity, wind speed, and shading, may affect perceived warmth [96]. In addition, psychological factors may play a significant role in how temperature is perceived; visitors may associate lower temperatures with discomfort if they are not adequately acclimated or physically active [97]. Social factors such as crowd density and available amenities may also contribute to higher thermal sensation scores [98].

The Kruskal–Wallis test indicated significant differences in mean scores among the surveyed parks [$\chi^2(5) = 23.45, p < 0.001$]. Post hoc tests revealed that Parks A, C, and D had significantly higher TSV scores than Parks B and E, indicating notable differences in thermal sensation among the parks (Table 6).

Table 6. The results of post hoc tests for differences in mean TSV and TPV scores among the surveyed parks ($n = 6$), based on the Kruskal–Wallis test, are shown in this table. Only pairs that showed a significant difference in mean score are listed. SE refers to Standard Error, * p -value < 0.001 .

Comparison	Diff	SE	z-Value	p-Value
TSV				
A–B	1.04	0.20	5.20	0.00 *
A–C	−0.94	0.20	−4.70	0.00 *
A–D	−0.55	0.20	−2.73	0.015
C–E	1.40	0.20	7.00	0.00 *
B–F	1.51	0.20	7.55	0.00*
TPV				
A–D	0.68	0.25	2.73	0.006
A–E	1.66	0.25	6.64	0.00 *
A–F	0.66	0.25	2.64	0.00 *
B–E	1.24	0.25	4.96	0.00 *
C–E	1.11	0.25	4.44	0.00 *
D–E	0.98	0.25	3.92	0.00 *

Figure 8b illustrates the thermal preference votes (TPV) recorded from participants in the surveyed parks. All reported mean scores were negative, indicating that most respondents favoured cooler thermal conditions in the surveyed parks. Interestingly, respondents in Park E, who reported the lowest thermal sensation values ($M = 0.90$), preferred even cooler thermal environments ($M = -0.31$). This is supported by a study conducted by Zhang et al. (2020), which found that individuals in cooler microclimates are likely to prefer lower temperatures [99]. Moreover, the Kruskal–Wallis test indicated significant differences in mean TPV scores among the surveyed parks [$\chi^2(5) = 18.67, p < 0.001$], with Parks A, D, and E having TPV scores that differed significantly from those of Parks B and C, indicating notable variations in thermal preferences among the parks (see Table 6).

The findings from TSV and TPV align with the existing literature, indicating that people often prefer cooler thermal environments, especially in urban settings where heat retention can be considerable [100]. According to Nicol and Humphreys (2010), thermal comfort is generally achieved at lower temperatures outdoors, particularly during warmer months [101]. Other factors, including physiological responses, may influence respondents' preferences for cooler conditions, as higher temperatures can cause discomfort and reduce outdoor activities [102]. These findings emphasise the importance of localised environmental features, such as vegetation and shade, which may significantly influence thermal preferences in urban parks in Amman [103].

4.5. User Satisfaction Level with Park Amenities

Figure 9 illustrates participants' overall satisfaction with amenities in the surveyed urban parks, rated on a scale from -3 to 3 . Notably, most participants reported low satisfaction with the amenities in the surveyed urban parks. Park F has the lowest mean satisfaction score ($M = -1.5$), indicating significant dissatisfaction among users with its amenities. As illustrated in Section 3.1, Park F features limited amenities, including only one playground and no water fountains or food services, which could contribute to its negative reception. Conversely, Park D exhibits a marginally higher satisfaction level ($M = 0.03$) compared to the other surveyed parks. This could be described as offering essential amenities, such as restrooms and a football court, which may enhance the user experience compared to other parks. Further, the box plots reveal variability in satisfaction scores within each park; for instance, Park A shows a broader range, suggesting greater disparity in user experiences. This could be attributed to diverse user expectations, park

usage patterns, or specific amenity preferences [104,105]. In comparison, in Park E, a narrower range indicates consistent user experiences due to its better balance of amenities and a moderate level of vegetation (18%).

