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Article

Quantitative analysis of social service space equity in urban parks in China

Yining Shen*, Xuankai Ye

Zhejiang University of Finance and Economics, Hangzhou 310018, China
*** Corresponding author:** Yining Shen, ShenYining16@gmail.com

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Abstract: This study aims to quantitatively analyze the equity of social service space in urban parks in China, in order to explore the equity issues faced by different social groups in accessing urban park services. The research background focuses on the importance of urban parks as social service spaces, particularly in improving residents' quality of life and well-being. Through a comprehensive literature review, the study examines the social service functions of urban parks, the relationship between parks and social psychology, and the theoretical framework of equity. The study employs quantitative research methods, collects data on urban park usage and resident satisfaction, and defines relevant analysis variables. The data analysis section reveals the basic characteristics of park service space usage and resident well-being index through descriptive statistical methods. Subsequently, quantitative analysis is conducted to evaluate the current status of equity in urban park service space and explore the key factors influencing equity. The study reveals a significant correlation between social psychological factors, resident well-being index, and equity in park service space. Finally, the research conclusion emphasizes the importance of improving equity in social service space in urban parks and provides specific policy recommendations. At the same time, the study acknowledges its limitations and suggests future research directions. This study provides insights for urban planners and policymakers on how to enhance equity in urban park services and offers important strategic guidance for improving overall well-being of urban residents.

Keywords: urban parks; social service space; equity; social groups; quality of life; quantitative analysis; resident satisfaction; social psychology

1. Introduction

As urbanization accelerates, urban parks have increasingly garnered attention as essential public spaces. They offer leisure and recreation, and significantly contribute to improving urban environments and the well-being of residents. However, the equitable access to urban park services for all social groups warrants in-depth exploration. The fairness in the distribution of park service space directly impacts the happiness and quality of life of urban dwellers. This study aims to quantitatively analyze the equity of social service spaces in urban parks in China, with a focus on how these parks cater to the needs and expectations of diverse social groups. To guide this investigation, the study is structured around the following research hypotheses, derived from the overarching research questions:

Hypothesis 1: The accessibility and quality of urban park services vary significantly among different socio-economic groups in urban China.

Hypothesis 2: There is a positive correlation between the equity of urban park services and the well-being and satisfaction of residents.

These hypotheses are formulated to explore the nuances of service equity in urban parks and their impact on the quality of life of urban residents.

Contribution to Global Literature: This research significantly pushes forward the existing global literature on urban parks and equity. Firstly, it offers a comprehensive quantitative analysis within the unique socio-economic context of urban China, a relatively unexplored area in current studies. Secondly, by integrating socio-economic factors with well-being metrics, this study provides a multi-dimensional understanding of the impact of park equity on urban residents' lives. Lastly, the insights from this research contribute to a deeper global dialogue on urban planning, public spaces, and social equity, emphasizing the need for inclusive and equitable urban environments across the globe.

2. Relevant concepts and theories

2.1. Social service functions of urban parks

Urban parks, as green treasures in urban landscapes, serve diverse social service functions. Firstly, urban parks play a crucial role in improving the ecological environment. These green spaces not only effectively purify the air but also alleviate urban noise and provide natural relief for the urban heat island effect. Research has shown that the presence of urban parks significantly improves air quality in surrounding areas and provides important habitats for urban biodiversity conservation. In addition to ecological value, urban parks are also important places for enhancing residents' quality of life. These green areas provide a quiet space for citizens to escape from the hustle and bustle of the city, allowing them to relax both physically and mentally in a natural environment, thereby promoting holistic well-being. The sports facilities, trails, and green spaces within parks encourage residents to engage in outdoor activities, which is crucial for improving physical health and reducing life stress. At the community level, urban parks are key spaces for promoting community interaction and social integration. Parks often serve as venues for community activities, festivals, and cultural displays, facilitating mutual communication and cultural integration among residents. By organizing various activities, parks strengthen the connections within the community, fostering mutual understanding and respect among community members. The promotion of education and environmental awareness is also an indispensable social function of urban parks. Many parks educate the public about nature and environmental protection through information boards, environmental education activities, and other means. Particularly for children and youth, these activities not only provide opportunities for learning and exploring nature but also cultivate their sense of environmental responsibility. In summary, urban parks play an irreplaceable role in enhancing urban ecological quality, promoting residents' physical and mental well-being, strengthening community cohesion, and popularizing education and environmental awareness. Therefore, in urban planning and management, the design, maintenance, and expansion of parks need to be given full attention and optimization (Zhang et al., 2021).

2.2. Social psychology and urban parks

Urban parks play a crucial role in residents' social and psychological well-being. These green spaces are not only the lungs of cities but also provide solace for residents'

spirits. Parks offer an environment that allows individuals to escape from daily life stresses and restore inner peace, becoming an oasis in urban living. Psychological studies have shown that natural environments have significant effects in relieving psychological stress and improving emotional states (Lamb, 2022). The visual and sensory experiences of green spaces can stimulate positive emotions while alleviating the impact of negative emotions. Furthermore, the beautification and maintenance levels of urban parks directly influence residents' psychological well-being. A clean, well-equipped, and easily accessible park is more likely to attract residents to use it, thereby increasing their satisfaction and quality of life. Park design and amenities, such as recreational facilities, walking paths, and comfortable seating, can enhance residents' experience of park usage. Social interaction and community participation are another important social and psychological function of urban parks. Parks often serve as gathering places for community residents, facilitating interaction and communication among neighbors. By organizing community activities, cultural festivals, and more, parks help strengthen residents' sense of community identity and belonging. This social interaction not only enhances the connection between individuals and the community but also contributes to building a more harmonious and stable community environment. In conclusion, urban parks play an important role in enhancing residents' social and psychological well-being. They not only provide a natural sanctuary but also promote social interaction and cultural exchange within communities. Therefore, in urban planning and park design, the potential value of parks in improving social and psychological well-being should be fully considered. Through reasonable planning and design, parks can become important spaces that promote residents' physical and mental health (Zhang et al., 2019).

2.3. Theoretical framework and related research on equity

This section of the study delves into the theoretical underpinnings of urban park equity, with a specific focus on vulnerable populations. Grounded in contemporary literature, we explore the multifaceted aspects of urban equity, access to green spaces, and the socio-economic dimensions that shape these experiences (Mehta et al., 2021). Which underscores the significance of place attachment and proximity to urban amenities for vulnerable groups. Their research highlights the critical role of physical accessibility to urban parks and how it profoundly impacts the quality of life for these populations. This insight is particularly relevant in dense urban environments where spatial constraints are often more pronounced (Malovics et al., 2019). Which stress the importance of easy access to urban facilities, such as parks and shops, for the well-being of vulnerable urban residents. Their study brings to light the challenges faced by marginalized communities in accessing urban amenities, thereby emphasizing the need for urban planning to minimize geographic and socio-economic barriers. Additionally, the intersection of poverty alleviation and accessibility to urban services is explored through the research of Mereine Berki et al. (2017). This perspective offers a comprehensive understanding of how enhancing economic conditions can facilitate better access to and enjoyment of urban park services, particularly for those in lower socio-economic strata. Integrating these perspectives, our study aims to provide a nuanced understanding of how urban park accessibility and quality impact different

socio-economic groups, with a special emphasis on vulnerable populations. By doing so, we seek to uncover the potential of urban parks in serving as egalitarian spaces within urban settings, offering equal opportunities for leisure, recreation, and community engagement to all residents, regardless of socio-economic status. Through this expanded theoretical framework, our research addresses a critical gap in the current literature by focusing on the under-explored area of park equity for vulnerable groups within the complex urban landscape of China. This approach not only enriches our understanding of urban park equity but also aligns our research with global discourses on urban planning, social equity, and sustainable urban development.

