

Discussion on "15-Minute City" from the Perspective of Neighborhood Effect and Urban Facilities

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Abstract: Due to the rapid development of the city, a series of problems such as congestion, inequality, and low efficiency have emerged in the city. Therefore, the urban planners have proposed a new urban planning plan of "15-minute urban life circle", hoping to solve some urgent problems existing in the city. In order to analyze the impact of the 15-minute urban life circle on the city, this paper analyzes the planning from the perspective of the neighborhood effect. The study found that the 15-minute urban life circle solved the problem of long commuting times in employment and gave residents better convenience in daily consumption. However, there are still some problems in the initial stage of such planning, such as social isolation, uneven distribution of resources, and neglect of the elderly. In order to further improve these problems, this paper proposes the direction of public space sharing, improving infrastructure, and paying attention to special groups.

Keywords: 15-minute urban life circle, neighborhood effect, city planning

1. Introduction

1.1. A Subsection Sample

With the gradual improvement and popularization of global modernization, cities in developing countries and developing countries are gradually prosperous, and people begin to move from rural areas to cities. While cities are welcoming a civilized change and the rapid development of the urban economy, many problems have also been brought about. Cities are overcrowded, and motor vehicle travel has become dominant. At the same time, environmental problems and time loss caused by long-distance travel in cities are gradually increasing [1].

In order to solve a series of urban planning problems, enable people to live more safely and comfortably in the city, increase the mobility of the city, improve the efficiency of residents' access to services, and reduce unnecessary commuting time, the concept of "15-minute city" has been put forward. The concept of the so-called "15-minute city" is that urban residents can meet most of their daily life needs by walking or riding for 15 minutes, including going to work, shopping, and participating in various activities [1]. A large number of short-distance trips are used to replace the long and time-consuming trips in the past. Generally speaking, each community is divided and various places for daily life are planned and built around each community. Xiongjiang defined the "15-minute urban life circle" as a basic unit of people-centered social interaction, resource allocation,

and urban governance based on the time-space activities of residents' 15-minute daily life [2]. With the 15-minute life circle as the main trend of urban planning, the implementation effect of this new planning method still needs further analysis. This paper aims to discuss the advantages and potential problems of the "15-minute city" from the perspective of the neighborhood effect.

2. Analysis of The Problems

2.1. Concept of Neighborhood Effect

Neighborhood effect, that is, a person's local social environment will affect his behavior habits, and way of thinking. From this perspective, this section will list three aspects of a person's daily life, namely employment, consumption, and the surrounding environment. From these three perspectives, we will discuss the impact of the social environment of 15-minute life on people.

2.2. People's Employment

Hou mentioned that the housing structure in cities is often determined by commuting costs and housing consumption [3]. This means that the residential address of residents will affect the cost of daily commuting. In today's urban structure, residents often live far away from the company where they are employed, or the commuting road is often congested during peak hours, which will greatly extend the daily commuting time and also increase the cost of commuting. Hymel also proposed that in those congested cities, employment would be further suppressed due to the increase in congestion, which directly led to the employment problem of urban residents [4]. Therefore, the planning of the 15-minute city has re-planned the residential address of residents, which can ensure that the employment site can be reached within 15 minutes by walking or riding around the residents. First, this greatly reduces the time and cost of commuting, and it does not cost much to reach the destination by walking or riding only. Secondly, walking and cycling reduce driving or riding, which can reduce the number of vehicles on the road and effectively alleviate the congestion problem. Even if there are a small number of residents who are far away from the employment site, they can also reach the employment site faster. The above two points not only ease the problem of commuting after employment but also improve the employment rate. Therefore, in terms of employment, the 15-minute city can have a positive employment impact on citizens.

But at the same time, it should be noted that as people solve the problem of employment, which most needs daily long-distance travel, through 15-minute urban life, most of the means of daily travel will become walking and cycling. With the emergence of this habit, people's scope of activity may only exist in their own life circle. When Oriol and Crame studied the walkability of Barcelona, they found that there would be 1.1 million close trips every day, with less than 5 minutes of travel accounting for a quarter of all daily activities, and less than 10 minutes of travel accounting for a third of all trips [5]. On the basis that short-distance travel is the vast majority of residents' daily life, with the improvement of various facilities in each life circle and the proximity of employment places, people may not even leave their life circle, which may be analyzed and verified in future research.

