| **RESEARCH ARTICLE**

# Research on Design for the Elderly-Friendly Space Literature Review

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| **ABSTRACT**

As living standards continue to rise, so too does the elderly population's expectation for comfort and variety in their care spaces. Therefore, drawing upon diverse data from the National Bureau of Statistics of China, the Ministry of Health, Labour and Welfare of Japan, and relevant manuals, we intend to undertake a study on aging-friendly space design, focusing on the physiological and psychological needs of the elderly. Our objective is to minimize the risk of accidents in their daily home activities and elevate their quality of life.
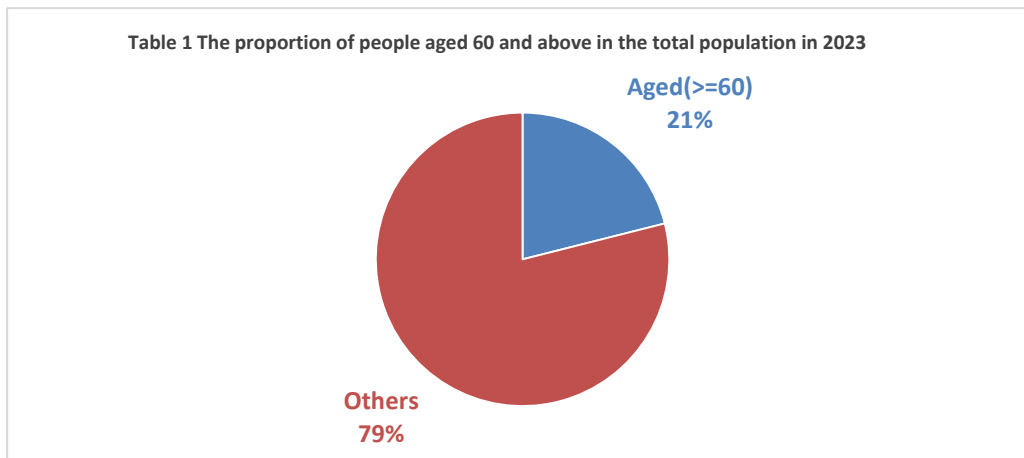
## 1. Introduction

The elderly care service project is a pivotal and far-reaching initiative that underpins the long-term development of a nation. Within this framework, the design of aging-friendly spaces assumes a crucial role, bridging social security measures, medical resource allocation, and the quality of life for the elderly.

In the backdrop of swift progressions in contemporary social sciences, information technology, and medical science, there has been a marked improvement in the quality of life, leading to a substantial rise in average life expectancy. China is progressively transitioning into the "Silver Age" epoch.

Despite the expanding array of comprehensive elderly care models in China, encompassing scientific, varied, and tailored options, empirical data from the "China Statistical Yearbook" underscores the preference of 90% of the elderly for home-based care. While Chinese academics have demonstrated profound interest in exploring elderly living environments, the current research landscape tends to be broad and lacks precision in catering to the specific requirements of this demographic. Therefore, this study aims to embark on an in-depth exploration of the overarching needs of the elderly population, serving as a foundational starting point for further investigations.
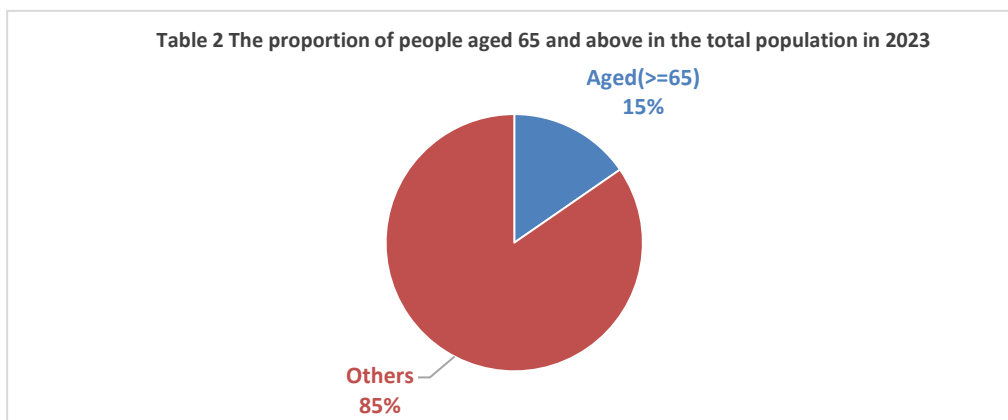
## 2. Literature Review

Pursuant to the latest statistics issued by the National Bureau of Statistics of China, the country's total populace reached 1.40967 billion by the close of 2023.As the table 1 shows, with individuals aged 60 and above comprising 21.1%, or a total of 296.97 million.

