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User-Based Evaluation of Urban Parks: A Case Study from Niğde, Turkey

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Abstract: Urban green spaces are vital for enhancing the quality of life in cities, offering environmental, social, and psychological benefits. However, in many mid-sized Turkish cities like Niğde, the adequacy and quality of urban parks remain understudied and underdeveloped. This study aims to evaluate user satisfaction with the infrastructure, accessibility, safety, and inclusivity of parks in Niğde, Turkey, using a participatory assessment approach. A structured questionnaire was administered to 400 residents, and the data was analyzed using descriptive statistics and chi-square tests to explore demographic relationships. The findings reveal significant dissatisfaction with core elements such as lighting, maintenance, accessibility, and signage. Moreover, gender-based differences emerged in usage patterns, safety perception, and preferred park activities. Based on these insights, the study proposes a set of user-informed strategies to improve urban green space planning in Niğde. The results provide both empirical evidence and actionable recommendations for more inclusive, user-centered park development in similar urban contexts.

1. Introduction

The adverse effects of continuously evolving cities have intensified due to industrialization and unplanned urbanization. One of the fundamental problems of growing cities is the decline in urban livability and environmental quality. In urban areas undergoing rapid change and transformation, the decrease in environmental quality can negatively affect people's physical health, psychological well-being, and social interactions. For this reason, urban green spaces are of particular importance to cities and their inhabitants. Rapid population growth, technological developments, and the concentration of opportunities in urban areas have intensified rural-to-urban migration, leading to unhealthy urban environments. The 20th century stands out as a period when the demand for urban spaces significantly increased. Today, both developed and developing cities are facing urbanization-related challenges.

More than half of the world's population lives in urban areas, and this number continues to rise. One of the most fundamental issues in urban planning is the lack of green spaces. Open green spaces mitigate the negative impacts of building density by incorporating natural

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landscape elements in city centers and fostering a connection between humans and nature. They also allow urban residents to interact with and experience nature through recreational activities [1].

Humanity's impact on the natural balance of the Earth has grown more severe. While past diseases and disasters contributed to people distancing themselves from nature, these events have also intensified the longing for it and highlighted its importance. Although it has not been possible to completely halt the spread of concrete in cities, integrating green spaces amidst dense constructions has emerged as a key strategy. In this context, green spaces are not only crucial for residents but also for the character and liveability of the city itself. The overall identity of a city is shaped by its architectural structures, open green areas, and the interaction between them. Urban green spaces—such as parks, forests, and greenbelts—play a critical role in reducing the negative effects of urban density and creating unity between people and nature. These spaces enable urban dwellers to access and perceive natural environments, offering settings for various recreational uses [2].

Urban parks, a type of green space whose value has increased over time, are commonly used by people of all ages and contribute significantly to environmental quality. They provide areas where the community can relieve stress, experience joy, and escape sedentary lifestyles. Urban parks are appreciated for their microclimatic benefits and recreational possibilities. Over time, the functions and forms of park use have evolved. Especially today, they are seen not only as isolated green patches but as integral elements of comprehensive green infrastructure systems. By fulfilling various roles, urban parks inject vitality into city life. They serve as retreats where individuals can disconnect from urban stress and socialize. Additionally, their environmental functions—such as improving the urban climate, purifying air, and reducing noise—further underline their growing importance [3]. Urban parks now offer more than just recreational amenities; they provide environments for relaxation, social interaction, and reconnection with nature. With urban populations increasing globally, this trend is likely to continue. Rising urbanization leads to vertical growth, increasing the stress of daily life while simultaneously reducing green space availability. Therefore, understanding user preferences and satisfaction in urban parks is vital for ensuring their sustainability [4]. As noted by Yücel and Yıldızcı (2006) [5], the functionality and effectiveness of urban parks depend on successful planning, design, implementation, and maintenance. A park's success is closely linked to the variety and quality of its activity areas. These areas stimulate use and engagement. The more diverse these spaces are, the more they attract users. Especially after the pandemic, attention has shifted to designing green infrastructure that promotes health, social cohesion, and environmental stewardship [6–12]. In Niğde, urban parks are mostly used for resting or picnicking. However, parks could also feature facilities for ball games, free play, multiple playgrounds, and even educational and entertainment zones. According to Yücel and Yıldızcı (2006) [5], several questions should guide the evaluation of urban parks:

- Do users have opportunities to engage in diverse activities?
- Are different user groups (e.g., couples, families, individuals) represented?
- Is the park appealing during various times of the day and year?
- Does the physical layout support nighttime use?

- Is there an identifiable management presence in the park?

Such considerations are essential for not only activity areas but also for other aspects of park design, such as transportation access, amenities, maintenance, and vegetation. This study analyses environmental and design components of urban parks based on user experiences and expectations. It aims to provide recommendations to improve the functionality, visual quality, and sustainability of Niğde's urban parks. The study employs a survey of 400 users to evaluate whether existing parks meet public needs, identify perceived deficiencies, and assess overall user satisfaction. In recent years, participatory assessment methods have gained increasing importance in evaluating the performance and adequacy of urban green spaces. These approaches emphasize public perception, satisfaction, and behavioural patterns rather than solely relying on technical or design standards. Common methods include:

- Structured surveys
- Likert-type scaling
- Participatory planning tools
- Public Participation Geographic Information Systems (PPGIS)

These collectively help identify spatial and experiential gaps from the user's perspective and support co-production of space based on actual needs.

2. Methods and tools

This study was conducted using a structured survey applied to 400 residents in Niğde's central district. To contextualize the user data with the physical characteristics of the urban parks, a map (Figure 1) of the park locations and a table summarizing key features of the selected parks have been included (Table 1).

