

# Research on innovative design of community micro space in post epidemic Era

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**Abstract.** In the case of novel coronavirus pneumonia, the strong spread of the virus caused certain psychological obstacles to outdoor activities. The community micro space is the main space for community residents to exercise and rest. In view of this phenomenon, it provides new methods and new ideas for exploring safe and healthy community interaction space design scheme, and achieves the purpose of controlling crowd aggregation through the division of space functions, so as to meet the needs of residents for the diversity of community space. After the outbreak of novel coronavirus pneumonia, it has become a multifaceted health care problem in the world, affecting the health of individuals and communities. In this case, "social distance" has become a major policy to restrict public behavior. This means that independent individuals must keep a proper safe distance from people other than their immediate family members, but cannot keep a distance from their immediate family members. In this context, people's demand for space security and diversity can no longer be satisfied by the traditional community public space. The traditional mode of community public space needs to be updated. This study provides a new method for the design and planning of community micro space, aiming to provide a new idea for the planning of community micro space, strengthen the interaction of community space by using mobile and modular outdoor facilities, ensure the safety of social streets, meet the diversified needs of community residents, create a community environment suitable for living for community residents, and provide a new planning for community residents.

**Keywords:** Community micro space; Social distance; Community interaction.

## 1. Research significance

### (1) Theoretical significance

At present, most of the research on the micro space focuses on the urban scale, while the research on the construction of the micro space of housing is less. Through combing the relevant theories and practices of health promotion, healthy community, community construction and micro space, taking the micro space of housing as the research object, from the perspective of health promotion, using the methods of community construction for reference, the principles and Strategies of the current micro space construction of housing are deeply discussed, so as to make up for the shortcomings of previous theoretical research and provide reference for the future research of the micro space construction of healthy housing.

### (2) Practical significance

The objective of this topic is to meet the diversified needs of residents in the community's micro space, promote health, and pay attention to the safety, interaction and rationality of the community's internal space by studying the existing micro space construction strategy based on the safe social distance between residents. Optimize the mode and function of traditional community public space, create a safe and flexible interactive community public space design scheme, and provide some reference. By summing up its characteristics, analyzing its existing health problems in detail, and referring to the methods of community construction, this paper puts forward the optimization principles and strategies, and forms a set of research results of community micro space construction.

## 2. Research status at home and abroad

Domestic research status

### (1) Microspace

Theoretical research:

There is little research on the micro space, especially on the micro space of living. As the pioneer of Shanghai micro space revitalization project, Liu Ting believes that through the transformation of micro space, people's needs can be met, local characteristics can be found and reflected. Wei Chao analyzes from the perspective of the spatial use of urban micro space, such as the neglected Urban Gap Park. He believes that these spaces are very critical to the complementary effect of modern cities. Refined steel and others believe that the advantage of micro space is large distribution density and easy to use. Through the investigation and analysis of the data, the key factors to improve the age adaptability of micro space are proposed and studied, including policy management, planning strategy and design method. Hu sorei and others explored the regeneration of the public space of the old city by tapping the potential of the beautiful space design and reuse, and the public space of the old city can be further improved. Wang Yi believes that although the micro space is not large, it is related to the core values, the policy level and the management ability of urban development. It is advocated that the city should be built on street corners so that the urban residents can enjoy the vitality of social life, such as communication, integration and conflict.

Practical research:

One of the hotspots of research in China is the study of micro spatial correlation. As for the practice of micro space, many cities in China have carried out research. Taiwan and Shanghai are two typical regions. The practice research of micro space is also carried out in Beijing and Nanjing.

### (2) Healthy community

theoretical research

The original research on healthy cities and communities in China mainly analyzes the physical space environment and the relationship between healthy cities and urban planning based on foreign experience research and relevant practical analysis. Taking Zhou Xianghong as an example, based on relevant data, this paper analyzes the construction of health cities in Europe, and discusses an important issue of how to build health cities in China. Xu Xiaoning and travel expenses put forward corresponding design schemes in urban health protection. Jin Guangjun and others clearly defined the focus, level and direction of urban health space construction, which laid a reference for the development of urban health space. Taking cold cities such as cold red as an example, from the perspective of public health, this paper puts forward some spatial planning strategies such as improving safety, comfort and improving the interest of winter landscape. From the perspective of urban material space planning, Hu Wantai and others put forward the demand for human health actively involved. The research on the demand of healthy cities, the relationship between healthy cities and urban planning, and Ma Xiangming shows that urban planning should provide people with a healthy living environment. According to the requirements of healthy city, community relations and characteristics on health services, Bob long et al. Wang Yi pointed out that the implementation of the health city is based on the community. When evaluating the health community, he proposed the future health community policy.

Practical research

Since 1989, China has been involved in activities related to national health cities. In 1994, it officially joined the ranks of global health city construction. Beijing and Shanghai are the first batch, and Chongqing is the first batch. In 1996, the development of health cities in China was deeply discussed with the activities of Suzhou and other cities. At present, China's healthy community building activities mainly include healthy community environment, community health awareness, community health action, community health consumption, etc. through the development of healthy community building activities, the implementation of healthy community construction has achieved certain results, but there are also problems such as difficulty in integrating resources. Residents' satisfaction with community health services decreased. Social citizens have a better understanding of

community health services. At present, China's health city construction and health community construction still need attention and improvement.

