

Urban Pocket Parks and Wellbeing: A Critical Review and Research Agendas

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Abstract: Pocket parks are a relatively new park model that has emerged in recent decades. Compared with traditional parks, it has a smaller scale, a more flexible location, and can play a specific role in the city. This paper reviews and summarizes the existing research related to pocket parks. On traditional issues, this paper summarizes the planning of pocket parks, human health, and user preferences. At the same time, this paper points out that the problems of vulnerable groups and environmental justice in pocket parks need to be further studied. While reviewing the current research situation, it proposes a future research agenda. 1. The definition of “pocket park” needs to be unified. 2. More attention should be paid to more minority groups. 3. Environmental justice needs interdisciplinary research.

Keywords: pocket parks, literature review, research agendas, vulnerable groups, environment justice

1. Introduction

A pocket park (also known as a parkette, mini-park, vest-pocket park, or vest park) is broadly defined as a small park accessible to the general public. While the locations, elements, and uses of pocket parks vary considerably, the common defining characteristic of a pocket park is its small size [1]. With the development of urbanization, according to the United Nations' Department of Economic and Social Affairs [2], 70 % of the world's population will live in urban areas by 2050. As a place for human recreation in cities, pocket parks play an increasingly important role in improving human physical, mental health, and social health. At the same time, pocket parks, as a natural environment, play a certain role in improving the small environment in urban areas.

It appears that there are plenty of distinguished scholars. The main research directions have focused on the design and planning of pocket parks, their impact on human health and wellbeing, as well as the role of pocket parks in (re)shaping social relations and political participation. In particular, different regions have different research themes and focus on urban pocket parks. In China, for instance, the research direction for pocket parks is mainly based on the field of urban planning, while studies in European and American countries have paid much attention to exploring how and to what extent pocket parks affect human wellbeing and social activities, predominantly using concepts and theories from the broader social sciences. In terms of African and South American countries, there is even a severe lack of research on pocket parks, perhaps given the less-developed status quo of urbanization and green transitions [3]. Despite much work on the topic from diversifying disciplines and perspectives, there is a lack of research on the interrelationships

between urban pocket parks and socially vulnerable groups. (e.g., older people, children, females, and homeless people). For example, in terms of kid-centered pocket park planning, most of them are from the perspective of adults, but there is a lack of design based on children's perspective [4]. There are also questions such as how pocket parks are used, interacted with, and perceived by vulnerable people in rapid urbanization contexts such as China, etc. [5].

The aim of this paper is not only to summarize the existing papers, including those on planning, social sciences, natural sciences, and other perspectives; this will bring new research perspectives to China and other developing countries, and scholars from different regions can learn from each other; but it also suggests directions in which existing research lacks attention and therefore makes conclusions and research agendas.

To have a review on pocket park research, this paper will be divided into 3 parts, as follows: In the first part, this paper will review existing papers on urban planning, climate and environment, and other aspects. The second part will focus on the relationship between pocket parks and human health and well-being and raise issues that existing research institutes overlook. The third part summarizes and proposes research agendas for pocket parks.

2. Review on Traditional Pocket Parks Research

2.1. Topics

Robert Zion was the first to propose the concept of pocket parks and designed the first pocket park, Paley Park, New York, in 1967. However, the first literature on pocket parks was published in 1981 [6]. In the 20 years since 1981, research on the design of pocket parks has been very rare. Since the 21st century, research on pocket parks has begun to pay attention to human health [4]. Duan and Zhang have extracted the theme of pocket park research from the Web of Science (WoS) between 2007 and 2017, have extracted the theme of pocket park research from 2007 to 2017, and found that the most frequently used words are “physical activities” (43 times) and “health” (40 times), far more than the third-ranked “design” (15 times) [7]. It is worth mentioning that in China, design and political perspectives on pocket parks are the main topics [8]. The pocket park under the influence of the COVID-19 has become a new research direction in recent years. For example, Benedetta Terenz studied the design of a child-oriented pocket park in the post-COVID situation [9]. Yang's study suggests that greater exposure to green spaces, especially to nearby forests, may mitigate the risk of COVID-19 mortality [10]. With continuous development, the study of pocket parks involves multiple disciplines, covering psychology, anthropology, ecology, biology, botany, architecture, etc.