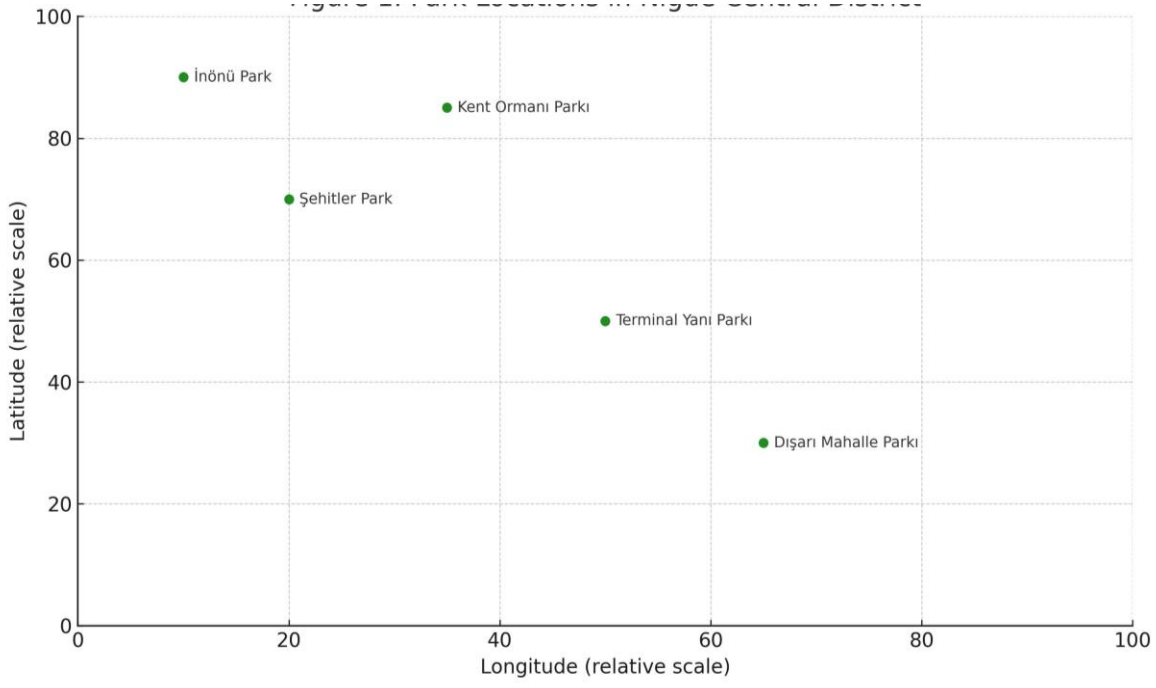

Figure 1. Park locations in Niğde Central District

Table 1. Features of Selected Parks in Niğde Central District

Park Name	Area (m²)	Usage Type	Key Components
İnönü Park	5,200	Recreation	Seating, Walking Paths, Playground, Trees
Şehitler Park	6,800	Picnic	Picnic, Children's Play Area, WC, Pergola
Kent Ormanı Park	11,000	Nature Trail	Sports Zone, Walking Path, Water Feature
Terminal Yanı Park	3,100	Neighbourhood	Benches, Lighting, Trash Bins
Dışarı Mahalle Park	2,400	Local Park	Playground, Shade Structure, Seating

According to the 2024 Address-Based Population Registration System results announced by the Turkish Statistical Institute (TÜİK), the total population of Niğde is 372,708. A significant portion of this population resides in the central district. Accordingly, this study focuses on evaluating user satisfaction with urban parks located in the central district of Niğde. The locations of the parks are shown in Figure 1, while their layout plans and sample photographs are presented in Figure 2-3.