2.3. Daily Consumption

When it comes to consumption, residents have many ways of consumption, such as daily dining, shopping, entering and leaving cinemas and other entertainment places, and the distance between these consumption places and residents' houses will have a great impact on people's choices of consumption. At present, many cities plan to take a certain point as the urban center settlement, which will lead to social and economic inequality [6]. The economic level of the urban center is far from that of the urban fringe. The city center has a large number of modern buildings, and the surrounding

communities have a very high overall economic level. The more it spreads out of the center, the more prosperous the city will be, and the road construction will be less orderly than that of the central city. This phenomenon will continue to the edge of the city. The economic level of those places will be very low, and the infrastructure will not even be perfect. At the same time, as the economic level of the city center continues to rise, there will always be people whose income cannot match their expenditures. The community they live in will be rebuilt because of the economic improvement of the central city. They cannot afford new housing costs and must move out of the city center, resulting in gentrification. However, the concept of the 15-minute city is different from that of urban centralization. It takes these necessary facilities in people's daily life as the core planning principle. Many these facilities are scattered to ensure that each community can be close to these facilities, so as to balance that there will be no imbalance in economic levels in each district [7]. In fact, the 15-minute life circle cannot effectively solve these problems. In the study of urban living circles in three towns of Wuhan, Zhuang et al found that when the distribution of facilities in 606 living circles was analyzed, the overall situation showed a trend of "good in the middle and gradually decreasing in the periphery" [8]. This means that the 15-minute life circle seems to solve the problem of urban centralization, but in fact, the problem still exists, only reflected by the life circle as an individual. The 15-minute life circle can only alleviate the inequality of economic level in each life circle at present, but in the view of the whole city, there will still be gentrification. Zhang and Pryce mentioned that in the process of urban decentralization in the UK, there has been a phenomenon of poverty decentralization [9]. The poor residents who originally gathered have been dispersed to multiple centers due to the implementation of polycentricities. This may also happen in the 15-minute life circle, because the central city is largely dispersed, and the poor may flow into different life circles to form new communities, and an economic balance will gradually be achieved within these life circles. At the same time, throughout the city, although balance has been achieved in different life circles, there are still differences between life circles, and there will still be great differences in the economic level between the poor's life circle and the rich's life circle, which will even aggravate social class differentiation. In terms of catering, different social statuses, and income will affect people's daily consumption ability, which will also be reflected in people's daily dining habits. People with higher incomes tend to choose restaurants with a better environment and better service, while people with lower incomes can only choose restaurants with common or even poor sanitation and poor service. Xu et al found through comparison that the upper social class chose a higher proportion of dinner, while the lower social class chose fast food more, which is also because dinner often has a better dining environment and service level [10]. When this phenomenon is applied to the life circle, it is shown that the restaurants in the life circle with a high average economic level tend to have higher-priced meals, and the restaurants in the life circle with a low average economic level will be dominated by fast food. First of all, the poor sanitary environment of catering may cause hidden dangers to the health of the residents who eat around. Second, the audience of fast food is low-income groups, so the overall revenue of fast food will also be relatively low, which is a low-income cycle. This view also applies to every consumer industry in the life circle. Therefore, the quality of life will be higher and higher in the life circle with a high overall income. The life circle with a low daily income, even if its income is higher than in the past, is difficult to catch up with the life circle with a high overall income, and the gap will become larger and larger.

Not only that, if the construction of infrastructure in the life circle is not controlled, it will also cause negative results. Bian and Xi mentioned that after the completion of some supporting facilities, these facilities are not managed by the department, but managed by the developer, which leads to the transformation of the facilities to the commercial type with high profits, and the lack of professionalism in the daily management and operation of the service facilities, which may lead to a

series of problems such as oversupply or high prices, which will also affect the normal daily consumption of residents [11].

2.4. Community Environment

Whether a community is good or not has a lot to do with the surrounding environment of the community. At the same time, the environment of the community will also have an important impact on the mental health of residents [12]. The community environment includes whether the basic service facilities of some residents are complete. As mentioned earlier, the establishment of a 15-minute life circle can disperse extensive infrastructure needed for daily life in each life circle, ensuring that residents can get a complete set of basic social services. But in addition to infrastructure, the community environment also includes the natural environment, that is, green space. Urban green space is an important part of the urban landscape, supporting the ecological environment. Urban green space will make the community more attractive and more suitable for walking. Green space can reduce people's exposure to air pollution by promoting carbon sequestration and the generation of oxygen, absorbing air pollutants, and mitigating the impact of the urban heat island. In addition, people can reduce stress through green space, thereby restoring attention and improving physical and mental health [13]. However, the distribution of green space is a big problem faced by the life circle. First, natural green space is to a large extent an attribute of the geography itself, which is an objective existence, and it is difficult to move in a large area. Secondly, if man-made green space is selected, such as pedestrian greenways, this kind of artificial green space will, to a large extent, be related to the per capita socio-economic conditions of the living circle. Communities with higher socio-economic status can have more green space resources. In affluent areas, the number and accessibility of public green spaces are better [13]. This brings us back to the problem of class stratification mentioned earlier. If the gap between the economic levels of different life circles is too large, the imbalance of green space will gradually become obvious. This imbalance will further affect the physical and mental health of residents in the corresponding region.