2.2. Planning

The design of a pocket park can influence traffic, physical and mental health, and urban ecology to a certain extent. Teitz put forward the location layout theory of public facilities and thought that the location layout of urban public facilities should seek a balance between efficiency and fairness, which lays the foundation for the location theory of public service facilities [11]. On this basis, Chen adopts the combination of geographical information systems (GIS) and spatial syntax to build a quantitative analysis model. This model can calculate the most appropriate number and location of pocket parks in Yuexiu District, Guangzhou, maximizing the convenience and accessibility of pocket parks [12]. In recent years, there has been an increasing amount of research on pocket park design, particularly from the perspectives of sponge cities and urban micro-renewal. Wen, for instance, studied the selection and configuration of plants in the construction of sponge cities [13]. Wang investigated the design of the Wuhan Metro Exit Pocket Park in terms of urban micro-renewal [14]. The cultural construction of “pocket parks” is more prevalent in China. Liu proposed to extract and use characteristic landscapes in regional culture to arouse people's homesickness [15].

There are many existing studies on pocket park planning, but the first shortcoming of this research strand is that most pocket parks are designed by the government in a top-down setting, lacking bottom-up participation-based design from the users' point of view. Moreover, the existing research in this club is very much concentrated on case studies from Europe and North America. There is a lack of in-depth research on regions in emerging economies such as China.

2.3. Use Preferences

The research on users' preference for pocket parks is roughly the same in all studies. Lee's research shows that the main reason for residents to visit pocket parks is to walk and relax, and they usually visit the pocket parks that are geographically adjacent to their homes [16]. This argument is also pointed out in Li's article, in which it is believed that the use of time is concentrated in the morning and evening, and the use of space is concentrated in the forest edge open space and square space. It is also pointed out that "rest facilities," "safety degree," and "site sanitation" significantly affect the overall evaluation [17]. After studying the use mode of Kuala Lumpur Pocket Park, Kerishnanab, Malaysia, stated that more attention should be paid to the improvement of the existing pocket parks in terms of safety, accessibility, and facilities [18]. A common shortcoming in the study of users' preferences for pocket parks is that the locations they investigate are too limited, mostly concentrated in one or several pocket parks in one city. Given the differences among different cities and regions, the research conclusions of different regions are not universal and sometimes present completely opposite conclusions.

2.4. Human Health

Human health can include physical health, mental health, and social health. By optimizing the urban pedestrian space environment, the goal of preventing diseases such as cardiovascular disease and obesity can be achieved [19]. Cohen's research points out that the use of pocket parks is beneficial in promoting moderate-to-vigorous physical activities compared to existing playground space in nearby parks [20]. According to Kerishnanab's research, urban pocket parks with high densities attract people to do simple sports, through which people's emotions are highly related to the component configurations of pocket parks [21]. Chen's research shows that nature in cities has a buffer effect on negative emotions, which is of great significance for promoting the emotional health of urban residents and alleviating mental diseases and psychological disorders in high-density urban areas [22]. Likewise, Liu believes that, compared to large-scale parks, highly accessible pocket parks can improve the living conditions of residents in vulnerable communities and help promote stronger community ties. This is especially true under the impact of COVID-19 [23]. Salih's research in Baghdad also pointed out that the main way to promote the social interaction of Baghdad residents is to establish appropriate pocket parks in various cities [24]. The role of urban pocket parks in affecting human health is the most studied topic in recent literature, but most studies have ignored the differences among human beings in terms of groups, age, gender, and social attitudes. In particular, there is a severe lack of research on the relationship between pocket parks and minorities such as children, the elderly, people with disabilities, etc.

3. Pocket Parks and Vulnerable Groups

3.1. Research in the West: Arguments, Features, and Focus

3.1.1. Vulnerable Groups

The research on vulnerable groups mainly focuses on children and the elderly. A large number of studies have shown that urban green space and public parks are beneficial to children's physical and mental health. For example, it has been shown that residential proximity to parks can lead to more childhood physical activity [25], a lower likelihood of being overweight or obese [26-29], as well as greater emotional and behavioral health [30-32] and resilience in the face of stress [33]. Benedetta Terenz proposed a kind of urban design scheme that can improve urban resilience by alleviating urban sound, heat, and air quality problems and focusing on children, which can be used in the construction of children oriented pocket parks [9]. Anastasia Loukaitou-Sideris et al. studied children's preferences for using the park and found that children's use of pocket parks may be affected by personal factors such as age, gender, race, etc. At the same time, the facilities, distance, and sense of safety in a park will also affect the frequency of children's use of the park [34]. However, most of these studies have not classified the types of pocket parks in detail, merely generalizing them into three main categories: green space, public parks, and neighbour parks. Therefore, these studies cannot fully reflect the role of pocket parks in affecting vulnerable people. For pocket parks only, studying their specific effects on children's physical and mental health as well as children's use preferences is highly needed. Dzhambov's research found that the anxiety level of the elderly may be higher than that of other people, and the interaction with nature can be used as a predictor independent of other confounding factors, but to some extent, this predictor depends on the level of personal "awareness of natural experience" [35].