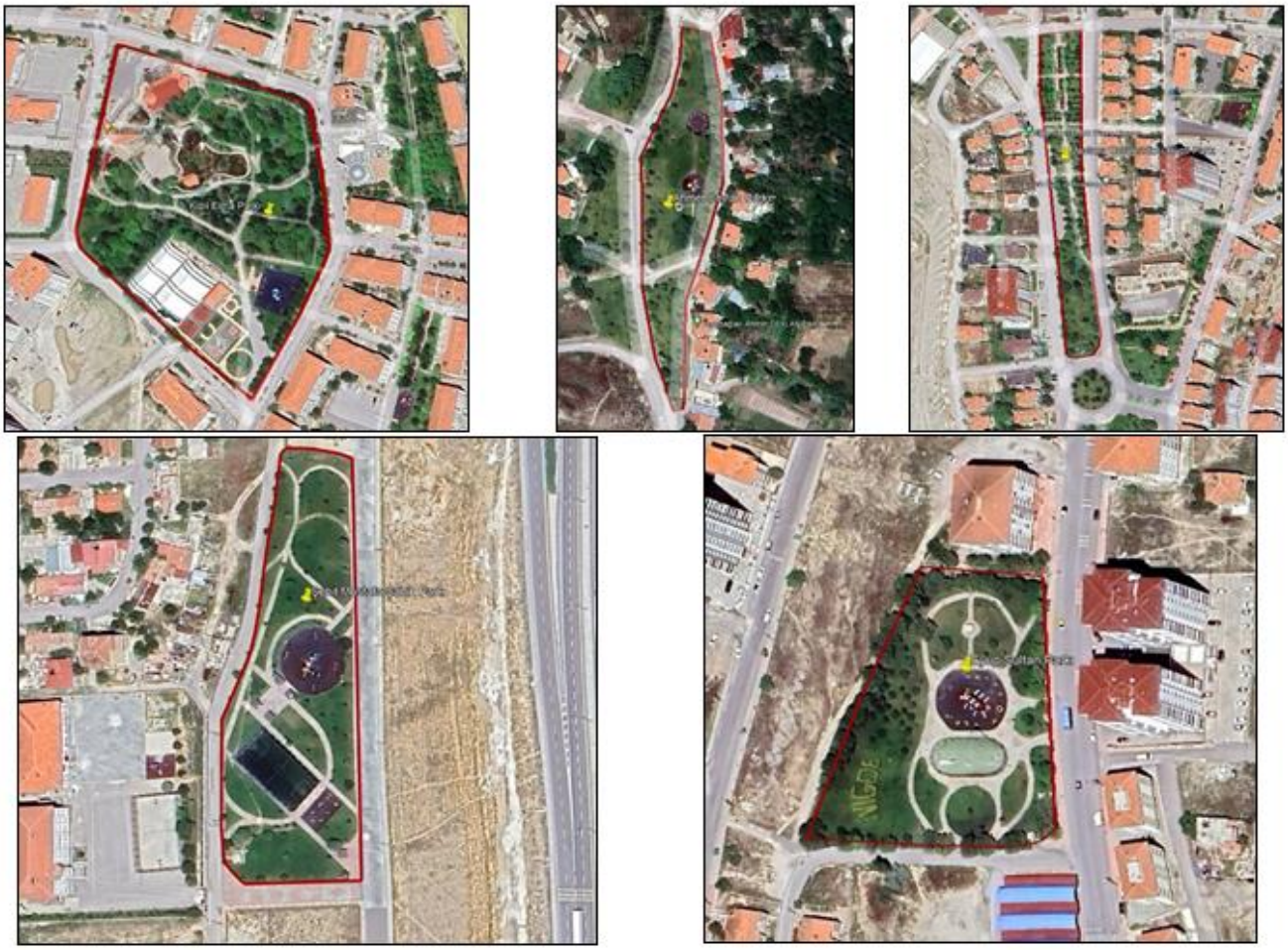

Figure 2. Plans of the parks

The study utilized a digital survey form as its primary data collection tool, designed to assess environmental, design-related, and functional aspects of urban parks. The questionnaire included items measuring participants' frequency of park usage, reasons for visiting, satisfaction with design and amenities, and opinions on the social and physical impacts of parks. Additionally, demographic information such as age, gender, and

educational level was collected to analyze the user profile. A quantitative research design was adopted. Data were collected through an online questionnaire prepared using Google Forms, and distributed via social media platforms, email groups, and local digital communities in Niğde. Participation was voluntary, and respondents were informed about the purpose of the study before completing the form.

Figure 3. Sample photographs of parks

The survey was structured using a 5-point Likert scale and focused on the following key areas:

1. Park Usage and Purpose: Frequency of visits and motivations for visiting (e.g., relaxation, physical activity, social interaction).

2. Design and Physical Features: Satisfaction with landscape design, seating areas, walking paths, playgrounds, and other amenities.
3. Environmental Components: Evaluations of cleanliness, maintenance, safety, and the quality of natural elements such as plants, trees, and water features.
4. Social and Physical Impacts: Opinions on the park's role in reducing stress, encouraging physical activity, and fostering social relationships.

The survey achieved broad participation from various demographic groups within Niğde, ensuring the inclusion of different age brackets, genders, and socio-economic backgrounds. Data was analyzed using SPSS software. Descriptive statistics and chi-square tests were employed to identify patterns and statistically significant relationships. Based on these findings, suggestions were developed to improve user satisfaction and enhance the design and functionality of urban parks in Niğde

3. Results

A total of 400 individuals participated in the survey. Among them, 74.5% (n=297) were female and 25.5% (n=103) were male. The sample was predominantly composed of young adults; 87.7% of the respondents were between the ages of 18 and 25, and 85.2% identified as students. In terms of educational background, 84% held a university degree, 12.5% had a high school or secondary education, and only 1.2% had completed primary education. These figures indicate that the survey primarily reflects the perspectives of a highly educated, young, and predominantly female population. This demographic skew limits how broadly the results can be applied. The views expressed in the study may not fully represent other age groups, occupational segments, or socio-economic categories. Accordingly, this limitation has been acknowledged in the discussion section and should be considered when interpreting the results.

Regarding employment status, most respondents (85.2%) were students, followed by small proportions of civil servants (5.2%), self-employed individuals (3.2%), and workers (3%). A small fraction of participants were housewives (2%) and unemployed (1%). This further reflects the dominance of a particular demographic cohort.

Monthly income levels also indicated a student-dominated population. Around 30% of participants reported earning less than 1,500 Turkish Lira, and 38% reported earning between 1,500 and 5,000 TL. Only 11.5% of participants had an income above 15,000 TL, again suggesting limited economic diversity within the sample. In terms of transportation to parks, 64% of the respondents used buses, while 19% reached parks on foot. Only 10% used private vehicles, and less than 3% used bicycles or motorcycles. This may reflect the central location of parks and the limited vehicle ownership among students. Regarding frequency of park visits, 45.5% of participants reported visiting parks 1–2 times a month, and 27.5% selected the “other” option. Only 5.7% used parks daily, and 17.7% reported visiting 1–2 times a week. These results suggest that while most users are aware of and access parks, regular use is relatively low. The duration of time spent in parks was relatively evenly

distributed. About 28.5% of respondents stayed 1–2 hours per visit, 28.2% stayed less than 1 hour, 26% stayed 2–4 hours, and 12.3% spent more than 4 hours.

These findings reflect moderate use, possibly limited by park conditions, weather, or accessibility. In general, the results suggest that while parks are accessible to most users, their utilization is infrequent and time-limited. The overrepresentation of young women and students in the sample may reflect both the outreach method (digital dissemination) and the demographics of those most engaged with public spaces. This should be kept in mind in the interpretation of user satisfaction levels. The primary motivations for visiting parks among participants were rest, fresh air, leisure, and engaging with nature (68.7%). Other reasons included physical activity (8.5%), child engagement (3.7%), scenery appreciation (6.2%), and park design (2.5%) (Table 2).

Table 2. Participants' reasons for coming to the parks

Question	Answer	Number	Percent	Se*
What is your reason for visiting Niğde urban parks?	Relaxation, getting fresh air, strolling, being alone with nature, spending leisure time, picnicking...	275	68.75	1.692
	Sporting activities (Playing football, basketball, tennis, fitness, yoga, walking, cycling...)	34	8.50	
	Entertaining my children	15	3.75	
	Scenery	25	6.25	
	Design of the parks	10	2.50	
	Other	41	10.25	

*"Se" refers to Standard Error, a measure of statistical accuracy.

