Current Situation and Evaluation of Smart Senior Care in Jiaxing City, China

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Abstract: With the deepening population ageing, the aging problem is becoming more prominent in various countries. Traditional ways of ageing cannot meet the needs of modern ageing, and in the context of "Internet+" and big data, research on "smart senior care" is becoming increasingly urgent. All nations now agree that information technology may help with traditional ageing. This paper takes Jiaxing city as an example, discusses the current aging situation in the city and the development status of smart senior care, draws on some means of foreign smart senior care, and proposes suggestions. At present, the ageing problem in Jiaxing is very prominent, with a large and fast-growing elderly population and the accelerated development of advanced ageing, smaller families, and empty nesting. Based on the characteristics of Jiaxing city and considering foreign models of smart senior care, this paper proposes three development suggestions: optimise the ageing model, improve the professionalism of service providers, and appeal to the government.

Keywords: ageing problem, smart senior care, Jiaxing city

1. Introduction

The world's population is aging, and it is estimated that one in every six individuals will be 65 or older (16%) by 2050 [1]. On January 12, the United Nations released the World Social Report 2023, indicating that the number of people aged 65 and over is likely to more than quadruple by mid-century and that older people's rights and well-being must be prioritised in order to achieve a sustainable future. China has entered an ageing society ahead of schedule before it has even modernised. The number of poor elderly people, empty nesters, elderly people without a family, disabled people and elderly people with disabilities is growing rapidly and on a huge scale [2]. According to Liu and Han, the quick and sophisticated growth of cities has resulted in several unresolved difficulties, particularly population aging, and thus issues related to ageing have garnered extensive attention from all walks of life [3]. China's ageing population has reached record proportions since the twenty-first century, with the proportion of persons aged 60 and up predicted to reach 34.9% by 2050. This puts the country's healthcare, social security, and economy at risk [4]. Compared to developed countries, China is characterised by a large ageing population base and a rapid growth rate, making the situation for the elderly more severe and the problems faced more complex [5].

Foreign-developed countries are the first to face the dilemma of population ageing, so their corresponding policies and specific measures are relatively well-developed [6]. They have taken the lead in researching innovative technology to aid conventional aging, such as "smart senior care." The

United Kingdom was the first country to introduce the concept of "smart senior care," which refers to the use of advanced Internet, cloud computing, wearable, and other new generation information technology tools to construct an Internet of Things system and information platform for family ageing, community ageing, and institutional ageing, integrating the resources of government, society, and community families to provide more convenient, efficient, and flexible public management.

In general, market-oriented smart elder care operations in industrialised nations have distinct characteristics and a high degree of commercialisation. However, China's smart senior care model is still in its infancy and can only be considered just starting. Many problems need to be solved urgently and improved continuously. This study takes Jiaxing City as an example, integrating relevant theoretical knowledge, comparing the existing development of smart senior care models in Jiaxing City, analysing the current ageing situation and the development of smart senior care in Jiaxing City, and making recommendations for the development of smart senior care in Jiaxing City. It also looks towards developing a smart senior care model with local adaptability that could work in Jiaxing.

2. Background

Jiaxing is located in the northern part of Zhejiang Province, an important central city in the Yangtze River Delta region. In September 2022, the "Shanghai Metropolitan Area Spatial Synergy Plan" was released, including Jiaxing in the "1+8" synergy development plan [7]. Jiaxing is also the "first stop" of the G60 Science and Innovation Corridor of the Yangtze River Delta from Shanghai into Zhejiang, and is located on the southward expansion zone of the Hongqiao International Open Hub, and is the "core inner circle" city of the Shanghai metropolitan area. According to the policies set forth by Zhejiang Province to promote future communities throughout the region, Jiaxing City is encouraging the development of new communities in a high-quality way. The senior case is an early and pilot grassroots "experimental zone" in Zhejiang to attain commonwealth.