Evenson et al. conducted 24 observation studies on park use and found that the percentage of elderly park users ranged from 2% to 13%, which was relatively low. It is also found that there are more middle-aged and elderly men than women in pocket parks, while men are more likely to participate in vigorous activities [36]. Park space form and social factors (such as feeling safe and having companions) are thought to be the most influential factors influencing elderly park use [37].

3.1.2. Environmental Justice

The value of parks and urban open spaces is widely recognized by society, but the value and its related resources are not equally distributed in the community [38-40]. Sister's research shows that parks around communities of colored people and low-income people are more congested. These parks are also more dilapidated and less natural [41]. Anastasia Loukaitou-Sideris and Orit Stieglitz (2016)'s research on Los Angeles also states that although community parks are evenly distributed, there are significant differences in population density and park quality [42]. Studies in other regions of the United States, such as Denver [43] and Baltimore [44], demonstrate that people of color and low-income people occupy fewer acres of parks per person. It is worth noting that the park non-profit organization in Los Angeles publicized the inequality of green space to the public and mobilized the community to advocate for the state to address such inequality issues [45]. New pocket parks are often considered to bring about "green gentrification." Wolch et al.'s proposed a promising way to solve this problem, in which interventions are designed to enable "just green enough." They also claim that small, scattered parks do not trigger green gentrification while larger parks do [46]. This claim, however, is criticized and rejected by Rigolon [47]. Hussein and Anna's research on the green space in Aleppo, Syria, suggests that pocket parks and community parks only serve a small number of people. They argue that an equitable distribution of parks among different income classes of a city's population is a good measure of spatial equity and put forward a proposal

to build pocket parks and neighborhood parks in Aleppo to fight for environmental justice [48]. In sum, most of the research on environmental justice focuses on cases and practices in western developed countries, especially in the United States. There is little research on this aspect in developing and emerging countries.

3.2. Research in Emerging and Developing Economics

Compared with Western countries, developing countries have conducted less research on these issues and have a more singular perspective. Li's research on Chengdu Zongbei Park shows that middle-aged and elderly people account for the majority of park users (92.05%) in China, and women are more physically active. In addition, most elderly people play cards and mahjong [37].

Studies in Hong Kong [49] also revealed the same result: More than 60 percent of the elderly are the main group using parks. Guo et al., through their research on Beijing urban parks, revealed that housing prices, the distance between commercial areas, and green spaces are significant factors affecting park accessibility. For the elderly living in the newly built areas, the lower the house price, the lower the accessibility of the park [50]. This view was supported by Meng et al., and they also proposed that there is greater equality regarding nearby park provision than urban park provision [51]. Zhuo et al. take 106 mini parks in Nanjing as samples to study the impact of park characteristics on visit intensity. The results show that a large community green coverage hinders tourists' travel. They also found that the service provision of most Nanjing mini park groups is inefficient or unbalanced, and most of them are competitive rather than complementary [52]. In general, these studies only summarized the current situation of the users and the unfair use of pocket parks and did not propose effective improvement measures for various groups or solutions to the problem of green gentrification.

3.3. Research Gaps

In general, the current research on pocket parks is mainly focused on human health and design planning, while the research on pocket parks from the perspective of human well-being is not much, especially in developing countries such as China, which needs more attention in future research. More specifically, based on our review of the literature, there are at least three main research gaps that have been identified below:

First and foremost, in terms of vulnerable groups, the classification of vulnerable groups for the usage of pocket parks is not detailed. In the existing literature, the most involved groups in using pocket parks are often children, the elderly, and low-income families, while other minority groups are rarely mentioned, such as the disabled or homeless. Therefore, more research needs to be carried out to ensure that specific types of populations and vulnerable groups of people can benefit from pocket parks.