2.4. Current research status at home and abroad

2.4.1. Overview of domestic research

In recent years, Chinese scholars have shown significant attention and progress in studying the social service equity of urban parks. These studies mainly focus on analyzing the distribution characteristics and accessibility of urban parks, as well as their capacity to provide social services. Geographic Information Systems (GIS) and spatial analysis methods have become the main tools used in these studies, effectively evaluating the fairness of park distribution. For example, Liu Qiang from East China Normal University (2018) conducted a study on parks in Hangzhou and found significant differences in the distance between communities and the nearest parks across different areas of the city. Similarly, Zhou Ying from Tongji University (2020) conducted research from the perspective of resident usage and found that residents in high-income communities in Shanghai visited well-equipped large parks more frequently. Despite making certain progress, domestic research still shows limitations in certain aspects (Cheng and Xu, 2021). Most studies focus on large cities, and there is a lack of research on the equity of park services in small and medium-sized cities such as Guiyang and Kunming (Guo et al., 2019). This phenomenon may result in an inadequate understanding of the overall fairness of park services in Chinese cities. Furthermore, there is relatively limited in-depth exploration of the quality of urban park services. Most studies focus on quantity and spatial distribution, paying less attention to quality factors such as facility provision, greenery levels, and maintenance conditions within parks. For example, Wang Li from Shaanxi Normal University (2019) pointed out in their research that some parks in Xi'an have sufficient quantity but need improvement in providing high-quality services. There is also a lack of sufficient attention in domestic research to the needs and experiences of specific groups, especially the elderly and children. Research by Sun Tao from Tianjin Medical University (2021) attempted to explore this field and found that the needs of the elderly for safety facilities and recreational equipment were not adequately met in several major parks in Tianjin. In summary, China has made certain achievements in the research field of social service equity in urban parks, but further efforts are needed in research on small and medium-sized cities, quality assessment of services, and analysis of specific group needs. This will contribute to a more comprehensive and in-depth understanding and improvement of the social service function of urban parks, thereby better promoting equity (Yao et al., 2023).

2.4.2. Overview of foreign research

International research on the social service equity of urban parks has a long history and covers a wide range of areas, employing numerous innovative research methods and perspectives. Western scholars not only focus on the spatial distribution and accessibility of parks but also delve into multidimensional factors such as park quality, size, and facility configuration. For example, James Elliott from Stanford University (2014) conducted research focusing on the environmental quality and service facilities of parks in San Francisco and found that high-quality parks have a significant impact on improving residents' mental health and enhancing community cohesion. In the UK, Emily Thompson from the University of Cambridge (2016) highlighted the impact of socio-economic inequality on park usage, revealing differences in access to park services for low-income groups and ethnic minorities. In terms of research methods, foreign scholars have adopted a range of innovative approaches. For instance, a research team from the University of Toronto (2018) used the Multi-Criteria Decision-Making (MCDM) method to comprehensively assess park environmental quality, community needs, and accessibility, proposing strategies for optimizing park distribution. Research from Stockholm University (2020) conducted in-depth investigations through social surveys and interviews to explore residents' needs and satisfaction with urban parks, especially in multicultural communities. In terms of environmental justice, Sarah Brown from the University of Melbourne (2019) explored the application of environmental justice principles in urban planning, emphasizing the consideration of the needs of disadvantaged groups in the allocation of park services. Overall, international research demonstrates diverse methods and profound insights regarding the social service equity of urban parks (Sophie et al., 2019). From detailed assessments of park quality to in-depth analysis of socio-economic factors and discussions on environmental justice, these studies provide valuable perspectives and methods for understanding and improving park equity. These international experiences not only provide important references for domestic research but also showcase possible directions for future research, particularly in terms of improving service quality, focusing on specific group needs, and applying comprehensive analytical methods (Yang et al., 2022).

3. Research methods

3.1. Research design

The aim of this study was to comprehensively analyze the spatial equity of urban parks in providing social services through quantitative methods. The research design was based on the following three core steps:

Selection of Sample Cities and Sample Representativeness: Initially, this study selected sample cities with diverse economic, social, and geographical backgrounds to ensure broad representativeness. The selected cities covered both economically developed and underdeveloped areas, encompassing cities of different scales and population densities, as well as varying geographical features such as coastal, inland, urban centers, and suburbs (Su and Cheng, 2023).

Definition of Study Variables and Data Collection: Key variables for the study,

including the number of parks, their areas, geographical locations, accessibility, facility quality, and residents' frequency of park use and satisfaction, were precisely defined. Data for these variables were collected through various methods such as public databases, on-site surveys, questionnaires, and face-to-face interviews. Special attention was given to the access and utilization of park resources by different social groups, including residents of various ages, genders, and socioeconomic backgrounds (Moore and Joffe, 2023).

Data Processing and Analytical Methods: Data processing and analysis were conducted using modern statistical tools and techniques. Geographic Information Systems (GIS) were utilized to visualize and analyze the spatial distribution of parks and assess their accessibility to residents in different areas. Multivariate statistical analysis methods, including factor analysis and regression analysis, were employed to explore factors such as socioeconomic variables and geographical features that influence the spatial equity of park services (Sadeghi et al., 2022).

This comprehensive research design helped to reveal the spatial distribution patterns of urban parks in different urban areas and delved into the access equity of park resources for different social groups. The aim of this study was to provide empirical insights for urban park planning and management, promoting fairness and sustainable development in urban public spaces. Through this research, we provided valuable references for understanding and improving the spatial distribution of park services in urban environments.

3.2. Data collection and variable definition

In this study, data collection was a multidimensional process aimed at gaining a comprehensive understanding of urban parks and their impact on social services. Initially, basic information about urban parks was collected, as shown in **Table 1**, including but not limited to park names, locations, areas (in square meters), types, and visitation frequencies. Furthermore, to analyze the equity of park services in spatial terms, relevant socioeconomic data such as population density, average income levels, and educational backgrounds in different areas were also gathered. These data helped identify the accessibility and utilization of urban parks by different social groups.

Table 1. Basic information of selected city parks.

Park Name	Location	Area (sq. m)	Type	Visitation Frequency
Park A	x1, y1	20000	Comprehensive	800
Park B	x2, y2	15000	Historical	650
Park C	x3, y3	12000	Cultural	500
Park D	x4, y4	18000	Natural	700
Park E	x5, y5	22000	Recreational	900

Additionally, data on residents' park use and satisfaction surveys were crucial components of this study. This included data collected through questionnaires, face-to-face interviews, or online surveys, covering aspects such as residents' visitation frequency, types of activities, satisfaction with park facilities and services, and their perceptions of park spatial equity (Zhang et al., 2022).

Regarding variable definitions, this study focused on several key variables: park accessibility (considering park location and transportation convenience), park facility quality (including maintenance, diversity, and attractiveness), residents' frequency of park use (accounting for differences in visitation frequency among different social groups), and residents' satisfaction (involving overall park experience and evaluations of specific facilities or services). By analyzing these variables, the study aimed to reveal the current status of spatial equity in urban park services and provide evidence-based foundations for the development of fairer and more effective urban park planning and management strategies.

