A Study on the Model of Rural Elderly Care Service Facilities in Beijing from the Perspective of Healthy Aging

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Abstract: In the context of healthy aging, environment and facilities can directly affect the health and well-being of the elderly, but also indirectly affect their physical and mental health through affecting their behavior and health services received. Beijing rural elderly care environment and facilities related issues have been attached great importance by the state and the Beijing municipal government. With the process of urbanization, farmers' income has increased, and the industrial structure, living environment and social security have been improved. However, compared with urban areas, the problem of the elderly in rural areas is particularly prominent. Based on the rural area of Beijing, this paper analyzes the mode of rural elderly care facilities in Beijing from three aspects: policy history, facility system and design trend. At the same time, combined with the current situation of rural elderly care facilities in Beijing, a scientific mode of rural elderly care facility construction is proposed to provide a scientific method and effective reference for the construction of rural elderly care environment in Beijing.

Keywords: Healthy Aging; Beijing Rural Area; Facility Model; Provide for the Aged in the Countryside

1. Introduction

As the global elderly population rapidly expands, elderly care has not only become a critical social welfare issue that governments worldwide must address but also emerged as a major challenge to social harmony, stability, and sustainable development. Nearly all sectors of society are impacted by population ageing. As the world's largest developing country, China faces a consistently low natural population growth rate, and its social elderly care challenges are gradually becoming more pronounced [1].

In China, rural areas host the majority of the elderly population. However, current research and age-friendly adaptations for elderly care predominantly focus on economically developed first- and second-tier cities, with limited attention to the needs of rural seniors. This neglect has intensified the gap between the supply and demand of elderly services in rural regions, creating an urgent need for improved policies, institutional frameworks, and planning. It represents a significant challenge that must be confronted in China's modernization and sustainable social development. This paper examines the current state of rural elderly care facilities in Beijing, proposing a scientifically grounded construction model for rural elderly care facilities. It aims to provide scientific methodologies and practical insights for enhancing elderly care environments in rural areas of Beijing.

2. Review and Evaluation of Academic History of Relevant Research at Home and Abroad

2.1 Review of Academic History of Relevant Research Abroad

Since the 1970s, foreign scholars have begun to focus on improving the living environments of rural elderly and the planning of community facilities. By the 21st century, research has gradually shifted to exploring the spatial standards, facility provisions, and comfort requirements of elderly care facilities based on the physiological, psychological, and social needs of rural elderly. Additionally, interdisciplinary perspectives have been introduced into architectural research, such as population aging and rural social transformation.

In the study of elderly environments and facilities, Kim, Jeong Tai (2016) analyzed and learned from design guidelines in Japan, the UK, Germany, and the United States, conducted a literature review on the

current state of medical facilities in South Korea and the latest trends in the design theory of elderly care facilities, and provided optimization suggestions [2]. In research on the living conditions of rural empty-nest elderly, regarding elderly living and public activity studies, J Williams (2005) analyzed the role of the construction and design of elderly care service facilities in fostering mutual assistance and interaction within cooperative housing communities [3]. Yung E H K (2016) sought to understand the social needs of elderly people in public open spaces to revise standard planning and design criteria in urban renewal [4].Regarding resource utilization, Nam Y (2015) analyzed the spaces of rural collective nursing homes and provided optimization strategies and suggestions [5]. Lin (2023) examined the impact of waterfront resources on rural leisure environments, economic development, and the physical and mental health awareness of the elderly. The study found that although waterfront resources can promote rural economies, preserve community culture, create comfortable living environments for the elderly, and enhance health and well-being, factors such as severe pollution, damage to community environments and ecology, high costs, and limited leisure facilities still negatively affect the physical and mental health and well-being of the elderly [6].