Jiaxing is one of the earliest regions in terms of population age structure to enter an older population and has one of the highest levels of population ageing in the country, having entered an ageing society 13 years ahead of the country in 1987 [8]. In 2022, Jiaxing ranked second in the province regarding the degree of ageing. The ageing of Jiaxing is characterised by a large elderly population, a rapid growth rate, the accelerated development of advanced ageing, household miniaturisation and empty nesting, among which the ageing of Jiaxing's local household population is particularly prominent. As the ageing of Jiaxing's population further increases, the demand for elderly and medical services for the elderly population could continue to grow and the supply capacity could face challenges.

3. Jiaxing Smart Senior Care Model and Shortcomings

Through the research and analysis of the existing smart senior care measures, Jiaxing City's smart senior care, in home, community, institutional and other areas have been used and developed, this paper concludes that there are mainly three models: home, community and institutional smart senior care.

3.1. Home Smart Senior Care

With a focus on ageing in place, it is designed to serve older people living at home, whether elderly or not, by building intelligent and efficient home facilities based on the homes of older people, using intelligent devices.

"One-button Pass" is a long-standing service for the elderly in Jiaxing urban area. It is a mobile phone with three functions: daily communication, emergency help (SOS) and accurate positioning. It is installed and used free of charge for the lonely elderly, the elderly living alone, the elderly, the

empty-nesters and the elderly with special difficulties in Nanhu District, which means the ancestor of intelligent devices and the star of home smart senior care. Home smart senior care equipment, such as smart bracelet and infrared sensor, has become increasingly diversified. For example, a variety of home smart senior care devices will be installed to ensure the safety of the elderly at home.

3.2. Community Smart Senior Care

As of this year, the Jiaxing urban region has essentially reached complete coverage of senior home care facilities in both urban and rural areas. Each region's home care facilities are designed to fulfill the roles of senior community daycare, senior meal assistance, and medical care. The facilities offer various services to the elderly in the neighborhood, such as nursery, meal assistance, medical attention, rehabilitation, recreation, and sports. This is a crucial sign for developing the future community.

3.3. Institutional Smart Senior Care

The first public-private partnership (PPP) project for the elderly at the Jiaxing city level was officially opened in 2022, marking the beginning of a new phase in the construction of the Jiaxing. This new senior care complex not only promotes the concept of medical integration and digital smart, but also effectively relieves the pressure on senior care services in the city.

3.4. Problems of Smart Senior Care

The Jiaxing Municipal Party Committee and the municipal government have placed a high value on the elderly in recent years, and have included elderly services in the government's practical matters of people's livelihood for ten years, vigorously promoting the development of senior care and achieving good results, but there are still many contradictions, problems, and gaps.

3.4.1. Lack of Self-awareness

Chinese elderly people are more likely to live with their children after retirement and opt to help them with their children in order to lessen the burden on their children's families, neglecting themselves due to the traditional concept of "children around the knee" and the country's rapid economic development.

Additionally, young people are unconcerned with the growth of the senior care industry, there is little initiative to enter the senior care industry, and there is insufficient effective demand in the senior care service market compared to the "young child economy," which includes menstruation clinics, nurseries, and kindergartens.

The awareness of and participation in smart senior care among the elderly population is low. Most elderly people are not clear about government policies on smart senior care; some even say they have not heard of or paid attention to smart senior care, and there is a lack of publicity about smart senior care at the government level.

3.4.2. Lack of Planning for Smart Senior Care Systems

Jiaxing's senior care system is still being explored and constantly built to perfection, and in this process, smart senior care is on the agenda as a future development trend and an innovative "performance" project in use at this stage. However, smart senior care has not been taken as a systematic work to plan and operate, but only as a highlight and innovative work of the elderly. Recently, Xinjia Street in Jiaxing Nanhu District won the national pilot project of smart senior care, but the layout of the rural senior care service facilities is not in place and is unreasonable, making it difficult to form effective coverage and limiting the development of rural senior care services, which

has a large gap with urban senior care.

In Jiaxing, more workers who provide senior care services currently have not completed professional training. Additionally, schools and universities have less relevant majors set up, people generally do not grasp their professionalism, and there are fewer students, all of which contribute to a talent shortage and lower the quality of aged care services. Although Jiaxing has been introducing talents recently, and the Yangtze River Delta region is home to a concentration of talent, there are still not enough highly skilled individuals working in medicine, mental health, and other related fields. This is especially true given the need to pay attention to the spiritual needs of the elderly. Furthermore, current compensation levels in the elderly service industry are generally not high, the average practitioner's economic income is low, and there are limited career prospects and inadequate social recognition of elderly service industry practitioners. Without a stable staff, increasing the industry's professionalism and professionalism is impossible, limiting the industry's scale.

