

# Research and Design of Public Spaces for Elderly People in Rural Areas

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**Abstract:** With the progress of society and economic development, China has reached an aging population. According to the Chinese population census data, China has entered the second stage of an aging population society and has become one of the countries with the fastest growth rate of the elderly population in the world. It is expected that the elderly population in China will reach 250 million within the next fifteen years and exceed 450 million by 2050. Additionally, China is a country with uneven development between urban and rural areas. Many young and middle-aged people choose to work in cities, which leads to most rural residents being elderly. Thus, the phenomenon of the elderly living alone by themselves occurs. Therefore, the government and related experts are increasingly concerned about the physical and mental health of the elderly. The establishment of the elderly activity center is to meet the needs of the elderly cultural life, improve the level of elderly physical and mental health, and promote the harmonious development of the countryside. Many countries aware of this problem would emphasize park construction and nursing home design for the needs of the elderly. However, little research are performed on the activity center and public spaces for the elderly in underdeveloped rural areas. Design countermeasures of the public space should consider the physical, psychological, and behavioral needs of the elderly. This study summarizes the influencing factors, design principles, and design methods of public spaces to effectively meet the needs of the elderly for public activities. By creating and improving public social spaces suitable for the elderly in rural areas, the elderly can lead a comfortable life and solve loneliness issues.

**Keywords:** Rural public area; The elderly; Aging

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## 1. Introduction

As the human lifespan gradually becomes higher, the number of elderly people is constantly increasing. However, many elderly people are unable to fully enjoy their retirement lives due to family situations and physical conditions. The elderly are a vulnerable group in society, as the degradation of their physiological functions makes it impossible for them to live like normal people, which brings enormous psychological pressure on them. Weakness in the body, the impact of chronic diseases, and a decline in perceptual-motor skills

will lead to fear and insecurity, seriously affecting the daily life and mental health of the elderly.

Currently, the aging problem in China is becoming increasingly serious, as many elderly people are living by themselves in solitude. These elderly people gradually withdrew from the core role of the family, had fewer interactions with their children and friends, reduced social activities, and became introverted in personality. They crave to communicate with others, participate in meaningful activities, and hope to have more opportunities for communication with others. Therefore, when designing a public space for the elderly in rural areas, more attention is needed when creating a comfortable social space for them to meet their psychological needs.

There are obvious shortcomings in the design of elderly living spaces, elderly care facilities, and public spaces in rural areas compared to urban areas, which poses significant challenges in elderly care <sup>[1]</sup>. In addition, the rural welfare institutions constructed have not fully adapted to the needs of the elderly, so the social security system still needs to be improved.

### **1.1. Current aging population situation in China**

As China has reached an aging population, a series of problems have arisen during this process. The phenomenon of having few children is common in China, leading to increasing pressure on only children to support their elderly. Due to the elderly people being a significant proportion of the population in China, there is great pressure to provide for them. The uneven distribution of wealth among regions further exacerbates the complexity of elderly care issues. According to the Chinese population census data, China has entered the second stage of an aging population society and has become one of the countries with the fastest growth rate of the elderly population in the world. It is expected that the elderly population in China will reach 250 million within the next fifteen years and exceed 450 million by 2050 <sup>[2]</sup>. A series of measures need to be taken to address the challenges brought by this aging population. The government should increase investment in the construction of rural elderly care facilities and welfare institutions, and improve social security levels to provide a better living and elderly care environment for the elderly. In addition, the government should encourage family members to live together or nearby with the elderly to provide better family care and support. At the same time, health management and medical services for the elderly should be prioritized to improve their quality of life. Through the implementation of these measures, the issue of aging can be better addressed and enable the elderly to have a happy old age.

## **2. Current research perspectives of scholars on age-friendly public spaces**

Many countries, especially developed Western countries, have accumulated rich experience in terms of public space design for elderly residential areas. These countries entered an aging society early on, with France leading the way in 1865, followed by Sweden, the United Kingdom, and the United States in 1890, 1930, and 1944, respectively. Japan became the first Asian country to enter an aging society in 1970. The Japanese Institute of Architects has revised the new version of Data Integration for Concise Accessible Building Design, which elaborates in detail on the obstacles that elderly people may encounter in their daily lives and corresponding solutions from the aspects <sup>[3]</sup> of space, architecture, and legal systems <sup>[3]</sup>.