2.2 Review of Academic History of Relevant Research in China

In recent years, as the aging population in rural China has deepened, research on rural elderly care issues has garnered increasing attention. In the construction of rural elderly care service systems and facilities, the needs of rural elderly and the feasibility of rural care resources serve as driving forces for the improvement of rural elderly care facilities (Ziqi Zhang, 2018) [7]. Zhi Qiu (2018) attempted to establish a framework for a rural elderly support system adapted to the new era [8]. Ziqi Zhang (2018) developed a rural community elderly service system based on the care resources and demands in villages of northern Zhejiang [9]. Yunfeng Chen (2018) studied the current state of empty-nest elderly and mutual-support elderly care facilities in northern rural areas and proposed a mutual-support elderly care model tailored for empty-nest seniors in northern villages [10]. Ying Liu (2019) systematically reviewed and reflected on rural mutual-support elderly care facilities from various dimensions, clarifying ideas for their development [11].

3. Analysis of Rural Construction and Elderly Care Policies in Beijing

According to the "Beijing Statistical Yearbook 2023", by the end of 2023, the elderly population aged 60 and above in Beijing was 4.948 million, accounting for 22.6% of the total population, which was 1.5 percentage points higher than the national average. [12]. However, research on rural elderly care remains limited. Compared with mature rural elderly care models abroad, the rural elderly care facility models in Beijing are still in their early stages, though some scholars have begun actively exploring care models and facility systems.

Due to the significant urban-rural disparity in Beijing, the rural economy is relatively weak, and resources are predominantly concentrated in urban areas, leading to uneven distribution. This has resulted in a large outflow of young and middle-aged labor from rural to urban areas, causing phenomena such as rural population hollowing-out and an increase in empty-nest households, further complicating the demographic composition. Additionally, challenges such as insufficient rural elderly care infrastructure, obstacles to home- and community-based care, a shortage of rural elderly care service personnel, and limited consumption capacity among the elderly make it difficult for older adults to maintain independent living. Consequently, elderly care in rural areas has become a major challenge, and addressing the elderly care needs of Beijing's rural population is an urgent issue. In recent years, with the strong emphasis placed on rural and elderly care issues by both the national and Beijing municipal governments, a series of policy documents, laws, and regulations aimed at promoting rural development and elderly care facility construction have been introduced (Table 1).

Table 1: Rural Construction and Elderly Care Policies of the State and Beijing Municipality

Category	Document Name	Promulgation Date	Issuing Unit
Rural construction	Notice on Strengthening the Compilation of Layout Planning for Elderly Care Service Facilities	2025-07-17	Min Han [2025] No. 36
	Guiding Opinions of the National Committee on Aging on Supporting the Social Participation of the Elderly and Promoting Their Contribution in	2025-04-29	Min Fa [2025] No. 24

	Old Age		
	Opinions of the Central Committee of the Communist Party of China and The State Council on Further Deepening Rural Reform and Steadily Promoting the Comprehensive Revitalization of the Countryside	2025-02-23	No. 1 Central Document
	Implementation Plan for the Construction of Beautiful Villages	2025-01-14	Huan Turang [2025] No. 5
Rural Elderly care	Several Measures for Strengthening Service and Guarantee for the Elderly	2024-09-30	Jing Min Yang Lao Fa [2024] No. 87
	Guiding Opinions of the National Committee on Aging on Accelerating the Development of Rural Elderly Care Services	2024-05-08	Min Fa [2024] No. 20
	Action Plan for Actively Developing Elderly Meal Assistance Services	2023-10-20	Min Fa [2023] No. 58