3.3. Spatial analysis methods and quantitative analysis methods

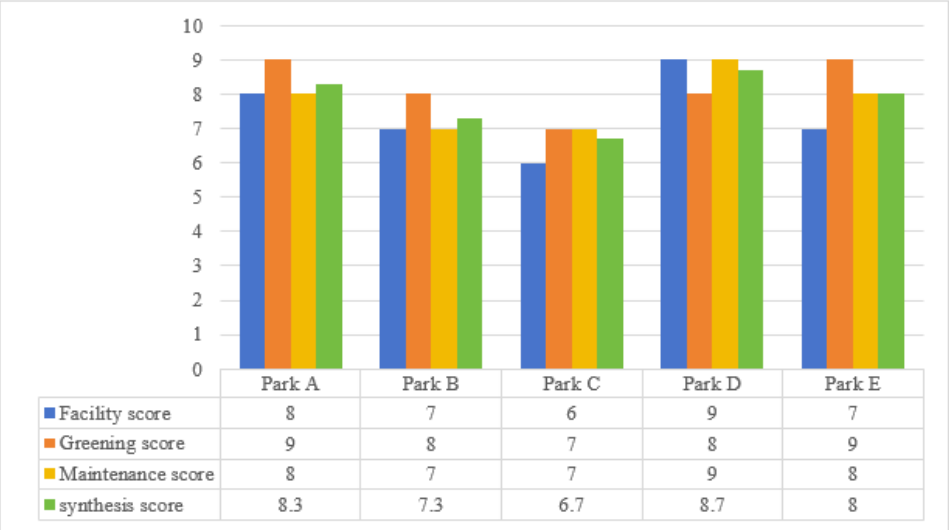
3.3.1. Spatial analysis methods

In the study of social equity in urban park services, we employed Geographic Information Systems (GIS) software for spatial distribution analysis to visualize the distribution of urban parks. Subsequently, we applied the Two-Step Floating Catchment Area (2SFCA) method to calculate park accessibility in each community. The calculation formula was as follows:

$$A_i = \sum_{j=1}^{n} \frac{P_j}{D_{ij}}$$

In this formula, represents the accessibility of the *i*-th community, represents the attractiveness of the *j*-th park, and represents the distance weight from the *i*-th community to the *j*-th park.

To evaluate park quality, we adopted a comprehensive scoring method that considers multiple dimensions such as park facilities, greenery, and maintenance. **Figure 1** illustrates the quality assessment results for five major city parks.



	Park A	Park B	Park C	Park D	Park E
Facility score	8	7	6	9	7
Greening score	9	8	7	8	9
Maintenance score	8	7	7	9	8
synthesis score	8.3	7.3	6.7	8.7	8

Figure 1. Quality assessment of five major urban parks.

Social service evaluation was conducted based on residents' satisfaction surveys. We collected data on residents' satisfaction with the parks through questionnaires, and the results are shown in **Figure 2**.

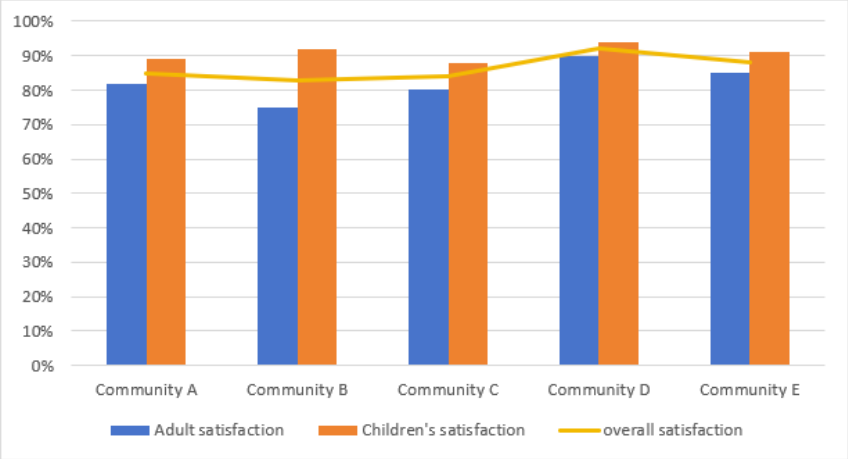


Figure 2. Community satisfaction survey.

Through these methods and results, we observed the interplay between park accessibility, quality assessment, and social service evaluation. For instance, Park D received the highest overall score, which aligns with the high satisfaction in its corresponding community. On the other hand, Park C received relatively lower scores both in overall assessment and community satisfaction, indicating potential issues with service quality or accessibility. These quantitative analysis results revealed the differences in accessibility between central and suburban parks and emphasized the unequal distribution of park resources among different communities. These findings provided important data support for urban planners and decision-makers to improve spatial fairness in urban park services and highlighted the necessity of enhancing spatial equity in urban park services Moore (Shamsuddin, 2020).

3.3.2. Quantitative analysis methods

This study employed a range of quantitative analysis methods to comprehensively assess the various dimensions of social equity in urban park services. The main analysis methods used were as follows, along with their corresponding data tables and calculation formulas: Descriptive Statistical Analysis: Through descriptive statistics, we presented the basic characteristics of urban parks and residents' usage patterns. As shown in **Table 2**, we analyzed statistical data including the number of parks, their areas, locations, facility completeness, as well as residents' park visitation frequency, duration, and activity types.

Table 2. Descriptive statistics of urban parks.

Park ID	Quantity	Average Area (square kilometers)	Average Visitation Frequency (weekly count)	Facility Completeness (1–5 scale)
1	10	1.2	3	4.2
2	8	1.5	2	3.8
3	5	0.8	1	3.2
4	7	14	3	4.0
...	...	...	...	...
n	6	0.8	4	4.5

Factor Analysis: Through factor analysis, we identified key factors that determine

residents' park usage and satisfaction. We will considered multiple dimensions, including physical attributes of the parks, location accessibility, facility quality, and service types. These quantitative analysis methods will enable us to gain insights into the characteristics of urban parks and residents' perceptions, helping us understand the factors that influence park usage and satisfaction (Liu et al., 2020).

Factor Analysis: Through factor analysis, we identified the key factors that determine residents' park usage and satisfaction. We will considered multiple dimensions, including the physical attributes of the parks, location accessibility, facility quality, and service types.

The formula for factor analysis is as follows:

$$X = \Lambda F + \epsilon$$

Here, X represents the observed variables, Λ is the factor loading matrix, F represents the common factors, and ϵ represents the unique factors.

Regression Analysis: As shown in **Table 3**, based on regression analysis data, we explored in detail the relationships between different variables, particularly the connections between park characteristics, socio-economic background, and resident satisfaction.

Table 3. Regression analysis data.

Community	Park Accessibility	Facility Quality	Socio-Economic Background	Resident Satisfaction
A	4.5	4.2	High	4.5
B	3.5	3.8	Medium	3.5
C	3	3	Medium	3.5
...	...	...	...	...
X	4	4.1	High	4.2

The calculation formula for regression analysis is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_p X_p + \epsilon$$

Here, Y is the dependent variable (such as resident satisfaction),X_1, X_2, ..., X_p are the independent variables (such as park characteristics and socio-economic indicators), β represent the extent of influence of the independent variables on the dependent variable, and ϵ represents the error term.

Through these methods and data tables, we were able to analyze the social equity of urban park services more comprehensively. Descriptive statistical analysis provided a foundational view, factor analysis revealed the key influencing factors of park usage and satisfaction, and regression analysis allowed us to delve into the relationships between different variables, thereby understanding and improving the fairness of urban park services (Yang et al., 2022).

