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Factors Influencing the Elderly's Visits to and Exercise in Public Parks during the COVID-19 Pandemic in Tokyo, Japan

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Abstract:
The objectives of this study were two-fold: 1) to identify patterns in the elderly's visits to urban parks during the COVID-19 pandemic in Tokyo; and 2) to identify whether visiting urban parks allowed the elderly to meet their social interaction needs during the pandemic. The sample comprised 400 elderly people in Tokyo. The study was conducted immediately after the Japanese government relaxed restrictions on social activities in the community, allowing people to visit public parks, railway stations, religious places, malls, communities, and the like. Statistical analysis consisted of the use of percentages, means, standard deviations, t-tests, one-way analysis of variances, and pairwise tests using least significant difference. Urban parks are an important public service resource for the elderly living in urban areas. During the COVID-19 pandemic, access to parks, gardens, and other local green spaces was recognized as vital to people's physical and mental health. The elderly, as a highly vulnerable group, experienced a considerable reduction in mobility during the pandemic. The results of this study indicate that elderly people of different genders and ages did not make different decisions about their visits and return visits to parks during the pandemic, whereas those with different educational levels and occupations before retirement made significantly different decisions. All participants stated that they appreciated the liveliness, contact with nature, access to social spaces for their age group, cleanliness and safety, and various atmospheres and activities offered by the parks. The COVID-19 pandemic has presented an opportunity to review society, public spaces in urban areas, and the elderly population of Tokyo in particular. Relevant agencies should review facilities according to the preferences of the elderly to encourage their use of parks for the mutual benefit of society in general and the elderly in particular.

Keywords: Tokyo, elderly people, COVID-19, public parks.

日本东京 新冠肺炎大流行期间影响老年人前往公园和锻炼的因素

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摘要：
这项研究的目标有两个：1）确定东京新冠肺炎大流行期间老年人访问城市公园的模式；2）确定在大流行期间参观城市公园是否可以满足老年人的社交需求。样本包括东京的400名老年人。这项研究是在日本政府放宽对社区社交活动的限制，允许人们参观公园、火车站、宗教场所、商场、社区等后立即进行的。统计分析包括使用百分比、平均值、标准差、t检验、单向方差分析以及使用最小显着性差异的成对检验。城市公园是城市老年人的重要公共服务资源。在新冠肺炎大流行期间，人们认为进入公园、花园和其他当地绿地对于人们的身心健康至关重要。老年人作为高度弱势群体，疫情期间行动能力大幅下降。本研究结果表明，不同性别和年龄的老年人在疫情期间对公园的参观和回访没有做出不同的决定，而不同教育程度和退休前职业的老年人则做出了显着不同的决定。所有参与者均表示，他们欣赏公园的活力、与自然的接触、适合其年龄段的社交空间、清洁和安全以及公园提供的各种氛围和活动。新冠肺炎 大流行为审视社会、城市地区的公共空间，尤其是东京的老年人口提供了一个机会。有关部门应根据老年人的喜好对设施进行审查，鼓励他们使用公园，以造福社会特别是老年人。

关键词：东京、老年人、新冠肺炎、公园.

1. Introduction

Following on from my research conducted at Lumpini Park Bangkok (Prompan, 2022), this study "Factors influencing the elderly's visits to and exercise in public parks during the COVID-19 pandemic in Tokyo, Japan" was inspired by my interest in Japanese culture in general and the perception of the elderly in the community. The conclusions and suggestions drawn from this exercise provide up-to-date data of benefit to the relevant agency in considering the welfare of the elderly in particular and their contribution to society.

The history of public parks in Japan began in 1873 when the Western concept of "the public park" was introduced by Cabinet Order No. 16 (Iwakura, 1978; Shiba, 2012). In the same year, Tokyo's first five parks were built: Ueno Park, Asakusa Park, Fukagawa Park, Asukayama Park, and Shiba Park (Kondo, 2022). By the end of World War II, large parts of Tokyo and many other cities had been burned to ashes, and one-third of the nation's wealth and amenities had been destroyed, including its public parks (Tsurumi, 2015). As parks are considered essential to residents' well-being, funds have ever since been allocated to restoring, maintaining, and developing parks, gardens, and public spaces to promote the population's enjoyment and health (Tokyo Metropolitan Government [TMG], 2015; 2017; 2021).

Tokyo may not be known as a city with much greenery, but it has several noteworthy parks and gardens that offer both residents and visitors opportunities to enjoy a break from the city's concrete. The first is Shinjuku Gyoen, which was completed in 1772. It is a spacious park with expansive lawns, trees, and ponds, and it also includes a Japanese landscape garden and a French-style garden. This garden is a famous spot for viewing cherry blossoms in spring. The second is Yoyogi Park, a spacious western-style park with expansive lawns, trees, and ponds that is popular among nearby residents. This park is known for its autumn leaves, especially the golden leaves of many ginkgo trees. The third is Ueno Park, which is home to approximately half a dozen museums, with a zoo, the Toshogu Shrine, and the Shinobazu Pond being just some of the park's other attractions. This park is Tokyo's most famous cherry blossom viewing spot. The Imperial Palace East Gardens is the fourth. It was designed in the early 17th-century and is the location of the former Edo Castle and part of the current Imperial Palace. It contains massive castle moats, the foundations of the former castle tower, and a Japanese garden. The fifth park is the Koishikawa Botanical Garden, which is a spacious botanical garden maintained by the University of Tokyo. Created in 1629, it is Tokyo's oldest garden and features many tree and plant species and a small Japanese landscape garden. It is particularly attractive during the cherry blossom season. The sixth park is the Showa Memorial Park, which is a vast and pleasant public park in the western suburbs of Tokyo that boasts a variety of natural spaces, seasonal flowers, water features, museums, sports facilities, and more (Ikedo, 2023; Martin & Martin, 2012; Tokyo Convention & Visitors Bureau, 2023).

Today, Japan has the fourth-highest life expectancy in the world at roughly 87.97 years for women and 81.91 years for men, yielding a total average lifespan of 84.95 years (World Population Review, 2023). Since the 1970s, Japan has failed to raise its fertility rate to the replacement level, which may be explained by Japan's working culture, a decrease in employment opportunities for young men, and the traditional gender division of labor. Japan's "super-aged" society is the oldest in the world, with 28.7% of the population being 65 or older, of which women constitute the majority. By 2036, people aged 65 and older will represent a third of the Japanese population (D'ambrogio, 2020). Moreover, the Kanto Metropolitan Area in Tokyo has the largest number of elderly people in the world (City Monitor Staff, 2022). As of October 1, 2022, there were 3.952 million elderly people (those 60 years or older) living in Tokyo (e-Stat Portal Site of Official Statistics of Japan, 2022).