A notable portion (10.2%) selected "other," highlighting diverse yet unclassified motivations. When asked about their company during visits, 77.7% reported going with friends, while fewer attended with family (9%), alone (8%), or with children (2.7%) (Table 3). These patterns suggest a strong social orientation in park usage, particularly among younger cohorts.

Table 3. Finding out who accompanies participants to parks.

Question	Answer	Number	Percent	Se*
Who do you come to Niğde urban parks with?	Friend	311	77.75	0.930
	Family	36	9.00	
	Alone	32	8.00	
	Child(ren)	11	2.75	
	Neighbor	10	2.50	

*"Se" refers to Standard Error, a measure of statistical accuracy.

However, it must be emphasized that the sample is heavily skewed: 87.7% of respondents are between 18–25 years old, and 85.2% are students. This demographic concentration poses a significant limitation to the generalizability of the results. Although the study does not include spatial mapping or GIS-based analysis, several variables indirectly reflect spatial and socio-economic disparities. The high reliance on public transportation (64%) and

low use of private vehicles (10%) suggest that many users come from lower-income groups with limited mobility options. Furthermore, participants frequently expressed dissatisfaction with access, parking, and neighborhood-level park infrastructure. These responses shed light on perceived spatial disparities and infrastructure deficiencies in various urban areas, even without formal geospatial analysis. Participants' transportation methods show high dependence on public buses (64%), with only 10% using private vehicles and 19% walking. The heavy reliance on public transit likely reflects the student-dominated and low-income profile of the sample (Table 4).

Table 4. Participants' transportation preferences to the parks

Question	Answer	Number	Percent	Se
How do you provide transportation to Niğde city parks?	Bus	256	64.00	1.185
	Private vehicle	40	10.00	
	By foot (Walking)	76	19.00	
	Bicycle	11	2.75	
	Motorcycle	10	2.50	
	Other	7	1.75	

*"Se" refers to Standard Error, a measure of statistical accuracy.

Perceptions regarding park infrastructure and amenities revealed substantial dissatisfaction. As shown in Figure 4, the most frequently cited deficiency in park amenities was the insufficient number of facilities, reported by 36% of participants. This was followed by complaints about poor maintenance (33.5%) and non-ergonomic designs (14.5%). These results suggest a mismatch between user expectations and the existing infrastructure, particularly in terms of quantity and usability of elements such as benches, bins, and pergolas.

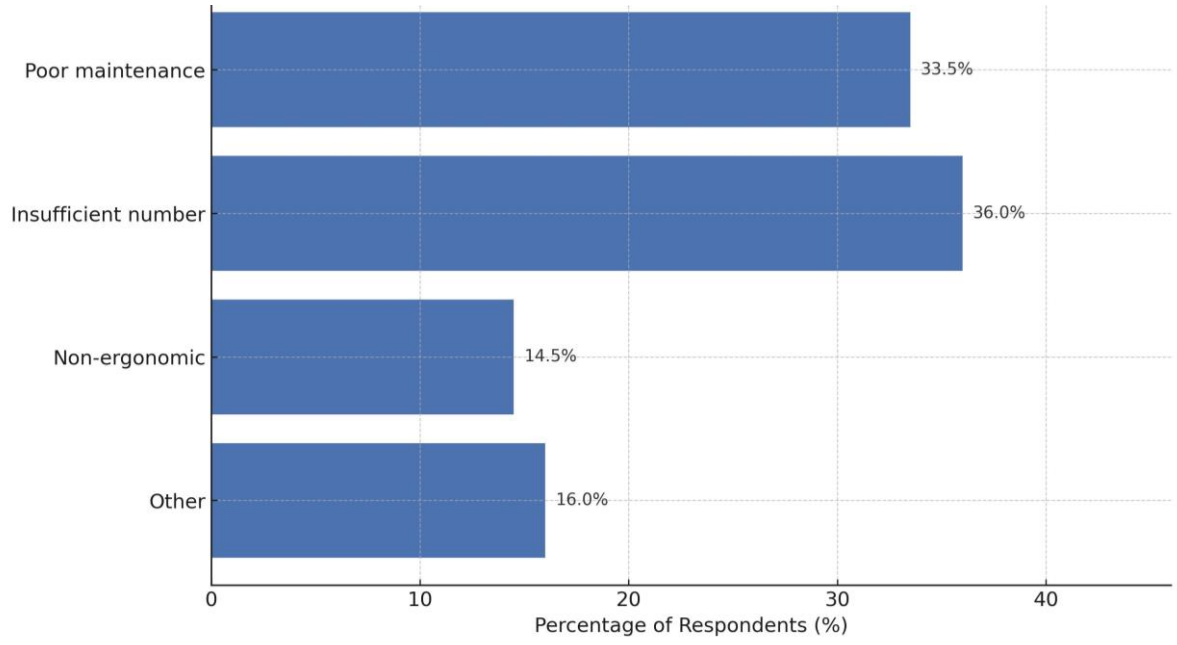

Figure 4. User-reported deficiencies in the physical amenities (e.g., benches, bins, furnishings) of Niğde parks

Lighting infrastructure also emerged as a significant concern. As seen in Figure 5, 35.5% of users criticized the insufficient light quality, while an additional 19.5% highlighted the failure to provide visual richness through lighting design. Given that most female users rated parks as unsafe for evening use, these deficiencies reflect both a design flaw and a public safety issue. Overall satisfaction with Niğde's urban parks was low across multiple criteria, as demonstrated in Figure 6.