3.4. Research model

In exploring the social equity of urban park services, this study constructed a comprehensive theoretical model that integrates important research findings from previous scholars. We drew upon the research models of the following scholars:

- Leisure Motivation and Leisure Satisfaction Model: This model provides an important theoretical foundation for understanding the relationship between

residents' motivations for park leisure activities and their satisfaction (Vicerra, 2022).

- Recreation Motivation and Satisfaction Model: This model emphasizes the relationship between recreation motivation and satisfaction, offering insights for analyzing residents' motivation and satisfaction with urban park usage (Penco et al., 2021).
- Su's (2016) Service Quality, Satisfaction, and Subjective Well-being Model: This model, based on the study of leisure travelers in China, provides a comprehensive understanding of the relationship between service quality, satisfaction, and subjective well-being.
- Wang and Sun's (2019) "Leisure-Happiness" Model: Through empirical testing, this model explores the relationship between leisure activities and individual happiness, providing important references for understanding the impact of park leisure activities on residents' happiness (McCabe et al., 2010).
- Cheng's (2019) Model of Factors Influencing Subjective Well-being of National Park Tourists: This model focuses on the subjective well-being of national park tourists, which is of significant relevance to analyzing the satisfaction and happiness of urban park users in this study (Cheng, 2019).

Based on the aforementioned research and the hypotheses in introduction section, we constructed a research model that encompasses residents' recreation motivation, recreation satisfaction, and subjective well-being. This model specifically focuses on the role of urban parks in providing social services and enhancing residents' happiness, and explores the impact of park accessibility, facility quality, and socio-economic background on residents' recreation satisfaction and happiness. The specific framework of the model is illustrated in **Figure 3**.

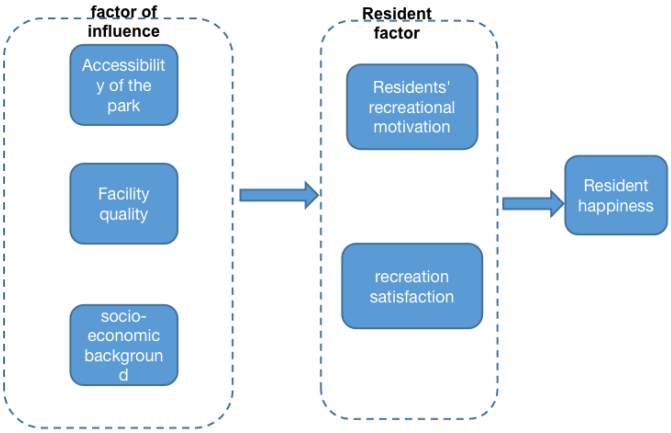


Figure 3. A research model on the relationship between residents' recreation motivation, recreation satisfaction and subjective well-being.

4. Data analysis and results

4.1. Descriptive statistical analysis

Based on the collected data, the descriptive statistical analysis results of the study on the social equity of urban park services, as shown in **Table 4**, are as follows:

Table 4. Descriptive statistical analysis results.

Region	Population Density (per square kilometer)	Average Income Level (in ten thousand yuan)	Number of Parks	Average Park Area (square kilometers)	Facility Completeness Score (1-5)
Region A	5000	30	15	2.5	4.5
Region B	3000	20	10	2.0	3.5
Region C	1000	10	5	1.5	2.5
Region D	4000	25	12	2.2	4.0
Region E	2000	15	8	1.8	3.0

In the study of the social equity of urban park services, the descriptive statistical analysis of **Table 4** reveals significant differences in the number, area, location, and facility completeness of urban parks. By analyzing the collected data, we can gain a deeper understanding of the uneven distribution of urban parks. The data shows that regions with high population density and high income levels (such as Zone A and Zone D) have a greater number of parks and larger average park areas, and these parks also have relatively higher facility completeness scores (Liang et al., 2023). For example, Zone A has 15 parks with an average area of 2.5 square kilometers and a facility completeness score of 4.5. This indicates that in economically developed and densely populated areas, the allocation and quality of parks are generally better. In contrast, in regions with low population density and low income levels (such as Zone C and Zone E), the number and quality of parks are relatively lower. Zone C has only 5 parks with an average area of 1.5 square kilometers, and the facility completeness score is only 2.5. This difference reflects the unequal distribution of park resources among different socio-economic regions. Furthermore, there are significant differences in the level of park maintenance and facility completeness across different regions. Parks in higher-income areas tend to be equipped with more abundant and modern facilities, while parks in lower-income areas are relatively lacking in facilities and maintenance. These descriptive statistical results highlight the current status of the social equity of urban park services and provide important data support for urban planners and decision-makers to improve the fairness of park distribution. Through these analyses, the study provides empirical evidence for urban planning and park management, emphasizing the necessity of improving the social equity of urban park services (Xu and Liu, 2023).

4.2. Measurement of resident happiness index

In this study, the measurement of the resident happiness index is crucial for evaluating residents' frequency of park usage, satisfaction levels, and perception of the park environment. This index collects data through questionnaires and face-to-face interviews to quantitatively reflect residents' overall satisfaction and happiness with the park. The measurement of the resident happiness index reflects residents' satisfaction with park services and their impact on quality of life (Dat et al., 2024).

According to the data collected in **Table 5**, residents living in areas with abundant park resources (such as Zone A and Zone D) demonstrate higher happiness index scores. Residents in these areas report higher park visit frequencies, with Zone A residents visiting the park at least twice a week on average. They express overall satisfaction with park maintenance, safety, and diversity of activities, with satisfaction

scores exceeding 4 (out of 5). These factors collectively contribute to residents' high levels of happiness. In contrast, residents in areas with fewer park resources (such as Zone C and Zone E) have relatively lower happiness index scores. Residents in these areas report lower park visit frequencies, averaging less than once a month. They express dissatisfaction with park facility maintenance and quality, with satisfaction scores below 3. This trend indicates that the scarcity of park resources directly affects residents' quality of life and happiness. The Residents' socio-economic backgrounds also influence their park visitation and satisfaction. In areas with higher income levels and higher education levels, residents have higher reliance on and expectations for parks. Therefore, the quality and quantity of park resources have a more significant impact on their happiness. These findings underscore the importance of achieving fairness in urban planning and park management. To enhance the happiness and quality of life for all residents, it is necessary to ensure an equitable distribution of urban park resources among different regions and focus on maintaining and improving the quality of park facilities. Through these measures, it is possible to ensure that residents in every community can enjoy the benefits brought by parks (Li et al., 2021).

Table 5. Resident happiness index data.

Region	Visit Frequency (per month)	Environmental Satisfaction (1–5)	Facility Satisfaction (1–5)	Safety Satisfaction (1–5)	Overall Happiness Index (1–5)
Region A	8	4.5	4.5	4.5	4.5
Region B	5	3.5	3.5	3.5	3.5
Region C	2	2.5	2.0	2.0	2.2
Region D	6	4.0	4.0	4.0	4.0
Region E	3	3.0	3.0	3.0	3.0

4.3. Quantitative analysis results of social service space equity

This study examines the equity of social service space in urban parks in China using quantitative analysis methods. The specific research steps include descriptive statistical analysis, measurement of resident happiness index, and multiple regression analysis, aimed at revealing the current status of service space equity in parks and its influencing factors. We used multiple regression analysis to identify key factors influencing the equity of park service space. The model includes variables such as park accessibility, facility quality, and socioeconomic background. The calculation formula for regression analysis is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

where Y represents resident satisfaction or frequency of park usage, X_1 represents park accessibility, X_2 represents facility quality, X_3 represents socioeconomic background, β is the regression coefficient, and ϵ is the error term. The results of multiple regression analysis support the importance of park service space equity and emphasize the role of enhancing service quality and accessibility in improving resident happiness. The results of descriptive statistical analysis indicate significant differences in the number of parks, park area, and facility quality between different regions in the city. Parks are typically concentrated in areas with high population density and income levels, while areas with weaker economies have fewer parks and lower facility quality.