Goal 11 of the United Nations Sustainable Development Goals is to "make cities and human settlements inclusive, safe, resilient, and sustainable,"

which covers several relevant areas, including cities and communities. For example, Article 11.4 promotes the integrated provision of environmental infrastructure: water, sanitation, drainage, and solid waste management. It also encourages the provision of universal access to safe, green, and public spaces, particularly for women, children, older persons, and persons with disabilities (United Nations, 2023: 1). Elderly city residents have identified urban parks as important places for physical activity (PA) because parks can promote healthy and active aging (Thompson, 2002; Zhang *et al*., 2022).

The concept of "smart cities" denotes an intelligent city that integrates digital technologies into its networks, services, and infrastructure, thus benefiting its residents and businesses by making it more efficient and livable (Novotný *et al*., 2014). Implementing smart cities in Japan is a priority because it is a measure that aims to resolve social and economic issues related to mobility, health, tourism, energy, the environment, finance, government services, and the like (Abdoullaev, 2011). Importantly, green spaces or public parks should be a core part of smart cities because this action allows for the incorporation of plant life, recreational spaces, and greenery into the city. Moreover, these spaces can take forward-thinking architecture in new directions and boost residents' quality of life throughout the city, including that of the elderly (Anguluri & Narayanan, 2017).

People who visit a park regularly are more likely to enjoy better health than those who do not (Chiesura, 2004). Furthermore, urban parks provide spaces and opportunities for various outdoor activities and encourage many demographic groups to engage in sports. A survey in developing countries indicated that frequent park visits reduced participants' health problems and improved their life satisfaction (Yigitcanlar et al., 2020), with these opportunities for participation also helping improve visitors' health (McCormack et al., 2010). This evidence underscores the effectiveness of urban parks in improving individuals' mental and physical health. Additionally, parks provide a social environment for residents and promote social interaction (Hayward & Weitzer, 1984). Vegetation in parks is considered a vital component of neighborhood spaces because trees and grass attract residents to the outdoors and create social opportunities (Sullivan et al., 2004). Visiting parks can facilitate the development of friendships between residents and promote active and passive leisure activities, such as chatting and walking (Lloyd et al., 2008).

The COVID-19 pandemic was a global outbreak of coronavirus, which is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The pandemic changed the daily routines of elderly people, the care and support they received, their ability to stay socially connected, and how they were perceived (World Health Organization, 2021). During the pandemic, parks, gardens, and other local green spaces were recognized as vital to people's physical and mental health, and emerging global evidence has shown that the increased use of local parks and recreational activities has led to a new appreciation of natural surroundings (Levinger et al., 2022). Thus, the greater availability of parks and open spaces (e.g., proximity and per capita parkland) may have facilitated, continued, or even increased use of parks (Curtis et al., 2022).

This paper aims to identify the following: 1) the patterns in the elderly's visits to urban parks during the COVID-19 pandemic in Tokyo; and 2) whether visiting urban parks allowed the elderly to meet their social interaction needs during the pandemic. Tokyo has developed into a smart city that focuses on environmental preservation, with urban parks providing spaces for people to relax, exercise, and socialize. Japan's unique culture values green spaces and encourages regular access to them. The COVID-19 pandemic made it challenging for everyone, including the elderly, to live a normal life. Therefore, it is important to investigate elderly people's views on the use of urban parks. Many studies have discussed the positive role of urban parks (e.g., Chiesura, 2004; Hayward & Weitzer, 1984; Lloyd et al., 2008; McCormack et al., 2010; Sullivan et al., 2004; Yigitcanlar et al., 2020), but investigations into the role they play in crises (e.g., a pandemic) are limited. Furthermore, most existing studies have focused on different populations' mental health during the pandemic. This study, which was conducted between 2022 and 2023, is the most up-to-date account of the pandemic's effects on the physical health and social interaction needs of the elderly in Tokyo.

2. Literature Review

2.1. Development of City and Urban Parks in Tokyo

There were no parks in Tokyo during the Edo period, as shrine and temple grounds and expansive pedestrian areas provided relaxation and enjoyment to residents. During the Meiji era, the government conceived plans to introduce facilities called "parks" that already existed in cities in the West. In 1873, the Dajokan (the Grand Council of State) issued an administrative order for the grounds of former temples and shrines to be turned into parks. This led to the development of parks in Asakusa, Ueno, Shiba, Fukagawa, and Asukayama. This order entailed converting former shrines and temple grounds to parks, but its initial goal was not urban redevelopment. Parks became part of urban redevelopment strategies following the enactment of the Tokyo City Planning Ordinance in 1888. Although the Tokyo City Plan of 1889 scheduled the building of parks in 49 locations, this was reduced to 22 locations in the new Tokyo City Plan of 1903. Hibiya Park, which was scheduled in the Tokyo City Plan, was built as a modern park through which residents could stroll. This symbol of Japan's contemporary parks opened in 1903 and was Japan's first western-style park (Ichikawa, 1994; TMG, 2017).

In 1939, the Tokyo Green Space Planning Commission launched a proposal for the development of a green belt for the capital to limit suburban expansion. This green space (ryokuchi) was also conceived as a fertile area that contained forests and farmland. During World War II, urban forests were used as emergency shelters to provide essential resources such as food or timber. The parks became arable land that was used for growing vegetables or rice, and tree logs were used for firewood. They also housed many barrack-style dwellings. Today, urban forests continue to provide shelter to the disadvantaged (Havens, 2010)

As of March 31, 2008, 36% of Tokyo Prefecture's total land area was designated as natural parks (second only to Shiga Prefecture). These areas include the Chichibu Tama Kai, Fuji-Hakone-Izu, and Ogasawara National Parks (the last of which was designated a UNESCO World Heritage Site in 1992); Meiji no Mori Takao Quasi National Park; and Akikawa Kyūryō, Hamura Kusabana Kyūryō, Sayama, Takao Jinba, Takiyama, and Tama Kyūryō Prefectural Natural Parks (Ministry of the Environment, 2012).

The TMG's vision for greening proposed in the Action Plan for 2020 (formulated in December 2016) makes "creating and preserving a rich natural environment" a key initiative. Furthermore, the (TMG) set a goal to develop 95 hectares of new metropolitan parkland by 2020. In addition to making steady progress in the expansion of metropolitan parks, the (TMG) is also working to realize the objectives outlined in the Action Plan for 2020 by advancing projects that aim to strengthen metropolitan parks' functions. These objectives are central to disaster management, and the recreation and restoration of gardens designated as cultural properties will pass down historical and cultural heritage to the next generation (TMG, 2015).