4. Analysis of the Model of Rural Elderly Care Service Facilities in Beijing

As a member state of the WHO, China is also actively promoting healthy aging. At the same time, the Party and the state attach great importance to people's health and the issue of aging. In line with the national strategy of Healthy China, they are promoting the development of healthy aging in the field of aging. At the Second Session of the 14th National People's Congress, when answering questions from reporters, the minister of the Ministry of Civil Affairs mentioned that the Central Committee of the Communist Party of China attaches great importance to addressing the issue of population aging and has elevated it to the height of a national strategy. Based on this, this article elaborates and analyzes this model from three levels: macro policies, meso systems, and micro facilities. At the macro level, China has issued multiple policies and regulations to guide the gradual enrichment of types of rural elderly care facilities and provide legal and economic guarantees. At the meso level, a facility system should be established, and the problem composition and operation mechanism should be improved together. At the micro level, in response to the higher material and spiritual demands of rural elderly people, there has emerged a design trend in elderly care facilities featuring rationalized facility configuration, maximized facility utilization, and intelligent facility application (Figure 1).
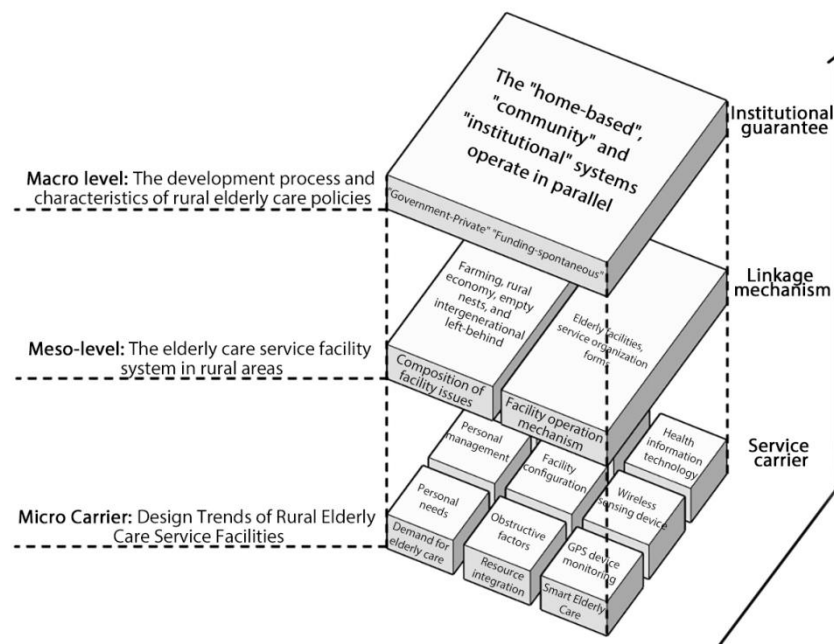

Figure 1: Macro, Meso and Micro Level Relationships of the Model of Rural Elderly Care Facilities in Beijing

4.1 Macro Level: The Development Process and Characteristics of Rural Elderly Care Policies

4.1.1 Development History of Rural Elderly Facilities: "Government - Private", "Funding - Self-initiated"

In recent years, the aging situation in China has shown an inverted pattern between urban and rural areas. The rapid growth of the aging rate in rural areas is a major challenge that China has to face in the process of modernization and the harmonious and sustainable development of society. Since the establishment of the "Five-guarantee" support institutions such as nursing homes in the early days of the founding of the People's Republic of China, the exploration and practice of rural elderly care services in China have undergone multiple transformations and innovations, including rural "Starlight Elderly Home", mutual assistance Happiness Home, rural home-based elderly care service center, rural elderly activity room, mutual assistance happiness Home and medical and elderly care integrated day care center. [10] Rural elderly care facilities are showing a development trend dominated by "government-private" and "funded - self-initiated" (Table 2).

Table 2: The current Development status, nature and target groups of rural elderly care service facilities in China

Facility type	Development situation	Nature	Object
Nursing home	Founded in 1956 - it grew rapidly during the People's Commune period - it declined rapidly during the disaster and Cultural Revolution periods - and then steadily recovered and became standardized	Collective/state-funded welfare-oriented institutional elderly care	Five-guaranteed households (a small number of elderly people from society can be accepted later)
Rural "Starlight Elderly Home"	Initiated in 2001 - covered in 2010 - declined and sought a sustainable development path	State-funded welfare-oriented community/home-based elderly care	All the elderly (whose physical conditions permit
Rural Mutual Aid Happiness Home	It emerged in 2008 and was promoted in some regions	Community-based mutual assistance institutional elderly care mainly formed independently	All the elderly (whose physical conditions permit)
Rural home-based elderly care service center	In 2008, the state proposed	Community/home-based elderly care promoted by the government	All the elderly (whose physical conditions permit)
Rural elderly activity room	Long-term existence, independent transformation or standardization	Mutual assistance institutions/community elderly care independently formed in rural areas	All the elderly (whose physical conditions permit)
Rural medical and elderly care integrated day care center	Embryonic stage	Medical and elderly care integrated institutions/community elderly care independently formed in rural areas	All the elderly