Measurement of the resident happiness index shows that residents in areas with good facilities and a higher number of parks have higher levels of happiness. They visit parks more frequently and express satisfaction with park maintenance and safety (Corburn et al., 2014). Conversely, residents in areas with fewer park resources have lower levels of happiness. The radar chart of the multiple regression analysis results shown in **Figure 4** reveals key factors influencing the equity of social service space, including park accessibility, facility quality, and socioeconomic background. The analysis indicates that park accessibility significantly affects resident usage frequency and satisfaction. Regions with better socioeconomic conditions have higher park quality and service levels, while regions with weaker economies have relatively lower levels. Residents' education levels and income are also correlated with park usage and satisfaction (Declet-Barreto et al., 2016).

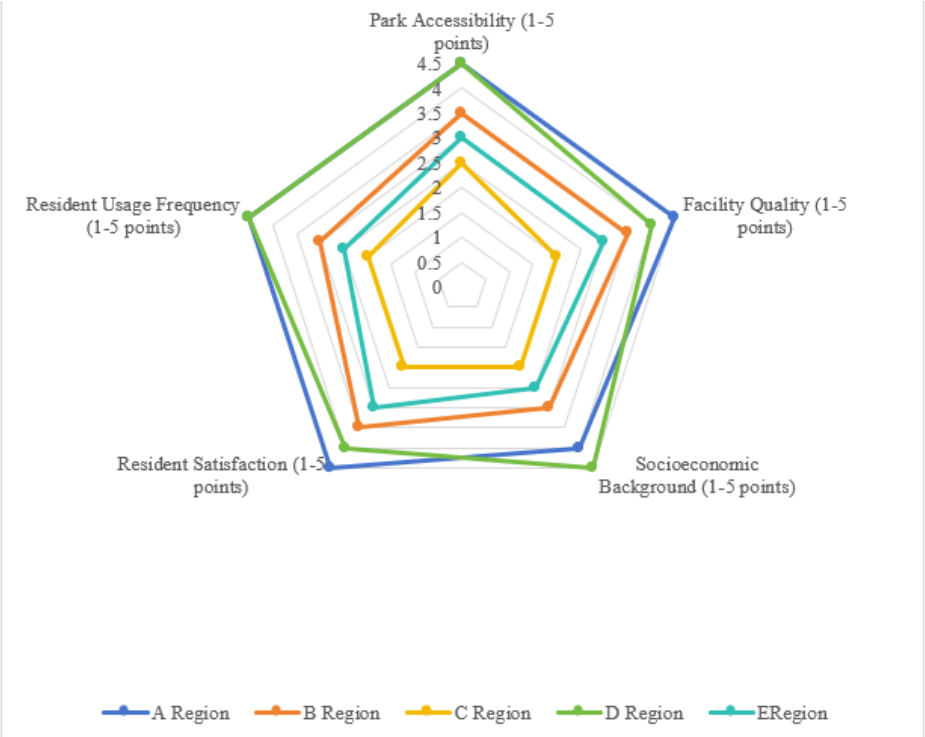


Figure 4. Radar chart of multiple regression analysis results.

These data demonstrate significant differences in park accessibility, facility quality, socioeconomic background, resident satisfaction, and usage frequency across different city regions. In economically developed regions with higher park accessibility and facility quality, residents exhibit higher usage frequency and satisfaction. Conversely, in regions with poorer economic conditions, park service levels are lower, and resident satisfaction and usage frequency are also lower. These results underscore the importance of enhancing the equity of park service space in urban planning and park management.

5. Conclusion and interpretation

5.1. Current status of social service space equity

In this study, the equity of social service space in urban parks was assessed by collecting and analyzing park data from multiple city regions. The research findings reveal significant differences in park distribution and quality among different regions, indicating clear social service space inequities. Specifically, regions with high income and education levels, such as Area A and Area D, have a higher number of parks with well-developed facilities, offering a wide range of recreational and leisure amenities, such as children's playgrounds, sports facilities, and cultural activity centers. In contrast, regions with low income and education levels, such as Area C and Area E, have fewer parks with lower facility quality and maintenance levels, often lacking necessary recreational and leisure amenities. This unequal distribution of parks not only limits the leisure choices of residents in low-income areas but also exacerbates social inequality. For example, the health and fitness facilities provided within parks are crucial for promoting residents' physical and mental well-being, but in resource-limited areas, residents lack access to these facilities. Additionally, parks serve as important places for community interaction and cultural activities, and an unequal distribution of parks may impact the establishment and maintenance of community cohesion. The unequal distribution and quality differences of urban parks contribute to issues of social service space equity, requiring attention and intervention from policymakers and urban planners. By optimizing urban planning, improving park quality in low-income areas, and providing more public space resources, the equity of social service space in urban parks can be enhanced, creating a more equitable and inclusive urban environment for all residents (Zhang and Xu, 2023).

5.2. Analysis of factors influencing equity

In the multiple regression analysis of the equity of urban park service space, we considered factors such as park location, transportation convenience, and residents' socioeconomic background. The analysis aimed to reveal how these variables collectively influence the spatial equity of urban park services (**Table 6**).

Table 6. Multiple regression analysis data of equity in urban park service space.

Region	Geographical Location (Center = 5, Edge = 1)	Transportation Convenience (1–5)	Park Accessibility (1–5)	Facility Quality (1–5)	Socioeconomic Background (1–5)	Education Level (1–5)	Income Level (RMB 10,000)	Resident Satisfaction (1–5)	Resident Satisfaction (1–5) Resident Usage Frequency (Visits/Month)
Region A	5	4.5	4.5	4.5	4.5	4.5	35	4.5	8
Region B	3	3.5	3.5	3.5	3.0	3.5	20	3.5	5
Region C	1	2.0	2.5	2.0	2.0	2.0	10	2.0	2
Region D	4	4.0	4.0	4.0	4.0	4.0	30	4.0	6
Region E	2	3.0	3.0	3.0	2.5	3.0	15	3.0	3

From **Table 6**, it can be observed that the geographical location and transportation convenience of parks have a significant impact on the frequency of park usage by residents. For example, residents in Area A, located in the city center with convenient transportation, have a much higher usage frequency compared to those in Area C, located at the edge with inconvenient transportation. Additionally,

socioeconomic background, particularly education level and income, have a significant influence on the frequency of park usage and satisfaction. Residents with higher education levels and income tend to use parks more frequently and express higher satisfaction with the quality and services of the parks. The multiple regression analysis further reveals that park accessibility and facility quality are key factors determining resident satisfaction. For instance, residents in Area A and Area D exhibit relatively higher satisfaction, which aligns with the high park accessibility and facility quality in these regions. Conversely, the low resident satisfaction in Area C corresponds to its poor park accessibility and facility quality. These analysis results highlight the importance of achieving equity in urban planning and park management. To enhance the equity of park service space, planners and managers need to consider improving park accessibility, enhancing facility quality, and taking socioeconomic factors into full consideration. Through these measures, it is possible to ensure that all residents, regardless of their socioeconomic backgrounds, can equitably enjoy the services and benefits provided by urban parks (Li et al., 2023).