2.2. Development of Systems for Urban Greening

The rich greenery, wide-open spaces, and open skies in Tokyo parks make them invaluable places for recreation and add beauty to the city's landscape. In addition, the greenery in the parks helps clean the air, and the open spaces serve as evacuation sites during disasters. Parks also help to ensure that outstanding natural scenery is preserved (TMG, 2015). Prefectures can designate prefectural natural parks as such under the Prefectural Ordinance by specifying their boundaries (i.e., their protection and use; Ministry of Justice, Japan, 2023). Parks are classified into three groups: "urban parks," which are specified by the Urban Park Act; "parks other than urban parks," which are deemed equivalent to urban parks; and "natural parks," which are specified by the Natural Parks Act (TMG, 2015).

Table 1. The systems governing parks and green spaces: urban greening (Ministry of Land, Infrastructure, Transport and Tourism, 2023)

1	- Establishment of green conservation areas and greening agreement systems to develop urban greening systems and promote the conservation of urban green spaces (S48/1973)
2	- Enactment of a planning system for greening and open spaces in the urban planning outline of the master plan for greening (S52/1977)
3	- Revision of the system for basic plans for greening initiated by municipalities to promote the conservation of urban green space (H6/1994)
4	- Revision of the system for civil green space and green space management function to conserve urban green space (H7/1995)
5	- Establishment of a revised management agreement system, greening facility development plan, and authorization system to promote the conservation of urban green spaces (H13/2001)
6	- Development of the Scenic Spots and Scenic Preservation Planning System Landscapes Act (H16/2004)
7	- Revision of the system for conserving urban green areas and green space (renamed the Urban Green Space Big Three Acts Concerning Scenery and Greening Conservation Act; H16/2004)
8	- Establishment of a provision for developing city parks based on basic plans for greening and revision of the Greening Urban Parks Act (H16/2004)
9	- Maintenance and improvement of the traditional scenery planning system to improve and maintain the traditional scenery in certain districts (H20/2008)

2.3. Public Parks: Scholarly Discussion

Public parks are symbols of civic pride as they provide inhabitants and visitors to the city with attractive surroundings in which to enjoy their leisure time. They also assume a social role as places of personal improvement. Over time, more attractions have been provided to encourage people to use them, including music and sports facilities, horticultural displays, museums, art galleries, and libraries (Taylor, 1995). Large, high-quality, well-maintained, and safe parks can more effectively promote (PA) and its associated benefits than small parks with few amenities. Furthermore, identifying inequities in access to parks according to proximity, acreage, or quality can allow for the development of targeted landscape planning strategies to address these inequities (Rigolon, 2016). Employing the availability of essential park amenities and variety in the presence of people in a park), the diversity of activities and available amenities, and the parks' maintenance qualities and management were all examined and contextualized in terms of the various land-use zones: residential, commercial, and mixed-use (Mushkani & Ono, 2021).

Public parks support community activities and enhance a city's environmental quality. Each public park's physical characteristics and particular uses, including its urban landscape management, may vary depending on the local urban context, socioeconomic conditions, and available locations (Kongphunphin & Srivanit, 2021). Local authorities should play a central role in protecting the physical environments of public parks to maintain their optimal quality (Samad *et al.*, 2021). This study contributes to the discussion on this topic as it is situated in the context of urban public park

literature and examines how the concept of governmental design and service is modeled. Moreover, it assesses parks' accessibility to the general public, particularly the elderly, during the COVID-19 pandemic. The majority of urban societies offer similar services, including Tokyo, which has many large parks across the city, allowing residents to use them at their convenience. However, Murayama and Parker (2006) highlighted the tensions between the development and provision of tourism facilities to residents and suggested that more integrated approaches to planning are needed. This process requires the tourism and leisure industry to be more actively involved in urban regeneration deliberations and to have a more comprehensive understanding of the impacts of unbalanced leisure uses on other local and national actors.

Considering the above context, the following hypotheses were developed:

H1: The COVID-19 pandemic has exaggerated elderly people's perception of threat during visits and return visits to urban parks.

H2: Attraction benefits, such as location, equipment, and facilities, positively affect the number of elderly people's visits and return visits to urban parks.

H3: Risk perceptions of COVID-19 on physical and mental health negatively affect visits and return visits to urban parks.

H4: Social and recreational activities significantly affect coping behavior when visiting urban parks.

H5: New normal behavior is positively associated with visits and return visits to urban parks.

3. Methodology

This study is quantitative and uses a sample of 400 elderly people aged 60 years and above living in Tokyo.

3.1. Sample Size Determination

The sample size of 400 individuals was estimated using the Taro Yamane formula: A population size of 3,952,000 at a 0.05 significance level yields a total of 399.898811 (Yamane, 1973). Therefore, the sample size was set to 400. The researcher randomly selected elderly people who visited public parks, railroad stations, and religious places.

3.2. Data Collection Tools

This study used a quantitative questionnaire divided into two parts: Part 1 examined personal factors and consisted of the four items of gender, age, educational level, and occupation before retirement; and Part 2 comprised questions on the factors influencing the elderly's visits to and exercise in public parks during the COVID-19 pandemic in Tokyo. The questionnaire included seven topics (35 items), and the respondents answered them using a five-point Likert scale (strongly agree = 5, agree = 4, moderately agree = 3, disagree = 2, and strongly disagree = 1). The seven topics included:

- Attraction and benefits
- Location, equipment, and facilities
- Physical health
- Mental health
- Social needs
- Recreational activities
- COVID-19

Table 4 contains an overview of questionnaire topics 1.1–7.5.

An interval scale was used to measure opinion levels as rating scales, totaling five levels, with level 1 indicating the lowest opinion and level 5 indicating the highest opinion. The questionnaires were provided in both Japanese and English, and the research data were collected between November 2022 and January 2023. Interviews were then conducted by the researcher in the following parks: Ueno Park, Ueno City, Yoyogi Park, Shibuya City, Shinjuku Gyoen, and Shinjuku City. Participants were also interviewed in Tokyo Station, Chiyoda City, Imperial Palace, Chiyoda City, Asakusa Temple, Taito City; Catholic churches in Midtown, Minato City, and Chiyoda City; and in various locations in Shinjuku and Shibuya.