Second, the issue of environmental justice has been mentioned frequently in recent years. The strategy of urban green space may lead to contradictory results [53]. Green gentrification is taking place in many cities around the world, and real estate businessmen and government administrators may now use sustainability and green consumption as a strategy to promote green gentrification. At present, the solution to green gentrification is controversial. Different measures will be taken from the perspective of different disciplines, but they have not considered solving this problem from an interdisciplinary perspective, which is also an urgent research direction [54].

Last but not least, there is no uniform definition or conception of pocket parks internationally. In the existing literature, pocket parks are roughly classified as parks, community parks, city parks, or smaller parks, mainly according to the size of the parks and the type of context where the parks are located. Only a very few papers regard parks as social constructions with wider political, gender,

and cultural values and significances. In my view, the definition, classification, and function of parks should go beyond the traditional wisdom mainly captured by planners, geographers, and state officials. They should, however, be positioned as a social space, a political ground, to reflect on and demonstrate the nature and logic of social inequalities, as well as many other issues affecting urban vulnerable people.

4. Conclusions and Research Agendas

This article reviews the existing research on pocket parks and summarizes the research results on traditional issues related to pocket parks, such as health and design planning. It also analyzes the research status of emerging research directions for pocket parks in various regions, with a particular focus on the use of special groups and environmental justice issues. Most of the literature reviewed in this paper comes from European and North American countries in the field of social sciences, while the research on pocket parks in China and other developing countries is less extensive, with a limited scope of topics and perspectives. Due to different classifications and definitions of pocket parks in different regions, the role of pocket parks in different regions may be different, leading to the fact that the research results are not universal. Moreover, in the existing literature, parks are roughly divided as "community parks," "smaller parks," and "urban parks," somehow leaving pocket parks as a fuzzy concept. While some of these parks may be large in size, they are regarded as "pocket parks" from a planning perspective due to their function and proximity to the community. In my view, "pocket parks" refer neither to size nor to geographical location, but rather to human-activity spaces with more social, cultural, and political significance and with a particular social function that is distinctive from other public parks. First of all, it is worthwhile to determine the typologies and related roles of pocket parks in different social and geographical contexts. With the development of society, minorities, ethnic groups, and broader socially vulnerable people and communities need to receive more attention. Future research needs to take the role of minorities more carefully in re-conceptualizing pocket parks that go beyond the traditional wisdom mainly captured from the fields of planning, landscape research, and transportation studies. Moreover, the issue of environmental justice needs to be incorporated into the core of the pocket park studies, which is an essential theme to put the inequalities of people and places on the central agenda of future research.

In general, the research on pocket park planning, impact on human health, and overall user preferences has been relatively comprehensive, and more detailed work needs to be done to deal with some emerging issues.

To sum up, the following issues are the next research direction on pocket parks.

(1) It needs to reach a common and widely accepted definition of pocket parks that can correctly distinguish pocket parks from other types of urban parks. Although much literature indicates the role of pocket parks, there is no specific definition of pocket park, which will lead to deviations in research results in different studies. For the specific definition of "pocket park," it is necessary to unify the scale of pocket park first. On this basis, according to the location of the pocket park and the different configurations of facilities in the park, the types of pocket park can be subdivided, such as traffic type pocket park, child-friendly pocket park, or pet-friendly pocket park, so as to conduct specific research for each type.

(2) The question of how to justify the interplay mechanisms between minorities and urban pocket parks requires further in-depth research. With the continuous development of society, minorities should receive more attention. Vulnerable groups, such as children, the elderly, and the disabled, may not be suitable for the planning scheme mentioned in the article. Children and the elderly may be a large group of people who can benefit from pocket parks. For these groups, more detailed research can be carried out, such as the types and space design of park facilities. At the

same time, thanks to the therapeutic effect of green space on human psychology and physiology, research involving the disabled or some groups of patients with diseases is also a research direction that needs attention so that such groups can benefit from pocket parks to a greater extent. Some pet families may need to open green space for their use. Therefore, how to reasonably plan and design pet-friendly pocket parks may also require specific research plans in the future.

(3) The issue of environmental justice may involve many fields, and future research needs to consider it in combination with many factors, such as climate change, ethnic issues, etc. It may be impractical to achieve green space resource equality through the planning of pocket park land alone. Environmental justice is a very hot topic in recent years, but there is still no definite answer to how to use pocket parks to solve the issue of environmental justice. The research on this issue is mainly concentrated in Europe and the United States, while the developing countries are in the initial stage. These countries need to shift more attention from environmental research to human beings themselves.

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