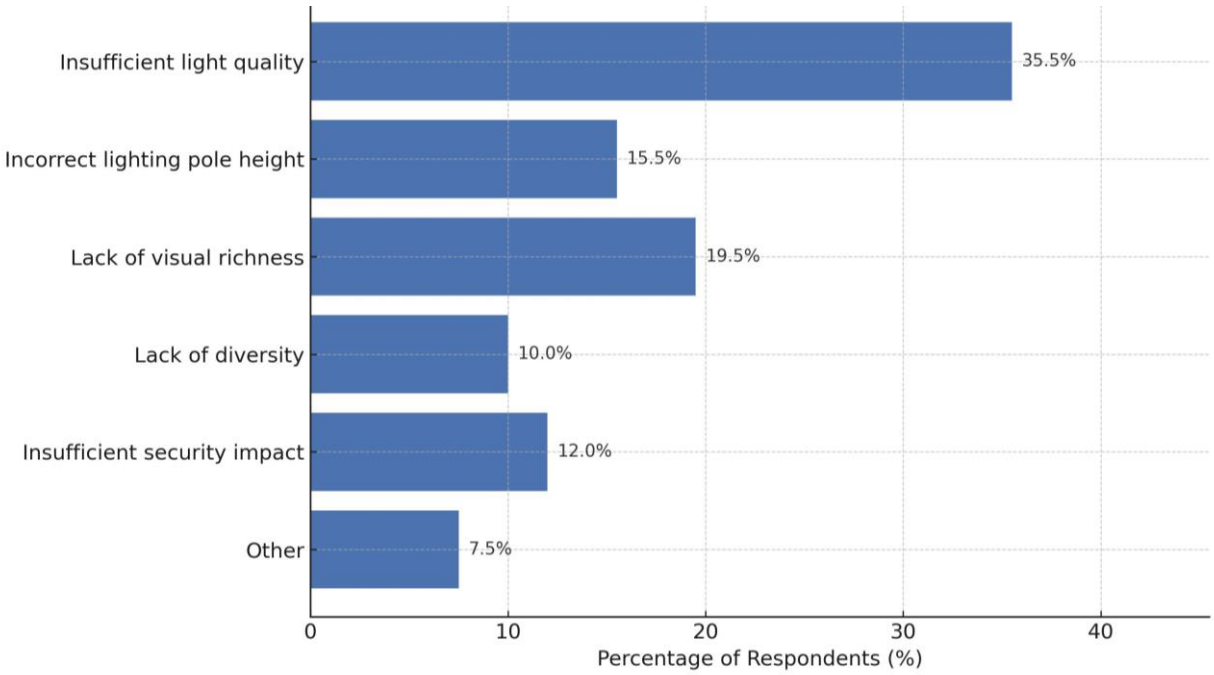

Figure 5. Participants' perceptions of deficiencies in park lighting elements

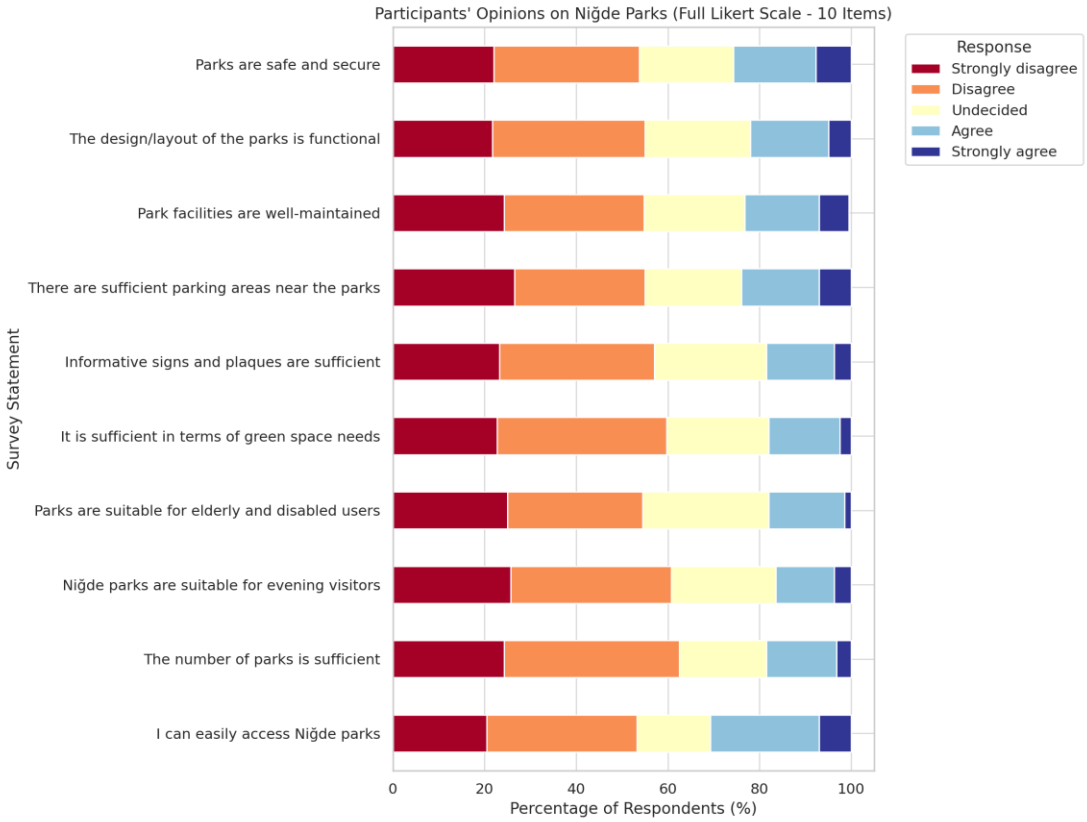

Figure 6. User opinions on Niğde parks based on 10-item Likert scale.

The full Likert-scale data across 10 survey statements revealed that public sentiment was consistently negative. Most participants disagreed or strongly disagreed with key quality indicators such as ease of access, sufficiency of park numbers, evening usability, safety, parking availability, signage clarity, maintenance quality, functionality, inclusivity, and green space provision. Across all items, agreement rarely exceeded 20–25%, while disagreement often exceeded 60%. This comprehensive dissatisfaction points not only to infrastructural inadequacies but also to significant gaps in perceived service quality and user-centered design. Both physical and operational aspects of Niğde's parks therefore require holistic reevaluation. Children's activity zones also received considerable criticism. According to Figure 7, 27% of participants described these areas as insufficient, while 16.5% noted that they were not age appropriate. Additionally, safety concerns (14.2%) and monotony of equipment (12.8%) were cited. This indicates a significant gap in providing stimulating, inclusive, and safe play areas that cater to diverse child development needs.