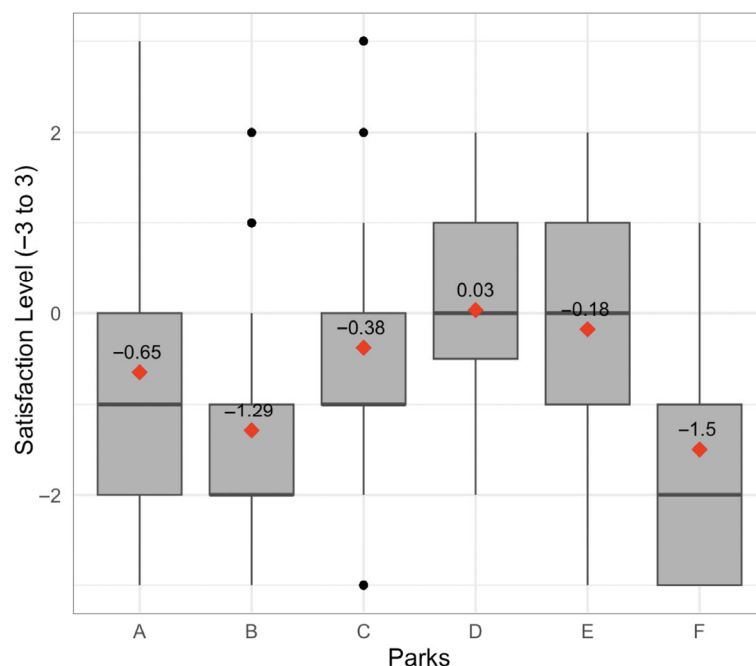


Figure 9. The box plots show satisfaction levels with amenities across six urban parks (A–F), $n = 718$. The scale ranged from -3 to 3 , where -3 indicates “Extremely Dissatisfied,” $+3$ represents “Extremely Satisfied,” and 0 is the “neutral point.” The red diamonds represent average satisfaction scores for each park.

Moreover, Figure 10 illustrates the participants’ satisfaction levels with seventeen factors that may influence their experiences in the surveyed urban parks. Overall, the results indicate low satisfaction across most factors, with values clustering around a mean of zero. Among the factors evaluated, “social interaction” ($M = -1.22$) had the lowest satisfaction level. This was followed by facilities and amenities ($M = -1.00$), safety and security ($M = -0.91$), sign systems ($M = -0.8$), and landscape visual quality ($M = -0.67$), all of which also received relatively low ratings. These findings underscore their negative impact on visitor satisfaction, reinforcing the need for targeted improvements in these areas.

Our findings align with previous research emphasising the importance of park amenities in determining user satisfaction [30,104]. Studies have shown that factors such as park size, vegetation, recreational facilities, and landscape visual effect significantly affect user satisfaction [105]. Furthermore, research has highlighted the importance of social cohesion in urban parks and the critical influence of perceived safety on park attractiveness, which, in turn, may affect the perceived quality and attractiveness of urban parks [106].

According to Bogacka (2020), factors such as adequate lighting, visibility, and the presence of people can positively influence perceived safety [107]. Conversely, vandalism, homelessness, and alcohol consumption negatively affect this perception [108]. In addition, the observed dissatisfaction with the “sign system” ($M = -0.80$) indicates a need for improved wayfinding and information dissemination within the surveyed parks [109]. A study in Shenzhen, China, found that the signage system had the most significant influence on user satisfaction among the various factors in urban parks [30]. Similarly, the visual quality of urban parks, including vegetation, water features [110], and landscape elements, is

considered an important aspect that may impact people’s physical and mental health [111].