The aging population process in Western countries is relatively stable. Therefore, the development of their elderly residential buildings model has become relatively comprehensive, and related academic research and policy formulation are also very complete, accumulating a large amount of experience in elderly residential construction. Sweden began promoting accessible facilities for residential buildings and designed buildings with nursing functions for the elderly as early as the 1950s <sup>[4]</sup>. At the same time, the United States and Japan

have also successively built collective housing and provided elderly housing with professional nursing services. The guidelines for the design of elderly apartments and nursing homes published by the American Institute of Architects focus on elderly care buildings such as nursing homes, retirement village service centers, and assistive living facilities, and conduct preliminary research on elderly care facilities.

These countries fully emphasize the care and age-friendly design for the entire age population in residential public space design, ensuring that the elderly can maintain a high level of physical and mental health. The residential area is equipped with complete leisure spaces to compensate for the shortcomings of elderly care in the family, while also ensuring that elderly people can independently engage in residential activities. These examples provide useful references for China to cope with an aging society and improve the living environment for the elderly.

## **2.1. Current research status on elderly-friendly public space design in China**

With the continuous acceleration of the aging population in China, the elderly care issue has become a mainstream topic among professionals with research on the behavior and characteristics of the elderly gradually increasing. Due to the uneven distribution of wealth among regions, scholars have gradually focused on researching rural public spaces. Wang Ling pointed out in her article “Rural Public Space: Orderly Construction and Community Integration” that rural public space has political functions, daily life functions, and traditional cultural functions. This provides important theoretical guidance for the construction and planning of rural public spaces in this study. In the article “Rural Social Personalization and Public Construction” by Zhang Liang, he further divided public spaces into political public spaces, living public spaces, productive public spaces, and faith public spaces, providing a more detailed classification basis for the study of rural public spaces. Wang Zhu’s article “Research on Environmental Behavior of Elderly People in Rural Public Spaces - Taking a Village in Northern Zhejiang as an Example” conducts empirical investigations and deep analysis of the use of cultural halls and spaces by rural elderly people, providing valuable practical reference for the design and improvement of rural elderly care environments. Li emphasized the importance of elderly care in villages and towns in cold regions and proposed key planning strategies for activities, catering, and elderly care facilities for the elderly <sup>[5]</sup>.

Zhang Wen proposed specific design strategies for existing and newly built rural elderly care buildings in his research on the design of elderly care buildings for rural populations, providing important references for the construction of rural elderly care buildings. Ye Leiting’s article “Research on the Potential Development of Elderly Care Service Resources in Rural Areas of Northern Zhejiang and Analysis of Strategies for Advancing Adaptability for the Elderly” proposes strategies for elderly care, leisure culture, medical technology support, and educational space in rural areas to improve quality of life. Tang conducted in-depth research on the elderly-friendly design of rural public facilities under the influence of rural spatial order in terms of form, quantity, color, layout, and so on to create a better user experience for the elderly <sup>[6]</sup>. In addition, the article “Preliminary Exploration of the Design of External Elderly Communication Space in Rural Residential Areas in Northern China” focuses on the design of external spaces in rural residential areas to ensure the convenience, safety, and accessibility of transportation for the elderly. This study also explores the design ideas of residential entrance space, road development space, and integration into the agricultural production and daily living habits of villagers.

In summary, this shows that the elderly care issue is a trending research topic, as several scholars have conducted in-depth research on rural public spaces from different perspectives that cover various aspects such as the environmental behavior of elderly people in rural areas, planning of rural elderly care facilities, and design of existing and new rural elderly care buildings. These studies not only enrich the understanding of rural

public spaces but also provide useful ideas and solutions for solving the elderly care problem in China.