At present, the applicability of Jiaxing's smart senior care platform is poor, and the design of some so-called smart senior care products does not consider the needs and living habits of the elderly. The learning and accepting ability of the elderly is relatively low, and when the products are in the hands of the elderly, it is very complicated for them to learn, and the operation of some of the smart senior care platforms and products is very cumbersome, resulting in the elderly being intimidated by the use of the products. Instead, they are reluctant to use these smart terminals.

3.4.3. Lack of Government and Social Attention and Support

In terms of industrial development, "elderly services" is a new dawn sector, but it is also a slow one, still in the "big investment, long cycle, less profit, strong public welfare" stage, which has a direct impact on the enthusiasm of social forces to participate. Although Jiaxing has already cooperated with related enterprises, the cooperation is currently between a small number of enterprises and the government, and private enterprises, such as social forces, are not very active because they do not see obvious profit prospects.

4. Suggestions for the Development of Smart Senior Care in Jiaxing

4.1. Foreign Models of Smart Senior Care

Although foreign countries have entered the ageing stage earlier, the process is decades or even a century-long, and most of them are already developed societies with sufficient financial resources to solve the problem of senior care. There have been great breakthroughs in the senior care model in foreign countries, especially those with advanced economies. Singapore, for example, has introduced the "Ageing in Place" scheme. In the UK, community care is the most suitable model for the elderly. Germany has adopted "mutual help", where elderly people prefer to live in partnership and help each other to save money, get rid of loneliness, and live happily, freely and independently. Japan, South Korea and the United States of America have adopted the "migratory bird" model. In the United States, where the economy is highly developed, there is also "ageing in a different place". In summary, Western countries have adopted their wise aging models to suit their national and cultural characteristics (Table 1) [9-10].

4.2. Jiaxing Smart Senior Care Development Suggestions

4.2.1. Optimize Pension Model

(1) Improving and standardising Jiaxing's smart senior care system and model
    Foreign nations concentrate their system-building studies on the creation of rules and regulations

and the management of geriatric resources; China attaches more importance to top-level design. The construction of the elderly system is a process of continuous exploration and improvement. Jiaxing can also learn from foreign experience and establish various service centres, such as resource management and information service centres, to integrate resources and optimize allocation. At the same time, the government should actively introduce various laws and regulations on senior care services and monitoring and evaluation mechanisms, unify the standards of senior care services, and continuously improve the top-level design to ensure the stable development of smart senior care [11].

Second, the study proposes a peer-to-peer and region-to-region community campaign to raise elderly participation and awareness in smart senior care and teaches them how to make their lives more convenient using platforms or electronic devices, considering their awareness and the current model of ageing abroad.

(2) Enhancing research into smart home products

Smart senior care is mostly dependent on smart houses and technology. Both domestic and international nations emphasize research on geriatric health monitoring systems when it comes to platform design and system development for smart home products. Most platforms in China are created as informational resources for the elderly. Here, we can take inspiration from other countries' "online marketplaces" to better match service requests with carer information and develop the platform's service capabilities. The research of smart home products is a major shortcoming in China. In the future, the state and the government should increase their support for this research area and, while drawing on advanced technology from abroad, introduce various preferential policies to encourage institutions or individuals to strengthen their research on wireless sensor alarm devices, telemedicine equipment and elderly robots.

Table 1: Smart senior care systems in typical western countries.

Country	Smart senior care system or model	
America	community elder security	For home-bound older people in need, a fleet of medical services for the elderly (Mobile Medical Network) has been established to offer a range of services, including home medical care and home management services by minibus. The elderly can communicate and consult with their doctor or health manager remotely through the network, reducing the inconvenience of going out to see a doctor.
England	community elder security	The UK government has started a programme dubbed "Smart Health" with the goal of utilising new and developing technology to raise the standard and lower the cost of healthcare. The main technological tools used to establish smart care centres in the community include digital health, telehealth, and mobile health.
Germany	Mutual support for the aged	A research programme has been set up for the Ambient Assisted Living system AAL, i.e. a scalable and intelligent technology platform to which various intelligent instruments can be connected, enabling them to analyze and react promptly to the physical state of older people and their living environment.