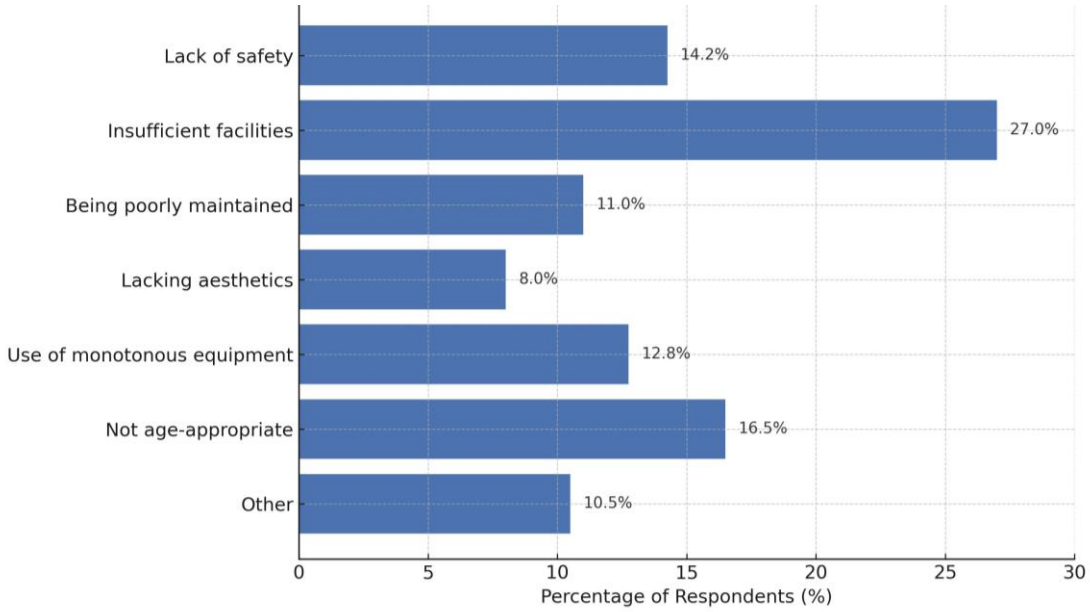

Figure 7. Reported deficiencies in children's play and activity areas.

In addition to physical infrastructure, design preferences for natural elements were also captured. As shown in Figure 8, ornamental pools (33%) and waterfalls (29.20%) were the preferred water features, while standard ponds and swimming pools were less frequently selected. These preferences suggest a desire for visually engaging and tranquil aquatic elements that enhance the park's aesthetic and recreational appeal.

Regarding user activity preferences, Figure 9 demonstrates that picnicking (47.5%) is by far the most popular park activity. Passive uses such as reading/resting (11.2%) and group-based play (9%) follow, while active sports like football, cycling, or tennis was far less common. This suggests a dominant recreational culture oriented around relaxation and socialization.

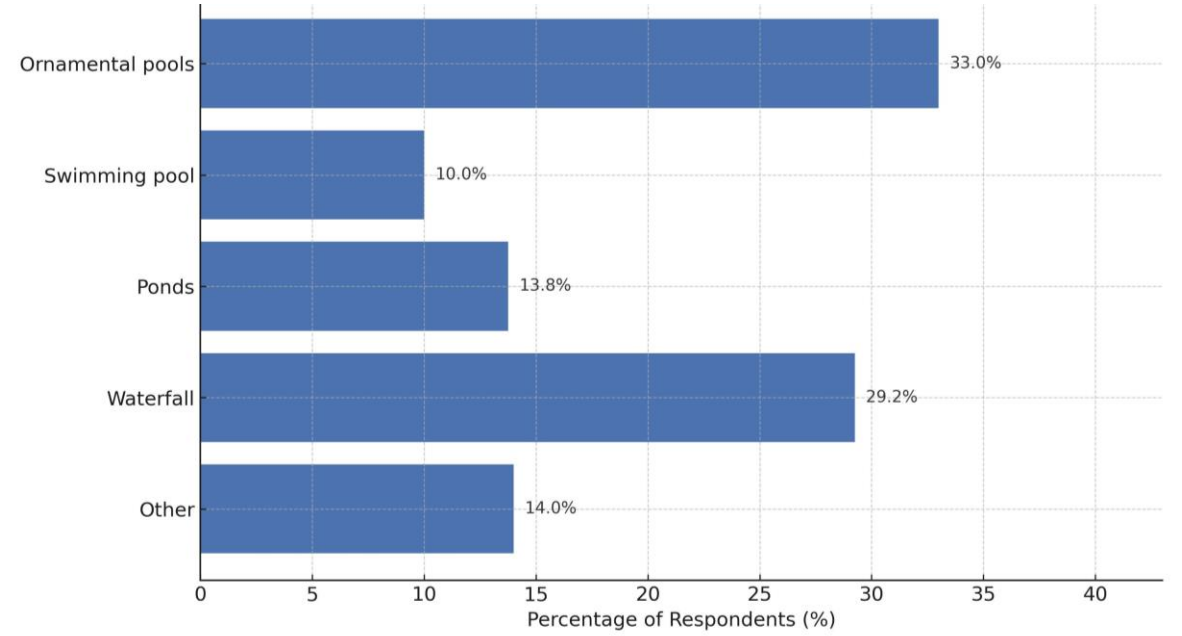

Figure 8. Preferences for water features in Niğde parks.