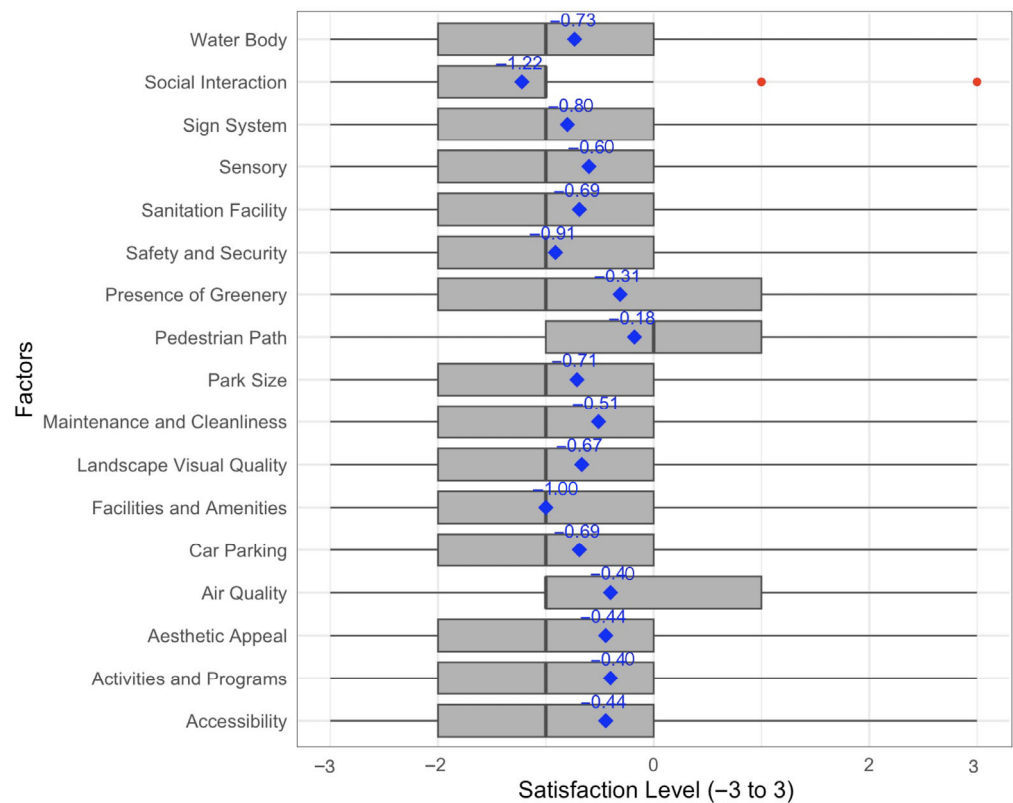


Figure 10. Boxplot illustrating satisfaction levels (ranging from -3 to 3) across seventeen factors influencing user experiences in the surveyed urban parks. The scale ranged from -3 to 3 , where -3 indicates “Extremely Dissatisfied”, $+3$ represents “Extremely Satisfied”, and 0 is the “neutral point”. Blue diamond denotes mean satisfaction scores for each factor ($n = 718$).

4.6. Aspects for Improvement in Urban Parks

To complement the results from the previous section on users’ satisfaction with urban parks’ amenities, participants in the surveyed parks were also asked to rate the most critical factors hindering their visits to the parks in Amman. This allows highlighting the specific issues that need improvement. Participants were given five main aspects (i.e., accessibility, lighting, shading, safety, and maintenance), with the option to add any additional items they considered a challenge. Figure 11 presents a heat map of the challenges reported by participants in the surveyed parks, highlighting the severity of specific issues across these locations.

The results reveal a hierarchical structure of challenges faced by park users, with “Lack of Facilities” emerging as the most prominent issue across multiple parks. Park (A) exemplifies this trend, with the highest intensity score, reflecting a significant gap in essential amenities despite its large area. This finding aligns with the existing literature, which emphasises the importance of facility availability in improving user satisfaction [109]. Closely following is the challenge of “Safety Concerns,” which shows moderate intensity across several parks, particularly in Parks D and E. The presence of adequate amenities does not alleviate these concerns, underlining the need for enhanced security measures. This supports Kaplan and Kaplan’s (1989) assertion that safety perceptions significantly influence park visitation and user engagement [112].