4.1.2 Policy Features: The parallel operation of "home-based", "community" and "institutional" systems

According to the "Research Report on the Development Status and Investment Prospect Forecast of China's Nursing Home Industry (2023-2030)" , it is found that the policy system issued by the state regarding rural elderly care from 2022 to 2023 mainly includes: improving the health support system for the elderly and further promoting the integration of medical care and elderly care; To enhance home and

community-based elderly care services, we should develop virtual nursing homes through intelligent terminals, smart platforms, and information systems. This approach will help advance home-based, community-based, and mutual-assistance elderly care models, as well as promote integrated medical-care senior living models. Additionally, it is essential to optimize the layout of rural elderly care facilities and, where feasible, implement centralized support for rural elderly individuals living in extreme poverty who are willing to participate. These steps will contribute to improving the rural elderly care service system. These measures reflect a further strengthening of social pension and medical security policies. They also highlight the growing synergy between rural land policies and elderly care land planning, along with the increasing involvement of professional talents in grassroots management systems. Furthermore, key developments include the promotion of smart elderly care, the standardized adoption of rural mutual-assistance models, and advocacy for active aging and greater social participation among the elderly.

Based on the understanding of the connotation of the current proposed elderly care model in our country, key words are summarized, and policy support is provided for this elderly care model from two perspectives and four aspects: economic and security policies from the provision perspective, and institutional and cultural policies from the distribution perspective (Figure 2). Taking the elderly care model proposed by the state as the guiding principle, and based on the interpretation of the mechanism principles and connotations of "home-based", "community-based" and "institutional", the elderly care security policy system should be improved from four aspects: economy, security, system and culture, to enhance the guiding and systematic nature of the policy system as the top-level design. And based on this, an overall framework for the construction of the rural elderly service system is formed to achieve the coordinated utilization of economic, service, spiritual and construction resources [9].
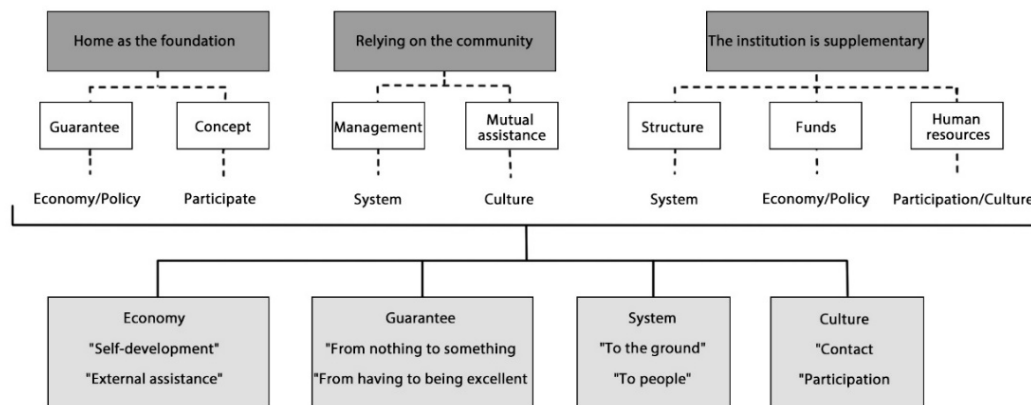

Figure 2: Pension Model and Policy Support

4.2 Meso-level: Rural elderly care service facility system

4.2.1 Composition of facility issues within the system

In recent years, research in this field has achieved fruitful results. However, if we re-examine the research trends at home and abroad from a research perspective, there are still some deficiencies in the professional field of elderly care research. These deficiencies do not stem from the achievements of previous studies, but rather need to be further supplemented and improved with the development of research. Based on previous literature, this article summarizes the problems that lead to the lack of elderly care environment and backward facilities for rural elderly people in Beijing as follows:

1) Empty-nest family structure: As rural residents go out to work, the size of rural families is gradually shrinking, leading to an increasingly serious problem of elderly people living alone.