Data analysis was conducted using inferential statistics, consisting of a comparative analysis in the form of a mean t-test to determine the differences between the two groups according to their genders (Mishra et al., 2019). Comparison analyses were also performed to determine the differences according to age, educational level, and occupation before retirement, which were assessed using a mean f-test with one-way analysis of variance (ANOVA; Moder, 2010). Moreover, an example pairwise test was conducted using the least significant difference (LSD) method, with the data being analyzed by investigating the correlation between the factors influencing the elderly's visits to and exercise in public parks during the pandemic in Tokyo. The questionnaires were analyzed using frequency tables, logit regression, Pearson-moment product correlation, and multiple regression analyses. These analyses were conducted using SPSS 26 (George & Mallery, 2019).

This study used two types of variables: 1) independent variables, comprising gender, age, educational level, and occupation before retirement; and 2) the dependent variable of the factors influencing the elderly's visits and return visits to urban parks during the COVID-19 pandemic. This conceptual framework is shown in Figure 1.

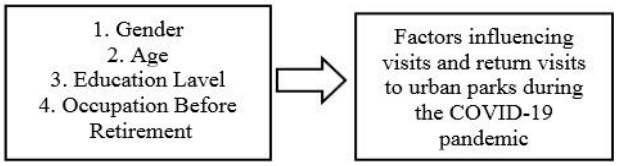

Figure 1. Conceptual framework

4. Results

Table 2 summarizes the participants' demographic characteristics. Most respondents were men (216; 54%), while women accounted for 184 (46%) of the total

sample. Moreover, 38.25% of the respondents were aged between 80 and 89 years, with 30% of them falling within the 70-79 age group and 22.75% of them falling within the 60-99 age group. Notably, 9% were above 90 years of age. In terms of educational level, 38.75% of the respondents had a bachelor's degree, 31.5% had gone through secondary education, 15.25% had an elementary educational level, 13% had completed their primary education, 1% had no formal education, and 0.5% had a doctorate degree. As for their occupations, 31% of the respondents were self-employed, 27.75% were private sector employees, 26.25% were employed in other ways, 14.25% were state employees, and 0.75% were business owners or employers before retirement.

Table 2. Respondents' demographic characteristics (n = 400)

Variables	N	%
Gender		
Male	216	54
Female	184	46
Age		
60-69	91	22.75
70-79	120	30
80-89	153	38.25
>90	36	9
Educational level		
Elementary school	61	15.25
Secondary school	126	31.5
Bachelor's degree	155	38.75
Master's degree	52	13
Doctorate degree	2	0.5
No formal education	4	1
Occupation before retirement		
State employee	57	14.25
Business owner or employer	3	0.75
Private sector employee	111	27.75
Self-employed	124	31
Other	105	26.2

The participants had an average attraction and benefit requirement of 4.02 points out of 5. They had an average need for location, equipment, and facilities of 4.02 on this scale. Their average physical health needs totaled 3.99 points, their average mental health needs had a cumulative score of 4.01 points, and their average social needs scored 4.03 points. Furthermore, their average need for recreational activities totaled 3.99 points, and their concern about COVID-19 had an average of 4.07 points (Table 3).

Table 3. Factors influencing elderly visits and return visits to urban parks during the COVID-19 pandemic

Topics	$\bar{x}$	SD
1. Attraction and benefit	4.02	0.611
2. Location, equipment, and facilities	4.02	0.574
3. Physical health	3.99	0.558
4. Mental health	4.01	0.545
5. Social needs	4.03	0.531
6. Recreational activities	3.99	0.602
7. COVID-19	4.07	0.695

The topics with the highest averages by factor were: attraction and benefit, comprising using parks as a place to meet with friends; location, equipment, and facilities, comprising suitable equipment for the elderly; physical health, entailing the elderly enjoying exercise regularly; mental health, comprising the elderly enjoying a better and longer life; social needs, which consisted of the promotion and protection of natural spaces in urban areas; recreational activities, accounting for the elderly's participation in group experiences; and COVID-19, which answered the question of whether the existing guidelines on exercise in public spaces encouraged the elderly to visit parks.

Table 4. Subfactors influencing visits and return visits of the elderly to urban parks during the COVID-19 pandemic

Topics	$\bar{x}$	SD
1. Attraction and benefit		
1.1. Ease of access to the park	3	0.687
1.2. Using the park for exercise	3.97	0.869
1.3. Using the park to meet friends	4.08	0.978
1.4. Using the park to relax during the day	4.07	0.798
1.5. Using the park to foster well-being	4.03	0.849
2. Location, equipment, and facilities		
2.1. Ease of use of exercise equipment	3.92	0.619
2.2. The exercise facilities are clean and hygienic	3.89	0.672
2.3. Equipment is suitable for the elderly	4.17	0.921
2.4. The environment has attractive atmosphere	4.15	0.816
2.5. The park has effective security system	4.00	0.848
3. Physical health		
3.1. Keeping the body healthy at all times	3.87	0.733
3.2. Wanting to be close to nature and enjoying fresh air	4.01	0.838
3.3. Enjoying exercise regularly	4.06	0.818
3.4. Reducing the risk of various health problems	4.03	0.782
3.5. Developing better responses to changes in physical conditions	4.01	0.867
4. Mental health		
4.1. Promoting good mental health	3.94	0.714
4.2. Reducing stress and anxiety	3.94	0.772
4.3. Managing emotional changes	4.04	0.832
4.4. Encouraging self-appreciation	4.05	0.785
4.5. Enjoying a better and longer life	4.07	0.835
5. Social needs		
5.1. Wanting to socialize with friends	3.92	0.693
5.2. Wanting to perform recreational activities with others	4.05	0.810
5.3. Helping promote and protect natural spaces in urban areas	4.12	0.767
5.4. Being an example for others to use the park more often	4.03	0.814
5.5. Confirming the value of the elderly being healthy to society	4.03	0.810
6. Recreational activities		
6.1. Engaging in strength-enhancing activities	3.90	0.735
6.2. Encouraging personal and group activities	3.93	0.840
6.3. Participating in group experiences	4.06	0.839
6.4. Participating in activities that increase knowledge and experiences	4.02	0.857
6.5. Engaging in entertainment activities in everyday life	4.06	0.813
7. COVID-19		
7.1. Are you currently concerned about COVID-19?	3.97	0.768
7.2. Are you happy with the government's current precautions?	4.05	0.864
7.3. Do you exercise alone or with others?	4.14	0.854
7.4. Would you use facilities in an enclosed space, such as a gym?	4.07	0.877
7.5. Do current guidelines on exercise in public spaces encourage you to visit parks?	4.15	0.885

As shown in Table 5, the male elderly visited and returned to parks during the COVID-19 pandemic ($\bar{x}$ = 4.04, SD = 0.47) more than the female elderly ($\bar{x}$ = 4.00, SD = 0.46). However, there was no significant difference between the two genders (t = 0.135, p = 0.370).