## **2.2. Problems in public space design for rural elderly people**

Research on the suitability of rural public spaces for the elderly reveals several core issues. First, there is a lack of in-depth analysis of the form and functional layout of rural public social spaces. This means that existing research has not fully explored the inherent laws and needs of rural social spaces. Secondly, the quality and level of service institutions need to be improved to meet the service needs of elderly people. This involves in-depth research on the functional positioning and service quality to match the needs of elderly people in service institutions.

Additionally, rural areas lack public social spaces that are suitable for the elderly. The existing public spaces in rural areas are mostly underdeveloped and are not practical for use by the elderly. This phenomenon is related to the regional characteristics and slow development progress in rural areas, which suggests design research should adapt to local conditions and combine local culture and geographical characteristics.

Moreover, elderly people in rural areas tend to prefer family care over institutional care. This phenomenon presents new challenges for the study of public spaces, namely how to design public spaces that not only meet the physiological and psychological characteristics of the elderly but also meet their living needs. At the same time, the quality of public spaces for elderly people in rural areas is poor, lacking scientific planning and standards, which further emphasizes the urgency and importance of research on the suitability of rural public spaces for the elderly.

When designing rural public spaces for the elderly, the actual needs of the elderly should be fully considered. This includes comprehensive considerations of highlighting regional cultural characteristics, scientific planning, protection, and utilization. The physiological conditions of the elderly, such as the degradation of perceptual ability, motor function, brain function, and adaptability, should be fully considered in the design. For example, design should focus on improving the recognizability and security of the space in response to the degradation of perceptual ability, accessibility of public spaces can be improved for the elderly with reduced motor function, attention should be paid to the rationality and spatial layout of the spaces for the elderly with brain function issues, and the adaptability issues in elderly can be addressed by improving the comfort of the living environment.

## **3. Functional zoning of public spaces in rural areas for elderly people**

Due to the changes in the physiological and psychological characteristics of the elderly, their special needs should be considered when designing related designs. It is crucial to create a comfortable, familiar, and suitable living environment for them. A safe and elderly-friendly space design should enable elderly people to live independently without needing excessive help from others and allow them to have privacy.

Public spaces serve a variety of functions for the elderly. Based on the behavioral characteristics of the elderly, this study categorizes their social spaces into rest areas, entertainment areas, and conversation areas.

### **3.1. Rest area**

Elderly people have a habit of daydreaming, as they like to sit quietly in one place and stare into the distance sentimentally. Rural elderly people like to gather together and have a chat with their friends about life. Some elderly people may prefer to be alone in a corner and quietly enjoy the scenery with feelings of *saudade*. It is necessary to consider the psychological feelings of the elderly by emphasizing the elderly-friendly design of social spaces to create a relatively safe and comfortable resting area for the elderly.

### **3.2. Entertainment area**

Chess and card entertainment is one of the favorite pastime activities for the elderly, with characteristics such as high participation, low cost, and easy management. Public space design can consider setting up separate chess and card rooms to avoid interference with other rooms. The elderly may require additional time for chess and card activities due to the degradation of physiological functions. Indoor space should provide a more comfortable environment to the elderly by having walls with bright and soft colors and sufficient soft indoor lighting. Elderly-friendly entertainment facilities should be provided to ensure the safety of the elderly. The seats of the elderly should be soft and comfortable, and the height of the tables and chairs should be suitable

### **3.3. Conversation area**

The loneliness of elderly people is mostly due to the lack of companionship that cannot be easily expressed. As there are many elderly people in rural areas, they all need a space for conversing so they can freely talk and express their thoughts and life insights. A space for elderly people to converse freely is one of the important social spaces for them.

This study proposes corresponding elderly-friendly design strategies based on the different limitations of social spaces for elderly people in rural areas. The elderly-friendly design of rural public social spaces is not only about achieving all-round accessibility but also focusing on the actual needs of the elderly by understanding their true needs, observing and understanding their life details and inner feelings with a people-oriented approach. When designing rural public spaces, the following theoretical principles should be considered.