2) Widespread intergenerational left-behind: Due to a large number of rural laborers flocking to cities, it is common in rural areas for the elderly to raise left-behind children.

3) The burden of farming exceeds the age limit: With the departure of rural labor force, elderly residents in rural areas need to be responsible for a large number of agricultural activities and engage in physical labor of varying degrees.

4) Weak rural economy: Although the economic gap between urban and rural areas has gradually narrowed in recent years, farmers' income remains relatively low and the growth rate is relatively slow.

5) Lagging elderly care facilities: Currently, the integration and construction of rural resources are

progressing slowly, the elderly care assistance system is not perfect, and the overall level of elderly care environment construction still lags behind that of cities.

4.2.2 The operation mechanism of elderly care facilities within the system

In the system of rural elderly care facility construction, the particularity of the rural environment provides "supply resource content" at the elderly care model level through economic level and security system, and distributes "service circulation channels" through political system and social culture. The elderly care model absorbs the characteristics of economic and political background to provide a framework for overall construction, and the service organization is the concretization of the elderly care model It is manifested in the specific allocation of resources, including the providers, circulation channels, and the demands of rural elderly people as the objects. Elderly facilities are the terminal of this operation mechanism and the spatial carrier operation mechanism of service organizations [9] (Figure 3).
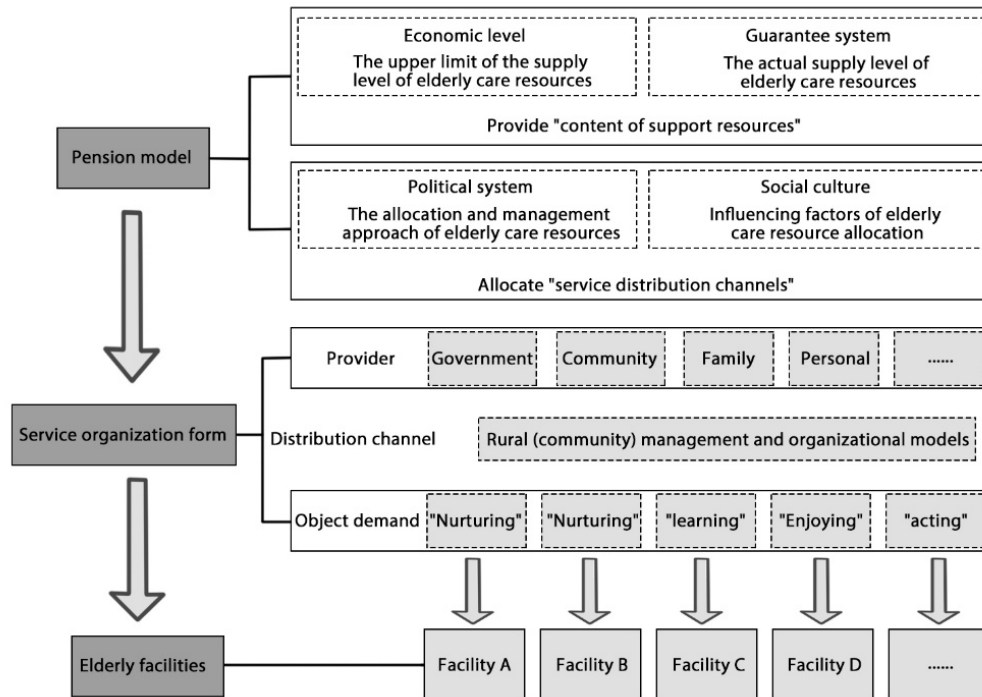