5.3. The influence of socio-psychological factors on equity

In this study, the impact of socio-psychological factors on the equity of urban park service space was extensively explored. Urban parks, as important places for community interaction and psychological well-being, may significantly affect the social and psychological well-being of residents due to their uneven distribution among different social groups. Specifically, residents in areas with poorer socioeconomic conditions may not be able to fully enjoy the psychological restoration and community interaction opportunities provided by high-quality parks. This insufficiency may lead to lower levels of psychological satisfaction and social belonging among these residents, consequently affecting their overall happiness and quality of life. For example, a lack of sufficient green spaces and recreational facilities may limit residents' opportunities for outdoor activities and social interactions, thereby impacting their psychological health and social relationships (Jung and Jung, 2020). The data from the multiple regression analysis reveals that regions with better socioeconomic conditions have higher-quality park resources, leading to more frequent park usage by residents and higher levels of satisfaction. This indicates a direct correlation between park quality and accessibility and the social and psychological well-being of residents. High-quality parks provide spaces for stress relief, promote physical and mental health, and enhance community connections, contributing to the improvement of residents' socio-psychological well-being. Therefore, to improve equity in the provision of social service space, special attention should be given to the construction and maintenance of parks in regions with poorer socioeconomic conditions. By increasing the number of parks, improving their quality and accessibility in these areas, equal opportunities for leisure and social interaction can be provided to all residents, promoting the enhancement of socio-psychological well-being and achieving a more equitable distribution of urban parks at a broader level.

5.4. The relationship between resident happiness index and equity

The measurement results of the resident happiness index in this study reveal an important phenomenon: residents living in areas with abundant park resources generally experience higher levels of happiness. These residents make more frequent use of park resources, enjoy opportunities for outdoor activities and community engagement, and express higher levels of satisfaction with the overall quality and services of the parks. This positive experience not only enhances their quality of life but also strengthens their sense of community belonging and satisfaction. However, the opposite situation occurs in areas with fewer park resources. In these areas, residents have relatively lower happiness indices due to a lack of sufficient green spaces and recreational facilities. They not only lack opportunities for leisure and recreation but may also face higher life stress and a sense of community isolation. This unequal distribution of resources exacerbates the inequity in social service space and directly affects residents' happiness. This finding underscores the importance of urban parks as social service spaces in enhancing resident happiness. Parks are not only places for leisure and recreation but also vital spaces for fostering community connections and improving quality of life. Therefore, enhancing equity in urban park service space is not only an important consideration in urban planning but also a crucial approach to enhancing overall resident happiness and quality of life (Lan et al., 2022). To achieve a more equitable distribution of urban parks, urban planners and managers need to focus on areas with fewer park resources. By increasing green spaces, improving park quality and services, and providing equal opportunities for leisure and social interaction to all residents, the happiness of the entire urban population can be enhanced, promoting social harmony and sustainable development.

5.5. Comparative analysis with global urban parks studies

This study's findings on the equity of social service spaces in urban parks in China provide valuable insights that contribute to the broader field of urban parks research. By quantitatively analyzing park accessibility and user satisfaction among different socio-economic groups, our study echoes and extends the findings of similar studies conducted in diverse urban contexts. For instance, research in urban settings across North America and Europe has consistently highlighted disparities in park accessibility and quality based on socio-economic status, mirroring our findings in the Chinese context. However, our study also reveals unique challenges and opportunities presented by the rapid urbanization and unique socio-economic dynamics of Chinese cities. Comparatively, our research underscores the importance of integrating cultural and socio-economic considerations in park planning—a theme that is increasingly recognized in urban park studies worldwide. Furthermore, the significant correlation we identified between park equity and resident well-being adds to the growing body of literature advocating for inclusive urban development. This study thus not only reinforces the global understanding of the importance of equitable urban park services but also provides specific insights that could guide urban planning in similar fast-developing urban contexts.

6. Research findings and policy recommendations

6.1. Key research findings

This study extensively explored the current status of spatial equity in providing social services through urban parks using quantitative methods, and the following key findings were obtained: Uneven regional distribution of park resources: The research results indicate that the quantity, quality of facilities, and accessibility of parks are significantly better in areas with better socioeconomic conditions compared to areas with poorer economic conditions. This phenomenon highlights the inequality in the distribution of park resources in urban planning, affecting the social equity of social services within the city.

The influence of socioeconomic background on park usage: The study found that socioeconomic background is an important factor influencing residents' park usage and satisfaction. In areas with poorer economic conditions, residents have lower frequencies of park usage mainly due to a lack of high-quality park resources.

The influence of education and income levels: Higher education and income levels are associated with higher frequencies of park usage and satisfaction. This suggests that residents with higher education and economic status are more able to utilize and appreciate the services and facilities provided by parks.

The impact of parks on resident happiness: The unequal distribution of park resources not only affects residents' frequencies of park usage and satisfaction but also directly influences their sense of happiness. High-quality park services can promote residents' psychological restoration and community interaction, thereby enhancing their sense of happiness. Disparities in opportunities for psychological restoration and community interaction: Residents in areas with poorer economic conditions lack sufficient opportunities to utilize park resources for psychological restoration and community interaction. This lack of opportunities may lead to social isolation within communities and a decrease in individual well-being. These findings emphasize the importance of achieving social equity in the provision of social service space through urban park planning and management. To enhance the quality of life and happiness of all residents, attention and improvements in spatial equity of urban park services are needed (Dai et al., 2022).

6.2. Policy recommendations

Based on the key findings of this study, we propose the following policy recommendations, each directly informed by specific research outcomes:

1) Increase Investment in Parks in Economically Weaker Areas: Our study identified a significant disparity in park resources between affluent and less affluent areas. To address this, we recommend increased government funding and investment in parks within economically disadvantaged areas. This includes expanding existing parks, improving facility quality, and enhancing maintenance levels. Such measures are directly aligned with our findings on the unequal distribution of park resources, which adversely affects residents' access and satisfaction.

2) Achieve Balanced Distribution and Diverse Park Design: The research revealed that socio-economic background influences park usage and satisfaction. To promote equitable access, urban planning should ensure parks are evenly distributed throughout the city. Park designs should be diverse, catering to various age groups and social demographics. This recommendation is rooted in the study's finding of lower park usage and satisfaction in areas with lower income and education levels.
3) Improve Park Accessibility: Given the study's findings on the impact of geographical location and transportation convenience on park usage, improving road infrastructure and public transportation is crucial. This would ensure convenient access to parks, especially for residents in remote or transportation-disadvantaged areas.
4) Enhance Community Participation and Park Awareness: Our findings highlight the importance of parks as spaces for community interaction and psychological well-being. To foster this, we recommend encouraging community involvement in park planning, design, and management processes, as well as enhancing public awareness of the social services provided by parks.
5) Establish Park Service Evaluation and Feedback Mechanisms: To continuously improve park services and management, we recommend the establishment of regular service evaluations and effective feedback mechanisms. This is based on our observation of varying levels of park facility quality and maintenance, which affect user satisfaction.
6) Promote Social Inclusivity and Diversity in Parks: Reflecting the study's finding on the need for parks to serve diverse cultural backgrounds and abilities, we recommend ensuring park activities and facilities are inclusive and cater to a broad spectrum of community needs.

These policy measures, grounded in empirical evidence from our study, aim to address the disparities in park services and contribute to more equitable, inclusive, and sustainable urban development.

