



# Study on the Development Path of Smart Elderly Care in Guangxi

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DOI: 10.32629/ajn.v2i3.703

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**Abstract:** Smart elderly care refers to the provision of real-time and efficient elderly care services to the elderly based on Internet technology and intelligent equipment such as big data. In the development of traditional elderly care service, Guangxi witnessed slow development in its foundation and lags behind in infrastructure construction. Smart elderly care provides a new path for the development of Guangxi elderly care industry. This study investigated the demand of the elderly in Guangxi for elderly care services, Based on the current development of elderly care services in Guangxi, three smart elderly care paths that adapt to the development characteristics of the region is proposed: community grid management + community elder security, smart home + home care, Internet + hospital health care + home care.

**Keywords:** Guangxi, smart elderly care, elderly care service

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## 1. Introduction

In November 2021, the State Council issued the *Opinions on Strengthening Work on the Elderly in the New Era*. The *Opinions* pointed out that the national strategy of actively coping with population aging should be vigorously implemented to promote the coordinated development of elderly care services, health services, social security, social participation, rights and interests protection, and promote the high-quality development of the cause of aging. We will blaze a path of actively responding to population aging with Chinese characteristics. To continue to promote the development of smart elderly care industry, coordinate and promote the in-depth application of artificial intelligence, Internet of Things, cloud computing, big data and other new-generation information technology and intelligent hardware products in elderly care services, and develop "Internet + care services". According to the data of the seventh national census of Guangxi in 2020, the population aged 60 and above in Guangxi was 8.3638 million in 2020, accounting for 16.69% of the total population, among which the population aged 65 and above was 6.1141 million, accounting for 12.20%. The aging of population in Guangxi is mainly reflected in the large number of elderly people and the accelerated aging process. At the same time, compared with the national average, the aging degree of Guangxi is relatively light. The proportion of population aged 60 and above is 2 percentage points lower than the national average, and the aging degree ranks the 22nd in China.

Guangxi witnessed aging of its population in 1996, which is one of the earliest provinces in China, but the aging speed is relatively gentle compared with the eastern and central regions. But we also see that there is a large base of elderly population in Guangxi, there is a huge demand for old-age services. The development of traditional elderly care service in Guangxi has a weak foundation and lags behind. The smart elderly care provides a new path for the development of the elderly care industry in Guangxi.

## 2. Literature review

There are abundant theoretical research and practical experience in the developed countries. In the UK, a welfare state, the smart elderly care model is used to improve the level and efficiency of medical and nursing services and create digital + remote + mobile medical solutions to meet the medical needs of the elderly through the application of Internet and wearable smart devices and other information and intelligent means. Germany's Smart elderly care focuses on the development of intelligent service platform and service robot. As a country with a higher degree of aging in Asia, Japan is more advanced in the exploration of smart elderly care. The development of smart elderly care industry pays more attention to humanistic care and taps the market in the fields of medical treatment, nursing and smart elderly care products for aging.

The practice of intelligent elderly care in different regions of China is explored and the experience model is summarized. The working mode of "smart community + Elderly Service Station" explored and practiced in Beijing takes root in the community. Through the operation of smart community platform, smart call facilities are matched to households to achieve seamless connection between the elderly service areas, full coverage of service groups, and play the functions

of precise assistance and referral services. Zhejiang's path of Internet + old-age care has derived: Shaoxing's "standardized and full coverage" smart home old-age care service emphasizes the unification of top-level system design, standardization of various management and comprehensive old-age care service, which is known as the "Shaoxing model" by scholars. In Wuzhen's 1+2+1 mode, the first "1" stands for big data platform, "2" stands for routine services and customized services, and the last "1" stands for comprehensive management platform.