Figure 3: The operational mechanism of rural elderly construction

4.3 Micro Carriers: Design Trends of Rural Elderly Care Service Facilities

Although the current elderly-friendly renovations regarding elderly care mainly focus on economically developed first - and second-tier cities, research on the elderly care issues in rural areas is relatively scarce. With the continuous deepening of the national policies on rural elderly care, more and more scholars are paying attention to rural elderly care issues. Rural elderly care service facilities are showing the following trends:

4.3.1 Elderly Care Demand: Rationalization of facility configuration

When configuring facilities, taking into account the elderly's care needs is conducive to their self-regulation and personal management, and can stimulate their initiative. Based on "Zhang Ziqi - Construction of Elderly Service System in Rural Communities of Northern Zhejiang Based on Resources and Demands" (Figure 4), the author has sorted out the detailed types and demand modules of medium and high-level rural elderly people. According to the degree of disability, the elderly are divided into "active type" and "protective type". According to the needs of the elderly, it is divided into six modules: "Home visit service", "Medical service", "economic service", "Entertainment service", "dignity realization" and "Education service". At the same time, the demand types are scored respectively according to the corresponding values of 1 to 5: "extremely needed", "needed", "not necessary", "extremely not needed". That is, the smaller the demand score, the higher the demand of the object for this service. The greater the dispersion, the greater the disagreement within the object group on this project. It can be seen that both "active" elderly people and "protective" elderly people have a high

demand for the "economic service" module, indicating that the improvement of the quality of elderly care services in rural areas is highly related to economic security. From the service modules that meet the respective needs of the two types of elderly people, it can be seen that the "active" elderly tend to prefer the extended modules for their own activities, while the "protective" elderly tend to prefer the "care" and "medical" modules that require assistance. This is inseparable from their physical conditions. Therefore, facilities should be configured based on the elderly's care needs. It can prevent situations such as low utilization rate, idleness and waste of elderly care facilities.
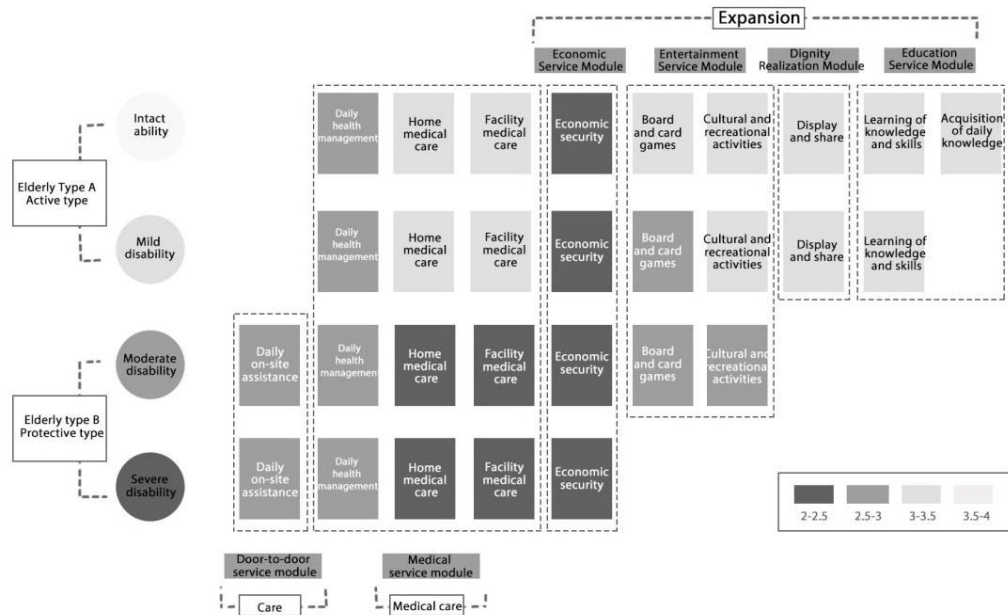