6.3. Relevance of findings to advancement in the field

This study significantly contributes to the theoretical and methodological development in the field of social service space equity in urban parks. From a conceptual perspective, the study employs quantitative analysis to elucidate the impact of urban parks on the quality of life among residents from various socio-economic backgrounds, offering a novel lens through which to understand equity in urban social services. These findings not only broaden the scope of urban planning theory but also emphasize the importance of considering socio-psychological and socio-economic factors in urban development. Methodologically, the use of a multi-dimensional data collection approach and comprehensive analysis in this research provides an innovative framework for investigating equity in urban park services and offers guidance for future similar studies. Additionally, the specific findings of this study lay a robust foundation for the formulation of related policies (Zhang et al., 2021). For instance, the revelation of imbalances in park resource allocation between peripheral and central urban areas supports policy recommendations for optimizing the

distribution of urban parks and enhancing service quality. Each policy suggestion directly stems from the study's findings, such as the proposals to improve the quality and accessibility of urban park facilities, which are based on empirical observations of disparities in park amenities across different urban areas. These strategies not only respond to the issues identified in the research but also provide practical directions for improvements in urban planning and management. In summary, this study, through its unique perspective and methodology, presents fresh insights into the understanding and practice of social equity in urban park services, making a significant contribution to the advancement of the field.

7. Research limitations and future directions

7.1. Data limitations and research constraints

While this study provided valuable insights into the analysis of spatial equity in urban park social services, there are several limitations in the data and research methods:

1) Data Sources and Sample Representativeness: The data for this study primarily came from public databases and survey questionnaires, which may introduce certain biases. Despite efforts to ensure sample diversity and breadth, the survey sample may still not fully represent the views and experiences of all community residents. Therefore, the research findings may be limited by sample selection (Dai et al., 2022).
2) Geographic Scope Limitations: This study focused on analyzing specific urban areas, and its findings may not fully apply to other cities or regions. Different cities have different geographical, economic, and social characteristics that can influence the equity of park service spaces. Therefore, the generalizability of the research results may be limited.
3) Limitations of Research Methods: Although this study employed quantitative analysis methods, which are effective in revealing data patterns and trends, they may not fully capture all the complex factors that affect the equity of park service spaces. Quantitative analysis may not fully express the richness and complexity of individual experiences.
4) Timeliness and Dynamic Changes: The data relied upon in this study were collected at a specific point in time and may not reflect trends that change over time. Patterns of park usage and resident demands may change with time and urban development.
5) Insufficient Consideration of Socio-Cultural Factors: This study may not have fully considered the influence of socio-cultural factors on park service usage and satisfaction. For example, residents from different cultural backgrounds may have different expectations and ways of using park spaces (Li et al., 2021).

Therefore, future research should consider employing more diverse data sources, including qualitative research methods, to gain a more comprehensive understanding and explanation of the various influencing factors of spatial equity in urban park social services. Additionally, expanding the scope of research to cover more cities and regions would help improve the universality and applicability of research findings.

7.2. Future research directions and extensions

To overcome the limitations of the current study and deepen the understanding of spatial equity in urban park social services, future research can expand in the following directions:

1) Enhance Data Diversity and Depth: Future research should consider employing a wider range of data sources, such as social media analysis, GPS tracking, and mobile application data, to gain deeper insights into residents' park usage patterns. Additionally, integrating qualitative methods such as participant observation, in-depth interviews, and focus group discussions can reveal residents' underlying perceptions and motivations for park usage.
2) Conduct Cross-City and Regional Comparative Studies: By comparing the spatial equity of park services across different cities and regions, research can reveal how different urban planning and social structures influence the equity of park services. This will help understand the role of geographical and socio-economic factors in park spatial equity.
3) Undertake Longitudinal Tracking Studies: Implementing long-term tracking studies can observe the changes in park usage patterns and resident satisfaction over time, assessing the long-term impacts of urban policies and development strategies on the equity of park service spaces.
4) Build Comprehensive Assessment Systems: Develop a comprehensive assessment system that includes physical, social, cultural, and environmental factors to comprehensively evaluate the equity of urban parks. This system can help policymakers and urban planners understand the complexity and diversity of park services (Jiao et al., 2020).
5) Strategy Implementation and Effect Evaluation: For the strategies proposed in this study to improve park equity, they should be implemented in real urban environments and evaluated through subsequent research to validate their effectiveness and practicality.

By expanding research in these directions, future studies will be able to analyze and improve the equity of urban parks in providing social services in a more comprehensive and in-depth manner, thereby better promoting sustainable urban development and resident well-being.

8. Conclusion

In this study, we embarked on an exploration of the equity of social service spaces in urban parks in China and its impact on different socio-economic groups, guided by specific research hypotheses. Our findings offer substantial insights in response to these hypotheses and contribute significantly to the global understanding of urban parks and their role in urban equity.

8.1. Resolution of research hypotheses

Equity Among Socio-Economic Groups: Our first hypothesis posited that the accessibility and quality of urban park services vary among different socio-economic groups. This has been confirmed by our research, which uncovered pronounced disparities in park accessibility and quality between affluent and less affluent areas in

urban China. Such findings mirror global trends and provide a distinctive perspective within the context of China's rapid urbanization.

Impact on Resident Well-Being: The second hypothesis focused on the relationship between park equity and resident well-being. The study revealed a significant correlation, indicating that better-equipped and more accessible parks are associated with higher levels of satisfaction and overall well-being among residents. This outcome is of paramount importance for urban planning, underscoring the necessity of equitable park distribution to improve the quality of urban life.

8.2. Global implications and advancements

The results of this study have profound international implications, enhancing the existing literature on urban parks and equity worldwide. By offering empirical evidence from the urban context of China, this research deepens the global understanding of how urban parks can serve as instruments of social equity in urban settings. It emphasizes the need for inclusive urban planning strategies that address the varied needs of all urban residents, especially in rapidly urbanizing cities. Furthermore, the approach and findings of this study provide valuable insights for urban studies on a global scale, highlighting the imperative for a more equitable allocation of urban green spaces and their essential role in improving urban life quality. These insights are pertinent not only for urban planners and policymakers in China but also for those in other cities globally facing similar challenges of urban equity and sustainability.

In summary, this research advances the field of urban studies by offering a comprehensive analysis of the role of urban parks in fostering social equity. It advocates for a re-envisioned approach to urban development, where parks are perceived not merely as recreational spaces but as integral components of a city's social fabric, contributing to a more equitable and sustainable urban future.