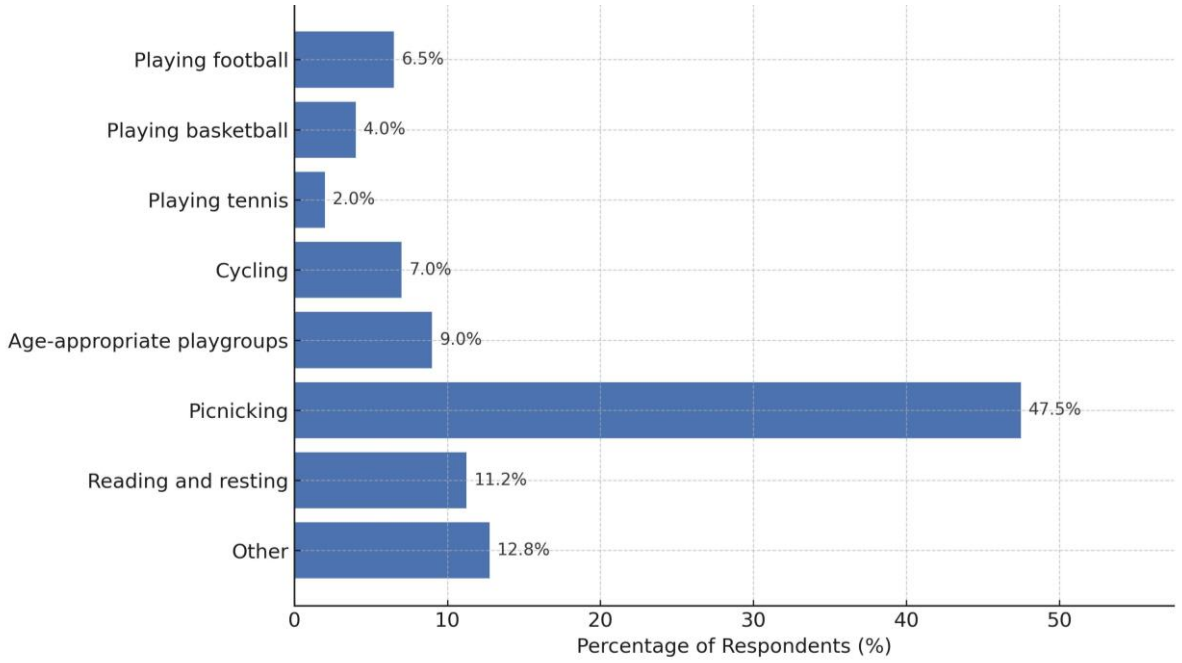

Figure 9. Reported activity preferences among park users.

When asked about specific equipment deficiencies, participants pointed to pergolas (47%), trash cans (44%), and benches (42.2%) as the most inadequate amenities (Figure 10). Lighting (41.25%) and water fountains (35%) were also highly cited. These results align with earlier findings that point to insufficient infrastructure maintenance and a lack of essential amenities for basic comfort.

The statistical analysis revealed significant associations between gender and various user patterns. For example, male and female respondents differed significantly in their reasons for visiting ($X^2 = 52.449$, $p < .005$, Cramer's $V = .362$), and in terms of who they visited with ($X^2 = 58.524$, $p < .005$, Cramer's $V = .383$). These effect sizes indicate moderate to strong relationships, suggesting that gender plays a meaningful role in shaping park use

behavior. Similar associations were found regarding the duration of stay and frequency of visits, indicating that gender-based preferences influence both qualitative and quantitative aspects of park use. While this study focused on descriptive and bivariate analysis, future research should consider using multivariate methods such as logistic regression or principal component analysis to explore the complex interplay of demographic and environmental factors that affect urban park usage and satisfaction.

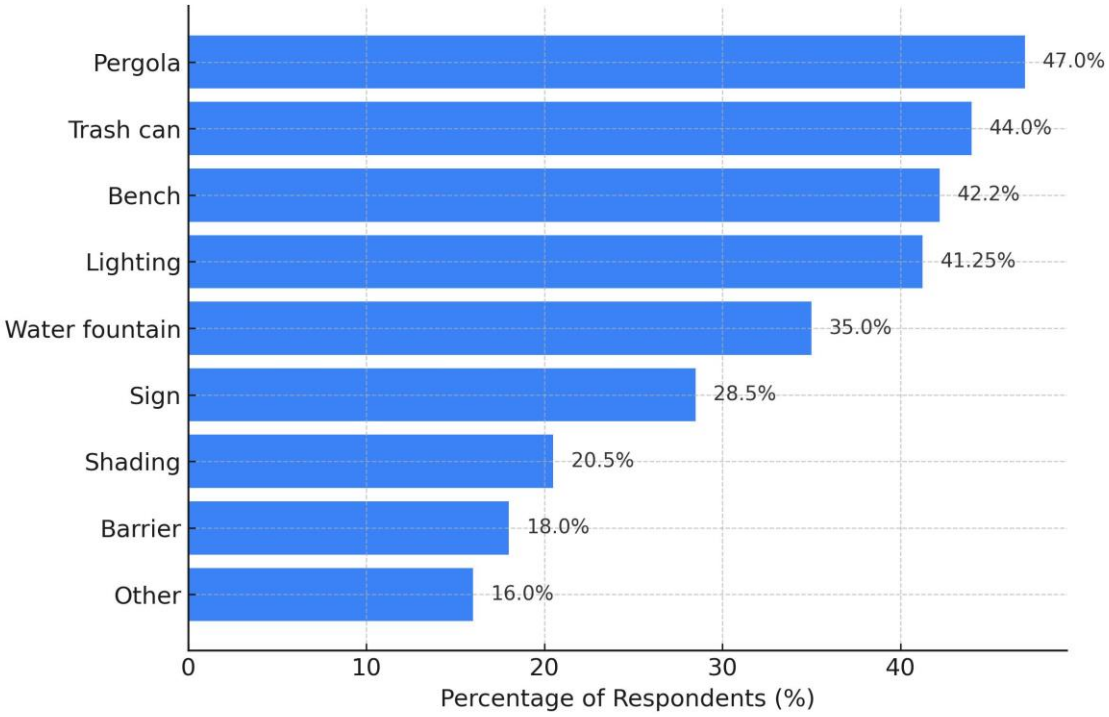

Figure 10. Reported equipment and amenity deficiencies.