Figure 4: The detailed types and demand modules of elderly people in high-rise rural areas

4.3.2 Resource Integration: Maximizing the utilization of facilities

Based on the potential possibilities of the existing resources in rural areas, and in response to issues such as the elderly engaged in farming, empty-nest living, and the left-behind of grandparents, resource integration should be carried out to stimulate the elderly service functions and facilities within the rural areas, with self-owned homes/elderly housing as the center. Home service stations (small-scale multi-functional residential care), primary medical facilities (including village doctors, clinics, regional hospitals and pharmacies, etc.), entertainment and communication venues and other places that provide elderly care services form an integrated multi-faceted service supply of "medical care, elderly care, assistance and entertainment". At the same time, it is essential to mobilize the power of the elderly themselves (self-help), the community (mutual assistance), society (co-assistance), and the government (public assistance), thereby integrating these multiple actors into a unified "four-assistance" service supply model[10]. It is possible to maximize the utilization of facilities and thereby propose a configuration model of rural elderly care service facilities that suits local conditions. Overall, this home-based elderly care system formed by integrating existing rural resources reflects the Chinese people's emphasis on their families and the familiar community around them.

4.3.3 Smart Elderly Care: Intelligent Application of Facilities

1) GPS device monitoring

GPS devices can be used to monitor the travel and elderly care behaviors of the elderly in rural areas. GPS wristwatch devices can comprehensively and in real time obtain the daily life behavior trajectories of the elderly. Through big data storage and transmission to the database, the complete elderly care behavior data within the range is ultimately obtained. By using data software to analyze and organize, and combining time and location data, a model of elderly care behavior for the elderly can be established, which can provide a basis for the adaptation of elderly care facilities in rural areas.

2) Indoor wireless sensing device

Utilize the various sensing functions of wireless environmental sensing devices, such as displacement, temperature, humidity, sound, etc. The data collected through these various types of smart tags will be used for unified cloud analysis and decision-making, accurately determining the activities of the elderly

and providing corresponding prompts to the elderly or their caregivers [13]. For instance, by sensing that the bedroom light switch is touched at 6:30 in the morning, the bathroom door is opened, and the refrigerator door is opened or closed, the system can infer that the elderly person gets up at 6:30, washes up and then has breakfast. If the elderly person needs to take the necessary medicine after getting up, the system can send a warning instruction to the smart label bound to the medicine bottle to prompt the elderly person to take the medicine after determining that they have gotten up. All these analyses and decisions are accomplished through an intelligent cloud-based decision-making system. By using wireless environmental perception devices, it is also possible to intelligently determine irregular activity situations and send messages and alerts to the relatives of the elderly. For instance, if an elderly person turns on the bedroom light at 2:00 and enters the bathroom, but the bedroom light remains on within 30 minutes, this situation is considered irregular activity. The elderly person might have fallen in the bathroom. The system will send all the activity details and alerts of the elderly person to their relatives.

5. Conclusion

The model of rural elderly care service facilities in our country has accumulated rich experience in its development process. At the policy level, China has introduced a number of policies and regulations to guide the gradual diversification of rural elderly care facilities and provide legal and economic guarantees. At the systemic level, we should explore effective ways to coordinate resources relevant to rural elderly care service facilities, thereby enhancing their overall structure and operational mechanisms. At the facility level, elderly care service facilities have shown a design trend of rationalized facility configuration, maximized facility utilization, and intelligent facility application, creating a positive rural elderly care environment. In Beijing, rural elderly care service facilities should, based on the actual conditions of the countryside, gradually improve the functional space, external environment and elderly-friendly design of rural elderly care facilities, and propose a scientific model for the construction of elderly care facilities in rural areas. This will provide scientific methods and effective references for the construction of elderly care environments in rural areas in Beijing, thereby better promoting the all-round development of elderly care in rural areas of our country.

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