Table 5. Gender differentiation of the elderly's visits and return visits to urban parks during the COVID-19 pandemic

Topics	Male		Female		t	*p*-value
	$\bar{x}$	SD	$\bar{x}$	SD		
Attraction and benefit	4.07	0.61	3.97	0.62	1.571	0.117
Location, equipment, and facilities	4.05	0.58	4.00	0.57	0.806	0.421
Physical health	4.00	0.56	4.00	0.55	0.180	0.857
Mental health	4.00	0.56	4.02	0.52	-0.247	0.805
Social needs	4.04	0.53	4.01	0.54	0.528	0.598
Recreational activities	4.03	0.58	3.94	0.62	1.456	0.146
COVID-19	4.09	0.67	4.05	0.72	0.557	0.564
Total	4.04	0.47	4.00	0.46	0.135	0.370

* Significant at 0.05 ($p < 0.05$)

Furthermore, Table 6 shows that elderly people aged over 90 ($\bar{x}$ = 4.14, SD = 0.353) more frequently visited and returned to parks during the pandemic than elderly people aged 80–89 ($\bar{x}$ = 4.06, SD = 4.06), 70–79 years old ($\bar{x}$ = 3.97, SD = 0.477), and 60–69 years old ($\bar{x}$ = 3.96, SD = 0.572).

Table 6. Age differentiation of the elderly's visits and return visits to urban parks during the COVID-19 pandemic

Topics	Age, years							
	60-69		70-79		80-89		90 >	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
1. Attraction and benefit	4.00	0.648	3.91	0.641	4.10	0.559	4.11	0.596
2. Location, equipment, and facilities	3.98	0.666	3.94	0.570	4.10	0.518	4.09	0.542
3. Physical health	3.90	0.700	3.97	0.529	4.04	0.497	4.08	0.474
4. Mental health	4.00	0.653	3.98	0.567	4.03	0.482	4.02	0.435
5. Social needs	3.97	0.609	3.99	0.519	4.06	0.514	4.17	0.396
6. Recreational activities	3.87	0.723	4.00	0.607	4.02	0.519	4.15	0.550
7. COVID-19	4.01	0.774	4.00	0.702	4.10	0.665	4.37	0.500
Total	3.96	0.572	3.97	0.477	4.06	0.408	4.14	0.353

The ANOVA analysis presented in Table 7 determined no significant differences in age in terms of elderly people's visits and return visits to parks during the pandemic (f = 2.062, p = 0.105). There was no significant difference for six of the aspects: attraction and benefit (f = 2.297, p < 0.077); location, equipment, and facilities (f = 1.933, p < 0.124); physical health (f = 1.529, p < 0.206); mental health (f = 0.175, p < 0.913); social needs (f = 1.543, p < 0.203); and recreational activities (f = 2.190, p < 0.089). However, elderly people of different ages made significantly different decisions about their visits and return visits to the parks because of COVID-19 (f = 2.857, p = 0.037). Therefore, the LSD method was used to compare individual differences.

Table 7. One-way ANOVA results for elderly visits and return visits to urban parks during the COVID-19 pandemic according to age

Topics	df	Mean Square	F	*p*-value
Attraction and benefit	3	0.850	2.297	0.077
Location, equipment, and facilities	3	0.633	1.933	0.124
Physical health	3	0.474	1.529	0.206
Mental health	3	0.052	0.175	0.913
Social needs	3	0.433	1.543	0.203
Recreational activities	3	0.787	2.190	0.089
COVID-19	3	1.360	2.857	0.037*
Total	3	0.449	2.062	0.105

* Significant at 0.05 ($p < 0.05$)

Table 8 shows that three pairs of elderly people of different ages made different decisions about their visits and return visits to the park because of COVID-19: elderly people aged 60-69 and over 90; elderly people aged 70-79 and over 90; and elderly people aged 80-89 and over 90.

Table 8. Pairwise differences in the elderly's visits and return visits to parks during the COVID-19 pandemic by age using LSD method (example from the question on COVID-19)

Topics	Age			
	60-69	70-79	80-89	90 >
60–69 years old	-	0.008	-0.085	-0.352*
70–79 years old	-	-	-0.093	-0.362*
80–89 years old	-	-	-	-0.268*
90 years and older	-	-	-	-

* Significant at 0.05 ($p < 0.05$)

Table 9 shows that elderly people with master's

degrees ($\bar{x}$ = 4.20, SD = 0.337) visited and returned to parks more frequently during the pandemic than those with bachelor's degrees ($\bar{x}$ = 4.06, SD = 0.438), doctorate degrees ($\bar{x}$ = 4.03, SD = 0.404), secondary school education ($\bar{x}$ = 3.98, SD = 0.489), no formal education ($\bar{x}$ = 3.90, SD = 0.568), and elementary school education ($\bar{x}$ = 3.88, SD = 0.545).

Table 9. Differentiation between education levels in terms of the elderly's visits and return visits to parks during the COVID-19 pandemic

Topics	Jnr.		Snr.		B.A.		M.A.		Dr.		N/A	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
1. Attraction and Benefit	3.81	0.742	3.95	0.625	4.09	0.537	4.26	0.476	4.10	0.990	3.60	0.952
2. Location, equipment, and facilities	3.90	0.636	3.96	0.639	4.06	0.513	4.21	0.394	4.70	0.424	3.75	0.957
3. Physical health	3.88	0.619	3.97	0.579	4.02	0.544	4.09	0.471	4.20	0.000	4.10	0.529
4. Mental health	3.89	0.573	3.93	0.594	4.05	0.440	4.21	0.441	4.40	0.849	4.10	0.887
5. Social needs	3.89	0.598	4.04	0.501	4.03	0.530	4.19	0.445	3.50	1.273	3.85	0.661
6. Recreational activities	3.80	0.649	3.96	0.643	4.05	0.581	4.15	0.419	3.30	0.424	3.65	0.574
7. COVID-19	3.98	0.752	4.03	0.704	4.07	0.700	4.27	0.518	4.00	1.414	4.08	0.694
Total	3.88	0.545	3.98	0.489	4.06	0.438	4.20	0.337	4.03	0.404	3.90	0.568

Notes: * Significant at 0.05 ($p < 0.05$); Jnr - junior school or elementary school; Snr - senior high school or secondary school; B.A. - Bachelor's degree; M.A. - Master's degree; Dr. - doctorate degree; N/A - no formal education

The ANOVA analysis shown in Table 10 demonstrates that elderly people with different educational levels made significantly different choices about their visits and return visits to parks during the pandemic (f = 3.179, p = 0.008). There was a significant difference in the results for all aspects: attraction and benefit (f = 4.342, p = 0.001); location, equipment, and facilities (f = 3.015, p = 0.011); physical health (f = 1.064, p = 0.380); mental health (f = 3.026, p = 0.011); social needs (f = 2.387, p = 0.038); recreational activities (f = 3.193, p = 0.008); and COVID-19 (f = 1.246, p = 0.287). Therefore, the LSD method was used to compare individual differences.