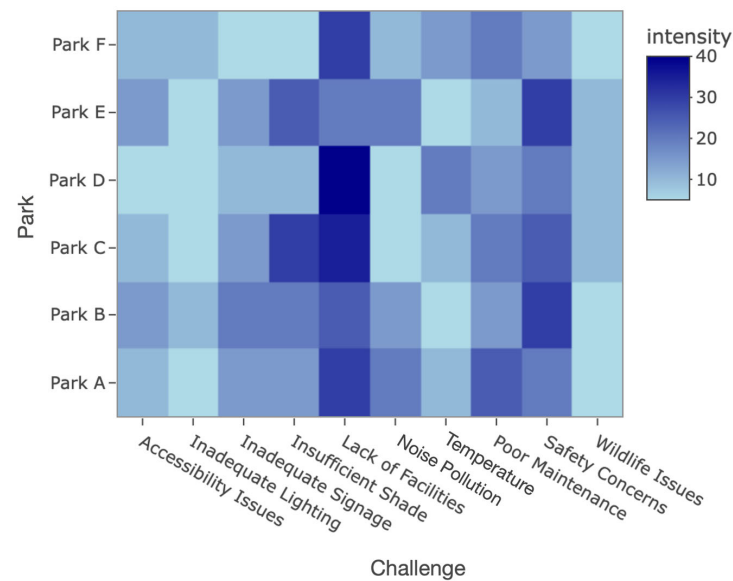


Figure 11. 3D heat map of the challenges users perceived in the surveyed urban parks.

The following aspects were “Wildlife Issues” and “Inadequate Lighting,” both of which were predominant but had lower intensity scores compared to other aspects. Park C, with a larger vegetated zone, experiences fewer wildlife-related issues, possibly due to better ecological management practices [113,114]. While lighting was a concern, it may not be perceived as urgent by park users. Lastly, the accessibility of urban parks was a noteworthy challenge, but it had the lowest overall intensity.

This is consistent with findings from previous studies highlighting its critical importance in urban park design [115]. In addition to the aspects discussed, recent studies emphasised the important role of landscaping and water features in improving user satisfaction and thermal comfort in urban parks. For instance, Kwon et al. (2024) highlight that well-placed water features can greatly enhance thermal comfort indices [116], which ultimately affects user perception and satisfaction. Overall, by recognizing the impact of microclimatic cooling, we can promote design strategies that balance ecological health and user experience in urban areas.

5. Conclusions

This study is the first empirical multi-method investigation of urban park dynamics during heat days in Amman, Jordan, amid the ongoing challenges posed by climate change. It addresses a vital gap in the literature on outdoor space design in rapidly urbanising cities, especially in developing countries where urbanisation often proceeds without adequate planning for public outdoor spaces. The primary aim was to examine the relationship between outdoor temperature and visitation rates across six urban parks in the summer of 2025. Data were collected from 718 respondents using a mixed-methods approach, combining continuous measurements of outdoor temperature and relative humidity with a survey assessing users’ thermal sensations, satisfaction, and preferences. Visitation records for each surveyed park were also gathered for the monitoring period.

The findings showed that the average outdoor temperature across all surveyed parks exceeded 30 °C, with peak readings going beyond 41 °C. These conditions produced a warm thermal sensation among participants, with many expressing a desire for cooler conditions. A significant inverse relationship ($R^2 = 0.67$, $p = 0$) was found between temperature and park visitation rates. Each 1 °C increase in temperature led to a decrease of about 2.03 visitors. Additionally, participants reported higher satisfaction with parks equipped

with adequate amenities, such as shade features, accessible facilities, and large green areas ($p = 0.01$, $d = 0.63$). The findings highlight the significant impact of outdoor thermal conditions on urban park planning, as they influence public activity patterns and overall satisfaction. Facilities, shaded seating, and perceived safety were identified as areas for improvement to enhance the user experience. Although this study offers valuable insights into the link between outdoor thermal conditions and urban park design, data collection was limited to the summer months, potentially overlooking seasonal differences in park visits, thermal comfort, and satisfaction. Future studies on thermal conditions in urban parks could benefit from considering additional factors, such as wind speed, cloud cover, and microclimatic variations. Including these factors can help build a clearer picture of user experiences across different weather conditions. Addressing these gaps can enable urban parks to better support community well-being and resilience amid ongoing environmental changes.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of AI-Ahliyya Amman University (Project identification code: F17-14-001_75) on 2 December 2024.