4. Discussion

The findings of this study reveal notable dissatisfaction among park users in Niğde, particularly concerning infrastructure, accessibility, and inclusivity. Participants frequently reported a shortage of essential amenities such as benches, trash bins, lighting, and pergolas. Safety concerns, especially for evening use, were prominent and further reinforced by poor lighting design. Moreover, users expressed low satisfaction across a wide array of park quality indicators, from green space availability to maintenance and design functionality. These findings are consistent with existing literature. In many mid-sized cities, limited investment in green infrastructure leads to poor park quality. For instance, studies by Chiesura (2004) [13], Kaczynski & Henderson (2008) [14], and Lottrup et al. (2015) [15] similarly emphasized that poorly maintained, inadequately equipped, or inaccessible parks reduce both perceived safety and actual usage rates.

Our findings are also consistent with Yilmaz et al. (2010) [16], who emphasized the importance of accessibility, aesthetic quality, and safety in Turkish urban parks as primary determinants of user satisfaction. However, this study goes a step further by highlighting deeper dissatisfaction with inclusivity-related features, such as the lack of child-friendly equipment and age-appropriate design. This emphasis reflects shifting expectations among

younger, more socially conscious users and may signal broader gaps in municipal responsiveness.

One key contribution of this study is its focus on a mid-sized Anatolian city, which contrasts with the dominant literature on megacities like Istanbul, Ankara, or Izmir. Unlike the better-resourced urban centers often highlighted in previous studies, Niğde represents a class of cities frequently overlooked in both policy and academic discourse. The high dependence on public transportation, widespread dissatisfaction with wayfinding elements (e.g., signage), and limited investment in advanced infrastructure all point to a systemic under-provision of green space services in secondary urban areas. Additionally, the strong gender differences observed in park usage patterns—ranging from purpose of visit to time of use—add an intersectional dimension to park accessibility and design. This aligns with research by Low et al. (2005) [17], who argued that gendered experiences of public space significantly shape perceptions of comfort and security. The emphasis on female users' concerns with safety, lighting, and maintenance thus warrants urgent attention in future planning.

Although this study did not employ spatial mapping tools, the high dependency on public transportation and widespread concern about accessibility indirectly reflect spatial inequities. Participants' dissatisfaction with parking availability, physical access routes, and perceived neighborhood neglect signal the need for more granular, location-sensitive analysis in future work. Overall, the findings contribute to the literature not only by confirming known deficits in urban park quality but also by contextualizing them within the structural and socio-demographic realities of an under-researched city. The evidence underscores that successful urban green space strategies require more than amenities—they require inclusive, spatially equitable, and socially responsive design principles tailored to local conditions.

5. Conclusions

The study underscores major deficiencies in the infrastructure and inclusivity of Niğde's urban parks, as perceived by users. The findings reveal that current urban parks in Niğde fail to meet user expectations regarding infrastructure, safety, accessibility, and inclusivity. The consistently negative evaluations—supported by both statistical data and user insights—highlight the urgent need for comprehensive improvements adapted to Niğde's unique urban and demographic context.

Unlike many prior studies that focus descriptively on general park satisfaction or aesthetic value (e.g., references [5], [7], and [13]), this study offers a more critical and data-informed look at how inadequacies in infrastructure and spatial equity manifest in mid-sized cities. While the need for lighting, better signage, or more diverse equipment may be broadly acknowledged in literature, this study contextualizes those deficits within the specific framework of Niğde's transportation dependency, youth-dominated demographics, and municipal resource limitations. Instead of repeating general recommendations for park improvement, this study bases its suggestions on lived experiences and statistically

supported usage patterns of Niğde's residents. Moreover, this research contributes to academic literature by shifting the lens from abstract park values to grounded user experiences. It identifies not only what is lacking, but also for whom—exposing the uneven quality of access and use between genders, income levels, and age groups. These intersectional insights reinforce the argument that park planning must go beyond quantity and aesthetics to actively engage with the lived realities of users. Policy makers and urban planners must therefore move beyond generic improvements and prioritize location-specific, evidence-based strategies.

These include ensuring safe evening access, improving access for mobility-limited populations, and increasing neighborhood-level park equity. Additional investments in participatory design—engaging users in decisions about lighting, activity zones, and signage—could greatly enhance satisfaction and long-term park stewardship.

Suggested Framework for Park Quality Improvement in Niğde

1. **Lighting and Safety**
   - Install pedestrian-scale lighting to improve nighttime visibility and safety.
   - Install motion-sensor or energy-efficient lights in low-traffic areas to save energy and improve security.
2. **Inclusive and Accessible Design**
   - Ensure universal design principles in all park paths and facilities, including ramps, tactile paving, and barrier-free zones.
   - Develop multi-age playgrounds and seating arrangements that cater to children, elderly individuals, and people with disabilities.
3. **Signage and Wayfinding**
   - Incorporate clear, visible, and multilingual directional signage.
   - Use illustrative, symbolic, and thematic markers to promote orientation and awareness of amenities.
4. **User Engagement and Stewardship**
   - Organize seasonal feedback surveys, participatory design workshops, and park usage audits.
   - Establish local "park user committees" to co-manage and monitor park improvements in coordination with municipal authorities.

Future studies should incorporate GIS-based spatial analysis and neighborhood-level socio-economic indicators to more precisely identify patterns of spatial exclusion and infrastructure neglect. Comparative research across different Turkish cities—varying in size, region, and governance structures—would also enrich understanding of systemic and localized challenges in urban green space management. By combining user perception data with spatial and demographic analysis, future work can offer more targeted, inclusive, and durable policy recommendations for equitable and sustainable park development.

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