**Table 1 The proportion of people aged 60 and above in the total population in 2023**

Aged(>=60)
21%

Others
79%

Data Source：the National Bureau of Statistics of China

This figure prominently signifies the ongoing demographic shift towards aging in China, as the cohort of individuals aged 60 and above progressively enlarges, occupying a progressively larger segment of the national population. More specifically,as the table 2 shows those aged 65 and above constitute 15.4% of the total populace, totaling 216.76 million. This data underscores the ascending proportion of the elderly population and the intensifying aging phenomenon in China.

**Table 2 The proportion of people aged 65 and above in the total population in 2023**

Aged(>=65)
15%

Others
85%

Data Source：the National Bureau of Statistics of China

In response to this demographic trend, the CPC Central Committee and the State Council introduced a policy decision aimed at strengthening elderly affairs, outlining a framework for elderly care that is grounded in familial support, bolstered by community-based services, and complemented by societal care. This initiative established the initial conceptual blueprint for home-based elderly care.

Subsequently, in 2008, during the National Civil Affairs Work Conference, a comprehensive social elderly care service system was formally introduced, characterized by a "foundation of home-based care, community reinforcement, and institutional augmentation" [3]. This signified the initial articulation of a comprehensive policy framework. The "State Council's Several Opinions on Accelerating the Development of the Elderly Care Service Industry" (Guo Fa [2013] No. 35) explicitly stated the objective of comprehensively establishing a diversified elderly care service system, encompassing both urban and rural areas, with home-based care as its cornerstone, supported by community reinforcement, and augmented by institutional care, by 2020. This further clarified the policy objectives and directions.

 The "Opinions of the General Office of the State Council on Promoting the Development of Elderly Care Services" (Guo Ban Fa [2019] No. 5) reaffirmed this policy framework and introduced a series of policy measures, including deepening the reform of deregulation, strengthening comprehensive supervision of elderly care services, and promoting high-quality development in this sector[5]. The policy of "home-based elderly care as the foundation, community care as the support, and institutional care as the backbone" has gradually taken shape under the guidance of various policy documents and plans. The government has vigorously promoted the improvement of community elderly care facilities, encouraged communities to organize cultural activities for the elderly, and promoted their physical and mental health. Furthermore, it has supported the development of elderly care institutions,
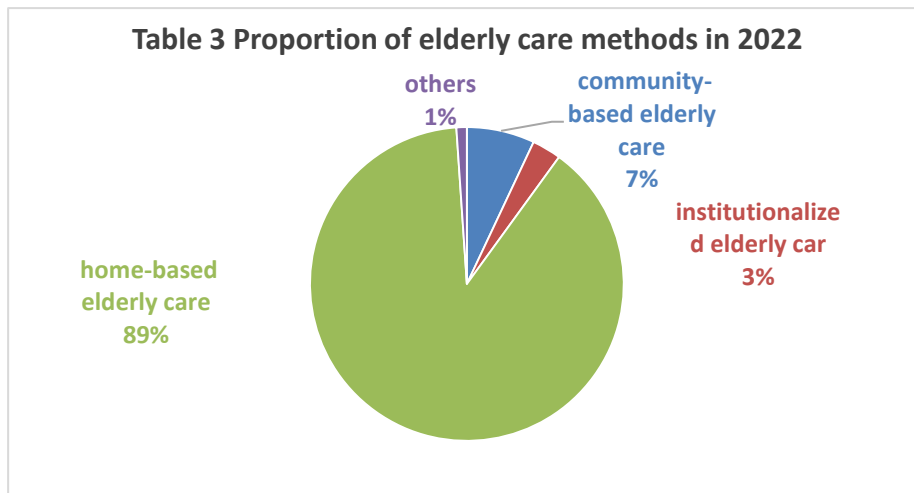
providing financial support, tax incentives, and other measures to encourage social forces to participate in the operation of these institutions.



Fig. 1 Coping with population aging: institutional and public policy innovations
Source:shanghaitech.edu.cn

According to the comprehensive report of the "2022 Elderly Care Consumption Survey Research Project" published by the China Consumer Association, approximately 7% of elderly individuals rely primarily on community-based elderly care services. As a pivotal complement to home-based elderly care, community-based services offer elderly individuals a more convenient and diverse range of options, including daytime care facilities and elderly activity centers. These services effectively alleviate the burden on family caregivers and contribute to enhancing the quality of life for the elderly.