## **4. Principles of public space design for rural elderly people**

### **4.1. Putting people first**

The elderly are the main users of public social spaces, so the goal of upgrading and renovating public spaces is to provide services for them. All upgrades and renovations of public spaces should revolve around the material and spiritual needs of the elderly.

Public spaces should be renovated based on the physical needs of the elderly. This includes improving external spatial facilities and the quality of the social living environment for the elderly in rural areas. Convenient, practical, and pleasant outdoor open public spaces should be provided to ensure the safety of the elderly<sup>[7]</sup>. Public buildings or spaces in rural areas should have accessibility for the elderly and disabled people. The location of large public places should be properly planned to be close to residence areas<sup>[8]</sup>.

Public space design should also consider the spiritual needs of the elderly by creating a sense of happiness and belonging. Collective activities for the elderly can improve their acceptance of new things, compensate for emotional deficiencies in life, establish new life confidence, and have self-reflection on their lives. Therefore, promoting the active participation of elderly people in entertainment and social activities is important.

### **4.2. Universality**

Although the research subject of this study is the elderly people, age-friendly renovation is not limited to the elderly population. The continuity theory of social gerontology suggests that life is a continuous process, and old age is not an independent stage, but only a subsequent part of life. The renovation and improvement of public spaces is not just for the elderly, it is also of practical significance for people of other age groups. Elderly-friendly public spaces can also make their use more convenient for ordinary people. Age-friendly design is a more inclusive design that can attract people of different age groups. Spaces suitable for the elderly can

also be suitable for all age groups, including children, adolescents, and middle-aged people. The public social space for all age groups should adapt to both the elderly population and the constantly changing needs of other populations. For example, young and middle-aged people with children need more social and entertainment space. If rural areas do not have this functional space, these people will tend to move to cities with better public spaces, ultimately increasing the pressure of elderly care in ethnic minority villages.

The universality of public spaces can greatly enhance the economic and cultural activities in rural areas, and also reduce the loneliness of the elderly by allowing communication between people of different age groups. Interactions between people of other age groups can allow mutual understanding to promote rural civilization and the respect for elderly.

### **4.3. Technology**

In the Internet era, many online tools can help the elderly with their living situation. Many elderly people in ethnic minority areas do not understand the convenience the Internet and intelligent products will bring to their lives due to a lack of education. The usage of broadband and wireless networks can make it more convenient for the elderly living in the village to access information and enrich their life. Hence, teaching the elderly how to use the Internet and smart products can help them integrate into online social spaces. The elderly can contact their children living far away at any time and anywhere by using video or voice calls. Thus, online technology can improve the physical and mental health of elderly people in China. On the other hand, intelligent systems can be used when constructing public spaces to design an advanced and suitable environment for the elderly.

### **4.4. Locality**

In the process of upgrading and renovating traditional ethnic minority settlements for the elderly, local advantages, namely local cultural and spatial characteristics, can be compared and complemented with modern rural renewal concepts. Ethnic design techniques are often used to make the space compatible with the natural environment. For example, traditional Dong settlements tailor designs to local conditions, by dispersing or concentrating houses in small or large areas respectively to create a spatial cluster environment.

### **4.5. Practicality**

In the design of public space in villages, a multifunctional hybrid public social space is a practical requirement. Small public places need to be scattered around for the convenience of the elderly. A multi-level public space management system can meet the spatial needs of the elderly at different levels of development, promote communication among the elderly, and achieve effective interaction with the environment. Therefore, it is necessary to consider the locations of large public buildings and small public places in the renovation of village public spaces to achieve strategic spatial placement.

## **5. Conclusion**

Public spaces should be improved to meet the cultural and living needs of the elderly, improve their physical and mental health, and promote harmonious development in rural areas. Most rural public spaces in China are underdeveloped and are unsuitable for the elderly, resulting in low usage by the local elderly. This study summarizes the needs of elderly people for public social spaces, providing useful references for improving the quality of life of rural elderly people and the sustainable development of rural communities.

## Disclosure statement

The author declares no conflict of interest.

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