Informed Consent Statement: Informed consent for participation was obtained from all subjects involved in the study.

Data Availability Statement: Data is unavailable due to privacy and ethical restrictions.

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Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

WHO	World health organization
T_{out}	Outdoor temperature
Rh_{out}	Outdoor relative humidity
GAM	Greater Amman Municipality

Appendix A. Dataloggers Technical Information

Technical Specification	Details	
Model (iButton Hygrochron DS1923)	Temperature (°C)	Relative Humidity (%)
Measurement Range	−40 °C to +85 °C	0% to 100%
Accuracy	±0.5 °C	±3%
Resolution	0.1 °C	0.1%
Data Logging Interval	Every 5 min	-

Appendix B. Survey

Question	Response Options
1. Socio-Demographic Information	
What is your gender?	Male/Female
What is your age?	18 to 25 years 26 to 35 years 36 to 45 years Over 46 years
What is your current employment status?	Employed (private sector) Employed (State sector) Unemployed Other
What is your education level?	Some High School University Degree (Diploma, Bachelor's) Master's Degree/Doctorate Degree
What is the distance between your home and the visited park?	[Open-ended response]
What is your nationality?	Jordanian Non-Jordanian
What is your marital status?	Single Married Divorced/Widowed Other
What is your household income level?	0 to 500 JOD 501 to 800 JOD 801 to 1200 JOD Over 1200 JOD Prefer not to say
Do you have any disabilities? (If yes, please specify)	Yes/No (If yes: [Open-ended response])
Do you have children? (If yes, please specify number)	Yes/No (If yes: [Open-ended response])
How often do you visit this park?	Daily/Weekly/Monthly/Occasionally/First Time
What are your primary reasons for visiting the park? (Select all that apply)	Exercise/Relaxation/Nature Appreciation/Family Activities/Other (please specify)
2. satisfaction levels	
How satisfied are you with the overall facilities of the park?	−3 (Very Dissatisfied) to 3 (Very Satisfied)

Question	Response Options
How satisfied are you with the following amenities of the park?	
• Water Body • Social Interaction • Sign System • Sensory Experience • Sanitation Facility • Safety and Security • Presence of Greenery • Pedestrian Path • Park Size • Maintenance and cleanliness • Landscape Visual Quality • Facilities and Amenities • Car Parking • Air quality • Aesthetic Appeal • Activities and Events • Accessibility	–3 (Very Dissatisfied) to 3 (Very Satisfied)
Thermal sensation	
3. What challenges you face when you visit the park?	Accessibility, lighting, shading, safety, maintenance, others. . .

Appendix C. Study Sample Profile

Sociodemographic Variable (<i>n</i> = 718)	Category	Number of Participants (<i>n</i>)	Percentage (%)
Gender Distribution	Female	434	55.5
	Male	284	44.5
Age Distribution	18–25	227	31.5
	26–35	190	26.5
	36–45	213	29.7
	Over 46	88	12.2
Educational Attainment	University Degree	310	43.2
	Master's Degree/PhD	143	19.9
	Other	265	36.9
Marital Status	Married	388	54.0
	Single	283	39.3
	Divorced/Widowed	47	06.7
Children Under 18	Yes	476	66.3
	No	242	33.7

Sociodemographic Variable (<i>n</i> = 718)	Category	Number of Participants (<i>n</i>)	Percentage (%)
Employment Status	Private Sector	297	41.4
	Employees		
	State Employees	162	22.5
	Unemployed	67	09.3
	Other	192	26.8
Monthly Income	0–500 JOD	217	30.2
	501–800 JOD	182	25.3
	801–1200 JOD	167	23.3
	Over 1200 JOD	152	21.2
Nationality	Jordanian	609	85.0
	Non-Jordanian	108	15.0
Distance between home and the visited park	0–1 km	215	30.0
	1–3 km	180	25.0
	3–5 km	144	20.0
	5–10 km	108	15.0
	More than 10 km	72	10.0

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