Table 10. Differentiation between education level in terms of the elderly's visits and return visits to parks during the COVID-19 pandemic

Topics	Df	Mean square	f	*p*-value
Attraction and Benefit	5	1.558	4.342	0.001*
Location, equipment, and facilities	5	0.970	3.015	0.011*
Physical health	5	0.331	1.064	0.380
Mental health	5	0.878	3.026	0.011*
Social needs	5	0.661	2.387	0.038*
Recreational activities	5	1.127	3.193	0.008*
COVID-19	5	0.599	1.246	0.287
Total	5	0.679	3.179	0.008*

* Significant at 0.05 ($p < 0.05$)

Table 11 shows that two pairs of elderly people with different educational levels made different decisions about their visits and return visits to parks during the pandemic: elderly people with elementary school and master's degree education; and elderly people with secondary school and master's degree education.

Table 11. Pairwise differences in the elderly's visits and return visits to urban parks during the COVID-19 pandemic by educational level using LSD (example from the question on COVID-19)

Educational level	Jnr.	Snr.	B.A.	M.A.	Dr.	N/A
Jnr.	-	-0.055	-0.102	-0.296*	-0.023	-0.273
Snr.	-	-	-0.047	-0.241*	0.032	-0.218
B.A.	-	-	-	-0.194	0.079	-0.171
M.A.	-	-	-	-	0.273	0.023
Dr.	-	-	-	-	-	-0.250
N/A	-	-	-	-	-	-

Notes: * Significant at 0.05 ($p < 0.05$); Jnr - junior school or elementary school; Snr - senior high school or secondary school; B.A. - Bachelor's degree; M.A. - Master's degree; Dr. - doctorate degree; N/A - no formal education

Table 12 shows that elderly state employees ($\bar{x}$ = 4.24, SD = 0.312) visited and returned to parks more frequently during the pandemic than private employees ($\bar{x}$ = 4.12, SD = 0.348), the self-employed ($\bar{x}$ = 4.04, SD = 0.401), those with occupations in other fields ($\bar{x}$ = 3.79, SD = 0.612), and business owners or employers ($\bar{x}$ = 3.59, SD = 0.388).

Table 12. Differentiation in the elderly's visits and return visits to urban parks during the COVID-19 pandemic according to their occupation before retirement

Topics	State Employee		Business owner or employee		Private sector employee		Self-employed		Other	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
1. Attraction and benefit	4.26	0.444	3.73	0.577	4.17	0.526	4.17	0.526	3.71	0.722

Continuation of Table 12

2. Location, equipment, and facilities	4.19	0.423	3.53	0.231	4.12	0.465	4.12	0.465	3.86	0.754
3. Physical health	4.19	0.428	3.73	0.611	4.02	0.478	4.02	0.478	3.80	0.679
4. Mental health	4.20	0.411	3.53	0.503	4.09	0.456	4.09	0.456	3.78	0.703
5. Social needs	4.24	0.415	3.86	0.462	4.09	0.426	4.09	0.426	3.86	0.658
6. Recreational activities	4.22	0.406	3.40	0.529	4.16	0.448	4.16	0.448	3.76	0.781
7. COVID-19	4.38	0.545	3.33	0.503	4.16	0.598	4.16	0.598	3.79	0.773
Total	4.24	0.312	3.59	0.388	4.12	0.348	4.12	0.348	3.79	0.612

The ANOVA analysis detailed in Table 13 highlights that elderly people with different occupations before retirement made significantly different decisions about their visits and return visits to parks during the pandemic ($f = 12.396$, $p = 0.000$). They made significantly different decisions according to all the factors: attraction and benefit ($f = 11.906$, $p < 0.000$); location, equipment, and facilities ($f = 4.962$, $p < 0.001$); physical health ($f = 5.750$, $p < 0.000$); mental health ($f = 8.487$, $p < 0.000$); social ($f = 5.569$, $p < 0.000$); recreational activities ($f = 3.193$, $p < 0.000$); and COVID-19 ($f = 9.747$, $p = 0.000$). Therefore, the LSD method was used to compare the individual differences.

Table 13. One-way ANOVA results for elderly people's visits and return visits to urban parks during the COVID-19 pandemic according to their occupation before retirement

Topics	**df**	**Mean square**	**f**	***p*-value**
Attraction and benefit	4	4.012	11.906	0.000*
Location, equipment, and facilities	4	1.574	4.962	0.001*
Physical health	4	1.708	5.750	0.000*
Mental health	4	2.346	8.487	0.000*
Social needs	4	1.501	5.569	0.000*
Recreational activities	4	3.204	3.193	0.000*
COVID-19	4	4.214	9.474	0.000*
Total	4	2.441	12.396	0.000*

* Significant at 0.05 ($p < 0.05$)

Table 14 shows that eight pairs of elderly people with different occupations before retirement had differences in their visits and return visits to parks during the pandemic: state employees and business owners or employers; state employees and private employees; state employees and self-employed people; state employees and others; business owners or employers and private employees; business owners or employers and self-employed people; private employees and others; and self-employed people and others.

Table 14. Pairwise differences in the elderly's visits and return visits to urban parks during the COVID-19 pandemic by occupation before retirement using LSD (example from the question on COVID-19)

Topics	**State Employee**	**Business owner or employer**	**Private employee**	**Self-employed**	**Other**
1. State employee	-	1.049*	0.218*	0.266*	0.596*
2. Business owner or employer	-	-	-0.831*	-0.783*	-0.453
3. Private sector employee	-	-	-	0.048	0.377*
4. Self-employed	-	-	-	-	-0.330*
5. Other	-	-	-	-	-

* Significant at 0.05 ($p < 0.05$)

5. Discussion

5.1. Discussion of the Hypotheses

Regarding Hypothesis 1, there were no gender- or age-related differences in elderly people's visits and return visits to parks during the pandemic. This finding is consistent with Ho et al.'s (2005) study, which examined the preferences in, visitations to, and perceived benefits of urban parks according to participants of different genders and ethnicities. Although women were more likely than men to evaluate some park characteristics as important, there were no significant gender differences in the types of visits or perceived benefits of parks.