In parallel, approximately 3% of the elderly opt for institutionalized elderly care. Serving as an integral component of the elderly care system, institutional care provides professional and comprehensive services to those who are unable to rely solely on home-based or community-based care. However, home-based elderly care continues to be the predominant choice among the elderly, accounting for 88.93%. This preference reflects their reliance on familial support and affection, as well as their familiarity and comfort with the home environment.



Source：2022 Elderly Care Consumption Survey Research Project

Therefore, age-friendly space design is an indispensable aspect of home-based elderly care, directly impacting the quality of life, safety, and comfort of the elderly population. A reasonable spatial layout and flow design can minimize mobility obstacles for the elderly, enhancing the convenience, comfort, and safety of their home life.

Through a thorough analysis of the China Statistical Yearbook 2023 and the 2022 Elderly Care Consumption Survey Report, coupled with the policy guidelines issued by the Central Committee of the Communist Party of China, the State Council, and relevant ministries and commissions on elderly care services and aging work, we can put forward the following innovative insights on spatial design for home-based elderly care.

First and foremost, the design of home-based elderly care spaces must take into account the physiological and psychological needs of the elderly with precision. Given their declining physical abilities and sensory functions, barrier-free design should be a primary consideration to ensure their ease of movement within the home environment. Additionally, color schemes and furniture arrangements should cater to the aesthetic preferences and psychological comfort of the elderly, creating a warm and habitable domestic atmosphere.

Secondly, fulfilling the social needs of the elderly is also an indispensable aspect in the spatial design of home-based elderly care. The elderly desire to maintain close contact with family, friends, and the community, relishing the warmth and joy brought by social interaction. Therefore, the design should incorporate thoughtfully planned public areas, such as spacious living rooms and dining rooms, to facilitate social activities for the elderly. Furthermore, leveraging modern technological tools, like smart home systems and remote video call functions, can further expand the social circle of the elderly, alleviating their sense of loneliness. Moreover, safety and convenience occupy a pivotal position in the spatial design of home-based elderly care. Given the relatively weaker safety awareness of the elderly, safety measures such as fire prevention and burglary prevention should be thoroughly considered in the design to ensure their personal and property safety. Meanwhile, convenient design elements, like easy-to-operate switches and sockets, as well as optimized layouts for kitchens and bathrooms, can significantly enhance the quality of life for the elderly within their homes.

Looking ahead, with the booming development of the elderly care service industry and robust policy support, home-based elderly care spatial design will embrace numerous innovative opportunities. We should constantly explore new design concepts and methodologies, closely aligning with the actual needs of the elderly and market dynamics, to create more humanized and intelligent home-based elderly care spaces. At the same time, the government and various sectors of society should strengthen policy guidance and support, jointly promoting the healthy development of the home-based elderly care spatial design industry.

## 3. Methodology
### 3.1 Quantitative analysis method
In scientific research, quantitative analysis can make people understand the research object more accurately, so as to reveal the law more scientifically, grasp the essence, clarify the relationship and predict the development trend of things.

### 3.2 Content analysis method
Content analysis method is a research method that objectively, systematically and quantitatively describes the content of communication. Its essence is to analyze the amount of information contained in the communication content and its changes, that is, the process of inferring the accurate meaning from the meaningful words and sentences represented. The process of content analysis is a process of layer-by-layer reasoning.

### 3.3 Descriptive research method
Descriptive research method is a simple research method, which describes and explains existing phenomena, laws and theories through its own understanding and verification. It is a general description of various theories, more of an explanation of other people's arguments, but it is indispensable in scientific research. It can raise questions in a targeted manner, reveal drawbacks, describe phenomena, and introduce experiences. It is conducive to popularization work. It has many examples, including investigations of various situations with revelations; explanations of practical problems; and views on certain current situations.

## 4. Conclusion
In conclusion, spatial design for home-based elderly care is a challenging yet rewarding topic. By deeply understanding the physiological, psychological, social, safety, and convenience needs of the elderly and integrating modern technological tools and policy support, we can create a more comfortable, safe, and convenient home-based elderly care environment, enhancing the quality and happiness of their later life.

## 5. Results and Discussion
After a thorough analysis of the necessity and implementation strategies for modern home-based elderly care space design, we have identified a pivotal concept: the integration of scientific and human-centric design thinking serves as the cornerstone for creating superior home-based elderly care environments. This approach not only aligns with the fundamental living needs of the elderly population but also pays meticulous attention to their psychological well-being, ensuring the comfort and safety of the living space.

We reassert that the design of home-based elderly care spaces should always be centered around the elderly, focusing on their genuine needs and combining scientific and human-centric design principles. By doing so, we can truly create a home that is warm, cozy, and secure for the elderly.

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