2.5. Special Groups - The Elderly

There is also a group of people who are often neglected in the city, the elderly, who also need to be concerned about their life in the 15-minute city life. With the aging of the elderly, their immunity gradually decreases, and they are more prone to diseases. In addition to physical diseases, psychological diseases can also be ignored. Xie et al said that the elderly are more prone to anxiety, depression, and other psychological diseases in a lonely environment [14]. When a life circle is composed of elderly communities, the elderly rarely have other travel besides the necessities of daily life, such as buying vegetables, daily necessities, and regular physical examinations. With the aging of the elderly, they are more likely to experience the impact of life events such as empty nest, death of relatives and friends, disability, and illness. These negative events will further weaken the ability of the elderly to maintain social networks, reduce social interaction and social participation, and ultimately lead to social isolation [10]. In addition, when developing the 15-minute urban life circle, cities often do not give priority to the construction of the life circle of the elderly community. Zhu et al [15] found in the evaluation of the life circle of Huaihai Street in Huai'an City that the construction of the life circle with young people and middle-aged people as the main body is basically complete and can meet the living needs of the corresponding advantageous groups, but the life circle with the elderly as the main body not only has a discontinuous pedestrian road network but also has a small distribution of public facilities and very low coverage of facilities that meet the preferences of the elderly, which has a negative impact on the elderly. The integrity of medical and healthcare facilities is also a concern of the elderly. Because most of their daily travel is on foot, and their physical strength

will gradually decline with age, their range of activities will be smaller, and the accessibility of medical facilities is crucial. Song et al evaluated the accessibility of medical facilities in Henan Province and found that the travel time from most communities to medical facilities exceeded 15 minutes, and the accessibility of medical facilities around the central urban and commercial areas was somewhat different from that of the new development zones and suburbs [16]. This means that the elderly may face the problem of difficulty in getting medical treatment in a short distance. In normal life, the elderly may avoid trouble and reduce the number of visits to medical services, which increases the potential hidden danger and may miss the best time in case of emergency. These are problems that cannot be ignored.

3. Suggestions

3.1. Space Resource Sharing

The social isolation caused by the fact that short-distance travel has become the dominant position of travel and the gap between different life circles has resulted in people in one life circle will hardly leave this circle. Sharing resources in space may alleviate or solve this problem. Zhu et al mentioned that in the urban life circle, the corresponding open space should be planned according to the resident structure of each community to strengthen the sharing and mutual communication of neighborhood space [15]. This can also be applied between circles. Resources in a certain area can be used as shared areas of several life circles. People in these life circles will go to these shared areas in order to get such services. This can form the intersection and communication between circles. At the same time, the sharing of resources between life circles can also balance the economic gap between different circles, put some major economic mobility industries in the shared area, and the economy of several life circles can achieve circulation here. Although it cannot directly solve the economic gap between the richest and the poorest life circles, from the perspective of the whole city, the overall gap can be effectively alleviated.

3.2. Further Improvement of Infrastructure

Although the sharing of space resources can alleviate the shortage of some infrastructure, the government and planners still need to make adequate preparations for the urban infrastructure, especially in the improvement of key facilities such as medical treatment and transportation. Feng and Wang said that improved public services would not only benefit more citizens but also reduce the relative price of the community and attract people from different levels to integrate into the community [17]. When the level of people in a life circle becomes rich, this life circle has communication space with other life circles and promotes the flow of people between life circles, which can also reduce the isolation effect between different life circles.

3.3. Attention to Elderly Living Needs

Due to the reduction of daily communication among the elderly, sometimes even if the needs of the elderly are not met, they rarely take the initiative to put forward. Therefore, we should take the initiative to pay attention to the life circle where the elderly account for a large proportion, visit the elderly frequently, understand the needs of the elderly in time, and increase the well-being of the elderly. The scope of the elderly's life circle should be appropriately changed. Song et al mentioned that the service radius of the aging community located in the urban center should be relatively reduced [16]. It will make it easier for the elderly to reach the infrastructure such as shopping, leisure, and medical care when walking daily.

4. Conclusion

With the development of cities, the development and application of life circle planning will become more and more common. Through the discussion of the above four aspects, it is not difficult to find that the 15-minute life circle can solve the problems of inconvenience in daily life and employment difficulties of residents caused by traffic congestion or overcrowding in urban centers in the past, which can provide more reasonable living space for residents, and simplify people's daily travel into short-distance hiking. But at the same time, as the current plan of the 15-minute urban life circle is still in the early stage of implementation, there are still some problems that are difficult to solve in many aspects, which will even aggravate the problems in the past. For example, class division in cities is more serious. The gap between rich and poor in different life circles leads to a new round of gap between rich and poor. The life circle of the rich is richer, and the life circle of the poor is poorer. The uneven distribution of various basic resources is caused by the life circle of different economic statuses. And the neglect of the elderly in cities. Correspondingly, this paper also puts forward three solutions and directions: sharing space resources, further improving infrastructure, and strengthening attention to the elderly. In general, a 15-minute city can indeed change the crowded lifestyle of residents in the past by changing the urban structure, but its development still has a long way to go, and planners or governments still need to further improve the existing imperfect planning.

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