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References

Cheng, L., & Xu, J. (2021). Benefit-sharing and residents' subjective well-being in rural tourism: An asymmetric approach. Journal of Destination Marketing & Management, 21, 100631. https://doi.org/10.1016/j.jdmm.2021.100631

Corburn, J., Curl, S., Arredondo, G., & Malagon, J. (2014). Health in all urban policy: city services through the prism of health. Journal of urban health, 91, 623–636. https://doi.org/10.1007/s11524-014-9886-3

Dai, W., Yuan, S., Liu, Y., et al. (2022). Measuring equality in access to urban parks: A big data analysis from Chengdu. Frontiers in Public Health, 10, 1022666. https://doi.org/10.3389/fpubh.2022.1022666

Dat, L. T., Wu, H. C., Li, T. N., et al. (2024). The effects of landscape fascination on subjective well-being and revisit intention: Evidence from agritourism destinations. International Journal of Tourism Research, 26(1), e2621. https://doi.org/10.1002/jtr.2621

Declet-Barreto, J., Knowlton, K., Jenerette, G. D., & Buyantuev, A. (2016). Effects of urban vegetation on mitigating exposure of vulnerable populations to excessive heat in Cleveland, Ohio. Weather, Climate, and Society, 8(4), 507–524. https://doi.org/10.1175/wcas-d-15-0026.1

Guo, J. K., Qiu, Y. K., Bai, J. Y., & Wang, L. (2019). Spatial differentiation and equalization of medical service based on accessibility of urban public transport: A case study of Dalian. Journal of Highway and Transportation Research and Development (English Edition), 13(2), 80–89. https://doi.org/10.1061/jhtrcq.0000682

Jiao, H., Li, C., Yu, Y., & Peng, Z. (2020). Urban public green space equity against the context of high-speed urbanization in Wuhan, central China. Sustainability, 12(22), 9394. https://doi.org/10.3390/su12229394

Jung, M., & Jung, T. (2020). Qualitative equity of neighborhood Parks in Daegu according to socioeconomic status. Journal of the Korean Institute of Landscape Architecture, 48(2), 45–55. https://doi.org/10.9715/kila.2020.48.2.045

Lamb, C. (2022). Rural Social Differentiation in Early Classic Chunhuayum, Yucatan, Mexico. Ancient Mesoamerica, 33(1), 162-185. https://doi.org/10.1017/s0956536121000547

Li, J., Sun, S., & Li, J. (2021). The dawn of vulnerable groups: The inclusive reconstruction mode and strategies for urban villages in China. Habitat International, 110, 102347. https://doi.org/10.1016/j.habitatint.2021.102347

Li, X., Ma, X., Hu, Z., & Li, S. (2021). Investigation of urban green space equity at the city level and relevant strategies for improving the provisioning in China. Land Use Policy, 101, 105144. https://doi.org/10.1016/j.landusepol.2020.105144

Li, Z., Bai, X., Xu, Z., et al. (2023). The optimal spatial delineation method for the service level of urban park green space from the perspective of opportunity equity. Environmental Science and Pollution Research, 30(36), 85520–85533. https://doi.org/10.1007/s11356-023-28467-z

Liang, Z., Luo, H., & Hui, T. (2023). Moving for a good life: Tourism mobility and subjective well-being of Chinese retirement migrants. Tourism Geographies, 25(2-3), 778–796. https://doi.org/10.1080/14616688.2021.1990385

Liu, N., Andrew, N. E., Cadilhac, D. A., et al. (2020). Health-related quality of life among elderly individuals living alone in an urban area of Shaanxi Province, China: a cross-sectional study. Journal of International Medical Research, 48(4), 0300060520913146. https://doi.org/10.1177/0300060520913146

Málovics, G., Creţan, R., Méreiné Berki, B., & Tóth, J. (2018). Urban Roma, segregation and place attachment in Szeged, Hungary. Area, 51(1), 72–83. Portico. https://doi.org/10.1111/area.12426

McCabe, S., Joldersma, T., & Li, C. (2010). Understanding the benefits of social tourism: Linking participation to subjective well-being and quality of life. International Journal of Tourism Research, 12(6), 761–773. Portico. https://doi.org/10.1002/jtr.791

Mehta, V., & Mahato, B. (2020). Designing urban parks for inclusion, equity, and diversity. Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 14(4), 457–489. https://doi.org/10.1080/17549175.2020.1816563

Mereine Berki, B., Málovics, G., Tóth, J., & Creţan, R. (2017). The role of social capital and interpersonal relations in the alleviation of extreme poverty and spatial segregation of Romani people in Szeged. Journal of Urban & Regional Analysis, 9(1). https://doi.org/10.37043/jura.2017.9.1.2

Moore, G., Fardghassemi, S., & Joffe, H. (2023). Wellbeing in the city: Young adults' sense of loneliness and social connection in deprived urban neighbourhoods. Wellbeing, Space and Society, 5, 100172. https://doi.org/10.1016/j.wss.2023.100172

Penco, L., Ivaldi, E., & Ciacci, A. (2021). Entrepreneurial ecosystem and well-being in European smart cities: a comparative perspective. The TQM Journal, 33(7), 318–350. https://doi.org/10.1108/tqm-04-2021-0097

Sadeghi, A. R., Ebadi, M., Shams, F., & Jangjoo, S. (2022). Human-built environment interactions: the relationship between subjective well-being and perceived neighborhood environment characteristics. Scientific Reports, 12(1), 21844. https://doi.org/10.1038/s41598-022-25414-9

Shamsuddin, S. (2020). Resilience resistance: The challenges and implications of urban resilience implementation. Cities, 103, 102763. https://doi.org/10.1016/j.cities.2020.102763

Su, M., & Cheng, D. (2023). The Practice Path of Social Work in Supporting the Construction of Harmonious and Beautiful Countryside. Journal of Social Science Humanities and Literature, 6(6), 37-40. https://doi.org/10.53469/jsshl.2023.06(06).07

Vicerra, P. M. M. (2022). Mental stress and well-being among low-income older adults during COVID-19 pandemic. Asian Journal of Social Health and Behavior, 5(3), 101. https://doi.org/10.4103/shb.shb_110_22

Xu, T., & Liu, H. (2023). Reversing the question: does subjective well-being affect family tourism expenditure?. Current Issues in Tourism, 26(17), 2812–2828. https://doi.org/10.1080/13683500.2022.2100746

Yang, J., Ma, X., Zhao, X., & Li, W. (2022). Spatiotemporal of the coupling relationship between ecosystem services and human well-being in Guanzhong Plain urban agglomeration. International Journal of Environmental Research and Public Health, 19(19), 12535. https://doi.org/10.3390/ijerph191912535

Yang, Y., He, R., Tian, G., et al. (2022). Equity Study on Urban Park Accessibility Based on Improved 2SFCA Method in Zhengzhou, China. Land, 11(11), 2045. https://doi.org/10.3390/land11112045

Yao, S. J., Ma, Q. S., Liu, C., et al. (2023). The relationship between physical exercise and subjective well-being among Chinese junior high school students: A chain mediating model. Frontiers in Psychology, 13, 1053252. https://doi.org/10.3389/fpsyg.2022.1053252

Yuzhen, Z., Jie, W., Yang, C., & Jianping, Y. (2021). An assessment of urban parks distribution from multiple dimensions at the community level: A case study of Beijing. Environmental Impact Assessment Review, 91, 106663. https://doi.org/10.1016/j.eiar.2021.106663

Zhang, J., & Xu, E. (2023). Investigating the spatial distribution of urban parks from the perspective of equity-efficiency: Evidence from Chengdu, China. Urban Forestry & Urban Greening, 86, 128019. https://doi.org/10.1016/j.ufug.2023.128019

Zhang, J., Zheng, Y., Wen, T., & Yang, M. (2022). The impact of built environment on physical activity and subjective well-being of urban residents: A study of core cities in the Yangtze River Delta survey. Frontiers in Psychology, 13, 1050486. https://doi.org/10.3389/fpsyg.2022.1050486

Zhang, M., Chen, W., Cai, K., et al. (2019). Analysis of the spatial distribution characteristics of urban resilience and its influencing factors: a case study of 56 cities in China. International Journal of Environmental Research and Public Health, 16(22), 4442. https://doi.org/10.3390/ijerph16224442

Zhang, R., Sun, F., Shen, Y., et al. (2021). Accessibility of urban park benefits with different spatial coverage: Spatial and social inequity. Applied Geography, 135, 102555. https://doi.org/10.1016/j.apgeog.2021.102555