Table 1: (continued).

Japan	Diversified combination of medical and nursing care based on home	Community-based home care = long term care + day care + home care. Many intelligent technology products for the elderly have been developed. The Japanese government and companies have collaborated to research and develop robotics and used their robotics strengths to develop caregiving and assisted living robots.
Singapore	Family pension model	"Three generations in one house" strategy of "warmth." Singapore's government promotes "aging in place," and has gradually built a government-led, institutionalized, socially involved, and home-based model of ageing in place. The Age of Happiness flat is Singapore's primary ageing model and the foundation of the country's ageing system.

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(3) Vigorously develop the elderly services industry and enhance marketization

Establishing a chain of smart senior care providers, encouraging the expansion of the "silver hair economy," and encouraging new growth areas in long-term care, education and training, culture and entertainment, travel and health care, finance and insurance, and age-appropriate renovation. Encourage all forms of social capital to invest in the aged service sector, encourage social forces to actively participate in this sector, and establish ageing institutions and rehabilitation and care facilities

for people from various socioeconomic backgrounds. It is suggested to implement the national special action of linking urban companies to provide inclusive senior care, and assist more businesses in offering these services at prices most elderly people can afford. Additionally, promote the growth of the Smart Senior Care Industrial Park, which can cluster and interact with different types of enterprises upstream and downstream of smart senior care, promote the generation of a smart senior care industrial chain, boost industrial development, and effectively enhance marketization.

4.3.2. Improving the Professionalism of Service Providers

Professional composite talents might be trained in regional or local units. Communities can organise and invite experts and academics to conduct relevant professional skills training, such as professional nursing training and training on the maintenance of intelligent platforms, or communities can regularly choose relevant professionals to participate in professional training provided by higher-level organisations. This could allow more professionals to better adapt to the relevant jobs, improve their professional skills, and strengthen their professional ethics and professionalism, maximising their integration into the cause of smart senior care and fostering a professional team.

4.3.3. Appeal to the Government

The government is the policy maker and top-level designer, and the construction of smart senior care models requires top-level setting and policy support from the government. The Jiaxing government must do a fantastic job of coordinated planning and implementation for system development and system management. It must also establish favourable legal and policy conditions for the healthy growth of smart senior care. The legal system should serve as the first indicator to ensure that the operation process has norms to follow, and it should also create a favourable legal and policy climate for the healthy development of smart elder care. In addition, policy support should be strengthened to increase other relevant support policies for enterprises, individuals or non-profit organisations involved in smart senior care, and to provide tax relief, credit concessions, government subsidies and other policy care to actively encourage and guide social resources to enter the ageing industry.

5. Conclusion

In the face of the reality of a moderately ageing society with "advanced ageing + empty nesting", the current situation where ageing is increasing year by year, advanced ageing is obviously accelerating and empty-nesting families are gradually growing, Jiaxing has made many efforts in recent years to explore the smart senior care. This paper summarises the three current models of senior care in Jiaxing: home, community and institutional smart senior care. Home smart senior care is based on the traditional family-based aged care model and makes use of the Internet of Things and Internet platform to provide systematic and comprehensive health monitoring of the elderly's daily activities, resulting in more immediate, secure, and practical senior services. In that it is built on the house, the community, the institution as a supplement, and the medical care combined with the senior service system, the community smart senior model is similar to the home smart senior model. Most institutionally sound aged care practises using the more integrated closed management nursing home model.

  The issues and drawbacks of smart senior care in Jiaxing are examined and summarised in this study from three perspectives: the concept, the existing system, and the government and society. It also recommends encouraging smart senior care development in Jiaxing from three perspectives: optimizing the ageing model, enhancing the professionalism of service providers and the government, and considering China's national conditions and Jiaxing's features.

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