Herein, elderly people with different educational levels made different decisions about their visits and return visits to urban parks in terms of attraction and benefit, location, equipment, and facilities, mental health, social needs, and recreational activities. Furthermore, elderly people with different occupations before retirement made different decisions when considering all aspects ($p < 0.05$). Therefore, older people from different backgrounds were more likely to use public parks during the COVID-19 pandemic. This finding suggests that there must have been effective prevention measures in various areas that made the elderly confident about using public spaces in Tokyo.

In terms of Hypothesis 2, elderly people of different genders and ages showed no difference in their attraction and benefit, their location, equipment, and facilities scores. This is consistent with the study by Pleson et al. (2014), which supported age-friendly active living initiatives for older adults. It also recommended making green spaces accessible to older adults; organizing structured activities that appeal to older adults, particularly in the morning; equipping green spaces for age-appropriate physical activities; and promoting the health benefits of green spaces. Similarly, Duan et al. (2018) explained that the elderly prefer accessing PA areas in parks by walking or cycling. In Hong Kong, urban parks were the primary locations for the elderly to engage in PA. Therefore, park planners should consider optimizing the functioning of PA areas to facilitate elderly PA in parks,

thus enhancing their health status.

Elderly people with different educational levels and occupations before retirement made different decisions about the factors of attraction and benefit as well as location, equipment, and facilities when considering visits and return visits to parks during the pandemic. This is consistent with the findings of Perry et al. (2021) that urban parks and green spaces provide helpful environments for older adults and those with disabilities, in that they can help improve their physical, psychosocial, and spiritual health as well as their social connectedness. Parks that are not age or mobility-accessible nor culturally diverse are uninviting and exclusive. Therefore, meaningful collaboration among park designers, city councils, and people with disabilities is required to maximize the public health benefits of parks and make them inviting and accessible to users of all ages, cultures, and abilities.

In terms of Hypothesis 3, the results of this study indicate that elderly people of different genders and ages did not make different decisions about visiting and returning to parks in terms of their physical or mental health. This finding is consistent with the study by Carlson et al. (2012), who examined PA among older adults in open spaces and parks using a person-environment perspective and life span theory. The paper suggests several points when considering their unique needs. First, compared with other age groups, elderly people have lower PA levels and mixed park use patterns. Indeed, older adults relate to PA and park use in different ways, suggesting a diversity of motivations to engage in PA and park use. This finding is consistent with findings of Rigolon (2016) that large, high-quality, well-maintained, and safe parks promote PA and its associated benefits more effectively than parks with fewer amenities.

Elderly people with different educational levels did not make different physical health decisions when considering visits and return visits to parks during the pandemic, but they did make different mental and physical health-related decisions. This finding is consistent with a study by Gaikwad and Shinde (2019), who identified that parks' various physical characteristics encourage PA. Furthermore, social connections, such as groups, formed in the park and encouraged regular participation in PA. This process provided psychological health benefits and social support to the elderly users. This paper highlighted the importance of considering the important role of parks in fostering social participation that is critical for active aging while also designing cities that are friendly and supportive of aging populations.

Regarding Hypothesis 4, the results of this study indicate that elderly people of different genders and ages did not make different decisions regarding social and recreational activities when considering visiting and returning to urban parks during the pandemic. This finding is consistent with a study by Taylor (1995), which highlighted that public parks are symbols of civic pride and provide both local inhabitants and visitors with attractive surroundings in which to enjoy their leisure time. They also assume a social role in that the parks serve as places of personal improvement. Wen et al. (2018) showed that across different contexts, elderly people have shared preferences: landscape features that are natural, esthetic, comprehensible, and diverse, with accessible and well-maintained infrastructure and facilities.

Elderly people with different educational levels and occupations before retirement made different decisions about the social and recreational activities they engaged in when considering visits and return visits to parks during the pandemic. This finding is consistent with the study by Yung et al. (2016), which highlighted the criteria that planners should consider to improve public park design, promote urban renewal, and satisfy the needs of the elderly. All the parks examined in this study had unsatisfactory results in terms of enhancing social participation and inclusion. Therefore, future public park designs could provide better space and opportunities for incorporating participation in local parks and neighborhoods to enhance healthy aging. Moreover, Levy-Storms et al. (2018) suggested that older adults have specific open space and PA needs in and near parks that partly overlap with those of younger people. Using the biopsychosocial framework, they demonstrated that open spaces and PA in and near parks can benefit older adults' physical health and psychological well-being as these spaces can help elderly people remain socially engaged. Using the person–environment and life span perspectives as frameworks, it was shown that open space and PA in and near parks can facilitate an optimum fit between older adults and their environment.

In terms of Hypothesis 5, our research results indicate that elderly people of different genders and educational levels did not make different decisions about visiting and returning to parks during the pandemic. This finding is consistent with those of Tavares and Marinho (2021), who showed that the COVID-19 pandemic reduced older adults' freedom and autonomy (Levinger et al., 2022) and has severely impacted people's health and well-being globally. During the pandemic, access to parks, gardens, and other local green spaces was recognized as vital to physical and mental health. However, the pandemic has exposed inequities around access to green space, with vulnerable populations, such as older people and those living in socioeconomically deprived areas, being particularly affected. Thus, the pandemic has offered an opportunity to positively impact society and consolidate new emerging trends to better integrate nature into urban areas' architecture, infrastructure, and public spaces. Indeed, Berdejo-Espinola et al. (2021) explained that increased UGS use during crises, such as the COVID-19 pandemic, can alleviate some of the adverse effects of a crisis. However, the capacity and desire to spend more time in green spaces vary

significantly across societies. Thus, sufficient UGS provision to all demographic groups will maximize their opportunities to use nature-based coping mechanisms during times of personal or community crisis.

Elderly people of different ages and occupations before retirement made different decisions related to COVID-19 when considering toing and return to parks during the pandemic. This finding is consistent with the study by Da Schio et al. (2021), which found that highly educated citizens experienced increased actual and intended use of green spaces during the pandemic, but this increase differed among sociodemographic groups and was influenced by age and access to private green spaces. Furthermore, it depended on the local built environment characteristics.