### 3. Foreign research status

#### (1) Micro space theoretical research

The study of micro space is still in the early stage of development abroad. It is usually based on the existing micro space, and the current micro space is systematically studied. Camillo Setra, an Austrian urban planner, pointed out from Camillo Setra, an Austrian urban planner, that in the process of renewal, more attention should be paid to the non-organization spatial order and the structural elements of small areas. Jane NK > Gore believes that if a city wants to fully reflect people's dignity, it also needs to use a series of strategies of micro space. William H. white described the relationship between urban space quality and urban activities in his copyright, providing an opportunity to improve urban space, improve physical environment and promote services. Francis Caroline and kolbmarcus Claire analyzed small parks and small parks, and discussed the relevant factors of these spaces. They concluded that the design and construction of these spaces can be realized with the participation of surrounding residents, which is due to the simple operation.

#### Practical research

At present, Japan, Spain, Barcelona and the United States have made some progress in urban micro practice research.

#### (2) Healthy community theoretical research

Since the International Conference "healthy Toronto 2000" held in Canada, the concept of "healthy city" was first proposed. How people should live in urban areas in the process of coordinating with the natural environment is the basis of this paper. The concept of "healthy city" was formally launched in 1986. At present, based on the Manifesto and medicine cabinet, relevant research has been carried out on foreign health cities. These include Ottawa health charter, Milan Declaration on healthy cities, 21st Century Declaration on health, etc. they all have research on Health \*, investigation around healthy cities, community health life theory, and practical experience in healthy city construction. Especially hughbartou put forward the theory of community health planning. Andrew L. Dannenberg et al Caltorpe pointed out that a healthy society is diversified, accumulated and humanized from three aspects. Frey pointed out that ecology, restraint, relevance, perfection and concentration are important characteristics of a healthy public space environment. Barnett takes the construction of healthy communities to a step-by-step stage and regards public participation as a very important part. From the material point of view, the composition and other factors of healthy community were analyzed. For example, zeynpe Toker.

#### Practical research

Since the "healthy city" project was officially launched in Lisbon in 1986, countries have started the construction of healthy cities. So far, the relevant methods have been extended to about 7000 communities, including the United States, Canada and the United Kingdom. By cultivating the talents of local leaders, the work of promoting healthy cities in the United States can be realized. The "healthy city" project was launched in Canada, which is of great significance to China. Britain has also launched the healthy city campaign, which emphasizes the construction of healthy cities and communities.

### 4. Necessity of innovative design of public space in community

Common facilities and old facilities in the community. The "old facilities" in the community in the public space refers to the destruction or erosion of the surface of the public facilities or its internal nodes, which makes the service life of the public facilities in the space reach a certain limit. "Old"

refers to the relatively backward public facilities in the art fields such as modeling, form or art. Most of them have public facilities, which can provide a place for leisure and entertainment. Entertainment facilities mainly include exercise equipment, as well as sports equipment and slides. The rest is mainly public seats, and stone piers and pavilions are available for rest. The public facilities of many old communities have been damaged, even posing a great threat to the security of the community. For example, rust spots on the metal frame of public seats, damage to fitness equipment, etc. Outdoor public places are also arranged randomly. The radiation area cannot achieve social safety distance and scale, and too close distance is also a problem.

The role of micro space in the community is single. At present, there are mini squares, traditional balconies and other activity spaces in the community. For example, in the structure of the mini square, the open area in the center of the square is generally reserved, and there are green belts around, including public chairs. This unique public space, with the improvement of living standards, is increasingly unable to adapt to the changes of public space, resulting in the waste and utilization of space that can not meet people's personalized and diversified needs.

The interaction of community public space is insufficient. The interaction of public space within the community can understand the interaction between people within the community, the emotions between people, and the interaction between physics and chemistry that is missing in the public space completely exposed to the community. The early community public space was not interesting and interactive. In addition, the early community public space should pay attention to the creation of the physical space environment, ignoring the psychological needs of other groups, that is, emotional needs, which are only suitable for specific groups. It should be the direction of the development of the community's micro space to get rid of the material shackles and reshape the most direct inner cultural society.

Social distance under epidemic situation. The new coronavirus is a kind of pathogenic microorganism in physiology. It spreads through the foam in the air, making it have a suitable social distance, effectively preventing infectious diseases and infection, mainly maintaining a distance of more than 1.2 meters between people. The new coronavirus is a psychological and safe distance. It can be divided into four categories: closeness, sociality, individuality and publicity. It is the distance between people. Shaking hands means that people can communicate as long as they act on each other. Therefore, in space design, designers must pay attention to the physical distance and psychological distance between people.

## 5. Conclusion

In the post epidemic era, community micro space design should enrich the spatial form within the community by different spatial design forms, and control the cohesion of the community by means of spatial functional areas. From the perspective of the community and the diversified needs of residents. It is necessary to make full use of movable and modular outdoor facilities, improve the interaction of community space, ensure the safety of social distance, meet the diversity of community residents, create a suitable community environment for community residents, and provide new ideas for the design and planning of community micro space.

In order to fully consider various factors within the community and the diversified needs of the population in the post epidemic era, different space design methods are adopted to enrich the space within the community and divide the functional space. In order to strengthen the interaction of community space and ensure the safety of social distance, movable and modular outdoor equipment is adopted to plan the community micro space, hoping to provide new ideas for the design and planning of community micro space. Create favorable conditions for the community environment and meet the diversified needs of community residents.

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