5.2. Managerial Implications

Numerous scholars (e.g., Tavares & Marinho, 2021) argue that the COVID-19 pandemic reduced older adults' freedom and autonomy, resulting in increased constraints in terms of leisure, more time spent at home, and reduced personal contact with friends and family (Gaikwad & Shinde, 2019; Guo et al., 2020). Scholars have also discussed the role of parks in fostering social participation, which is critical for active aging, and the importance of designing cities that are friendly and supportive of aging populations (Mushkani & Ono, 2021). Public parks are spaces that support community activities and enhance a city's environmental quality and socioeconomic conditions.

According to Onose et al. (2020), it is important to consider how friendly urban parks are to elderly people. The Pearson chi-square test conducted in the study above showed significant differences between elders' reasons for choosing a specific park, their preferred activities, duration and frequency of visits, and the means of transportation used to get to and from the parks and those of people in other categories of visitors. The highest correlations between groups and behaviors were for preferred activities, frequency of visits, and means of transportation. There were no significant differences between the different categories of the elderly (under 70 vs. over 70) apart from preferred activities, which were slightly correlated with age groups. Artmann et al. (2017) emphasized the importance of urban green spaces (UGSs) for improving the quality of life of elderly people residing in care facilities as well as the staff and visitors because UGSs allow for physical activities, recreation, and social interactions. The authors found that facilities with their own gardens were aware of the benefits provided by UGSs. This study offers important information for UGS planning, management, and design as it recommends increasing the number of UGSs and considering age-sensitive amenities and access to high-quality UGSs for elderly people.

Significant constraints to increased use of parks include poor health, being too busy, and poor park management, including crowding, other park users' poor hygiene, and illicit behavior in the park. Indeed, multiple health, social, and psychological benefits can prevent park use (Hung & Crompton. 2006). Loukaitou-Sideris et al. (2016) asked elderly people about their preferences, the challenges and barriers they encountered in visiting neighborhood parks, many barriers to park use were reported: many parks did not provide appropriate programming or allow opportunities for socializing, safety, security, and access to routes; they lack opportunities for exercise and walking; and they lack the aesthetic and natural elements that provide contact with nature.

Another study examining the relationship between walkability and psychological factors on PA reported interaction effects, in which more walkable environments improved PA levels among older adults with high self-efficacy (Van Holle et al., 2015). Meanwhile, Zhao et al. (2022) highlighted the spatial accessibility of urban parks on three scales by demonstrating that different transport modes impacted older adults' anxiety, of which accessibility at the regional scale had the most significant impact. Furthermore, older adults' depression was primarily affected by the regional park on-foot inaccessibility. These findings have important practical implications for spatial accessibility improvements to urban parks and demonstrate the importance of constructing age-friendly urban spaces.

Veitch et al. (2022) showed that the two most important features of park visitation are shady trees and a peaceful and relaxed setting. Moreover, the most important feature of PA is walking paths, and a peaceful and relaxed setting is vital for social interaction. Park designers should prioritize these features to ensure that parks meet elderly people's needs and encourage PA and social interaction. Kemperman and Timmermans (2014) showed that the availability of trees, grass, and perceived greenery levels influences neighbors' social contact and that green spaces support social contact in the neighborhood and strengthen the communities of aging populations. However, the safety and maintenance of green spaces are also important. In addition, Yung et al. (2016) indicated that elderly people consider social and physical activities, community life facilities and services, and social networks to be their most important needs. They also highly value a clean and pleasant environment. Therefore, planners and designers should consider these criteria to enhance the elderly's social well-being and promote active aging in public open spaces through urban renewal. Furthermore, urban renewal districts are part of the past living experiences of the elderly people and established social networks, which may not be the case in new developments and areas. Consequently, planners and designers should question elderly people about their needs rather than assuming them.

Xie et al. (2020) emphasized the critical role of urban parks during a pandemic from the perspective of the urban building environment. Their conclusion affirmed that urban parks and large outdoor, open

spaces can provide residents with a place for safe outdoor activities and social interaction in a green environment during a pandemic. These green areas can also serve as buffer areas to maintain individuals' favorable health and quality of life. People living in Tokyo, including the elderly, are now learning how to live in the new normal, as indicated by Yamazaki et al. (2021), who investigated the characteristics of UGS users in Tokyo during the COVID-19 pandemic and found that older adults and families with children tended to use small parks and appreciated human connections, while telecommuters often used greenways, temples, and shrines to reduce their stress. As changing lifestyles cause UGS users to develop new preferences, urban planners should consider that UGS needs evolve. Although the number of UGS users in Tokyo is small compared with those in other countries, UGSs still have positive effects on their users. Considering the health benefits of UGS, privately owned UGSs are also valuable if similar restrictions on behavior are to occur in the future.

6. Conclusion and Limitations

6.1. Main Findings of the Study

This study examined the factors influencing the elderly's visits to and exercise in public parks during the COVID-19 pandemic in Tokyo, Japan. The subfactors with the highest average scores in terms of the benefits for the elderly in the survey included: using parks to meet with friends in the attraction and benefit factor; suitable equipment for the elderly in the location, equipment, and facilities factor; the elderly enjoying exercise regularly in the physical health factor; enjoying a better and longer life in the mental health factor; promoting and protecting natural spaces in urban areas in the social needs factor; and participating in group experiences in the recreational activities factor.

6.2. Limitations of the Study

This study was conducted immediately after the Japanese government relaxed restrictions on social activity in the community – Nov/Dec 2022. At this time, there had been no research done and thus no data available from the relevant agencies from which to draw conclusions on the effect of the COVID-19 pandemic and the opinions and concerns of the elderly. Conclusions and recommendations proposed in this study will enable the relevant authorities to review and revise procedures specifically developed to ensure the ongoing welfare of the elderly in the community.

6.3. Recommendations for Further Research

This study has provided insights into the facilitation of public green spaces for urban elderly groups. Urban management agencies should focus on analyzing users' behavior to identify the factors that trigger their visits to these facilities by tracking the time these users spend using the services provided during different periods. Furthermore, the elderly are becoming more relaxed and open-minded about reintegrating into society and urban parks. Therefore, relevant agencies should develop comprehensive facilities to prevent avoidable risks and build a reliable social relationship with the elderly to help them sustainably use parks. This study sample was limited to Tokyo during the COVID-19 pandemic, and the interviews were conducted immediately after the Japanese government relaxed restrictions on travel within the country (November 2022–January 2023). Future studies should further investigate the factors affecting elderly people's decisions to use public parks in urban areas highlighted in this study.

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