### 3. The current situation of old-age services in Guangxi

As a western province, The overall economic strength of Guangxi is relatively weak compared with the central and eastern regions. In 2020, the per capita GDP of Guangxi is 44,309 yuan, while that of Jiangsu is 121,231 yuan, one third of that of Jiangsu. From the national point of view, Guangxi entered the aging earlier, the elderly population base is large, the economy is relatively backward, so Guangxi is characterized with "aging before getting rich " and it takes a dominant position. Compared with other regions, most of the elderly in Guangxi are more inclined to family elderly care. According to the sample survey data of 1% of the population in Guangxi in 2015, 52.4% of the elderly aged 60 and above in Guangxi are mainly supported by family members.

Traditional family endowment is difficult to meet the needs of the elderly due to its low level of existence, unguaranteed quality of life for the elderly and large burden on family members. There is still a big gap in the government's financial investment in institutional elderly care. In 2017, Guangxi had 25 beds for every 1,000 elderly people, equivalent to 81% of the national average. In 2018, there were 39.3 beds per 1,000 elderly people in Jiangsu and 41.6 beds in Beijing, 1.6 to 1.7 times that in Guangxi (Wei Yuhong, 2019). The development of elderly care institutions in Guangxi also lags behind the eastern regions. In terms of the application of PPP projects in cooperation between the government and social capital, as of November 2021, there are 100 elderly care projects in the project management database of the national PPP comprehensive information platform, only 2 in Guangxi, and 16 in Shandong, which ranks first, with a large gap.

There are 60 medical and nursing institutions with complete certificates in Guangxi, Sixty-five percent of these institutions are able to provide medical and health services to the elderly in different forms, 91.2 percent of medical institutions have opened green channels for the elderly to provide convenient services such as registered medical treatment. Geriatrics departments have been set up in 41.9 percent of secondary and higher general hospitals, and about 70 percent of the elderly are under health management. The rapid development of aging population has brought great pressure to social security, old-age care, old-age care, old-age livable environment construction, etc. There is a big gap between the supply and demand of old-age care in Guangxi, so it is urgent to explore a new old-age plan suitable for the level of economic and social development in Guangxi.

Among the elderly people investigated in this topic, they mainly take care of themselves at home, with 45.9% of them being a husband and wife, 10% of them living alone, 32.6% of them living with their children, and only 2.5% of them taking care of themselves in elderly care institutions. Thus, home care is still the most suitable way for the elderly in China. In these survey objects, only 57% of the elderly have received direct elderly service, 43% of the elderly said that they have not enjoyed direct elderly service.

Among those who have received old-age services, 16% of the elderly have received old-age services provided by national community service centers, 13% have received volunteer services, and 10.5% have received old-age services provided by nursing homes. The elderly who have received direct elderly care service in Guangxi mainly receive related services provided by the government. The proportion of the elderly who have not received services is 40%, indicating that in the process of comprehensively promoting the construction of an age-appropriate society, many old-age services for the elderly in Guangxi have not been fully popularized, which is still far from ensuring that everyone can enjoy basic old-age services by 2022.

The research group has found that most of the elderly suffer from different degrees of disease in the investigation of the physical health of the elderly. 16.1% of the elderly suffer from hypertension, 13% suffer from osteoporosis, 12.2% suffer from cardiovascular and cerebrovascular diseases, and 13% suffer from osteoporosis. The elderly also suffer from diabetes, chronic gastrointestinal diseases, rheumatoid arthritis, eye diseases and tumors. Only 14.1% of the elderly said they did not have the disease. As a result, 33.5 per cent of older persons have urgent health needs.

9.6% of the elderly said they were in poor physical condition and could not take care of themselves and needed to be taken care of by others, while 16.3% said they were in general physical condition (partially unable to take care of themselves) and needed to be taken care of by others. 48.1% of the elderly said they were in good health and able to live on their own and generally did not need other people to take care of them. 25.9 percent said they were in good health and able to take care of others. In the daily life of the demand side, there are 18% of older people said need about health care

related services, with 15.2% of elderly people want to get the service in terms of physical exercise, 12.9% of the elderly need housekeeping service life care services, 12.3% of elderly people want to be able to get emergency rescue service when an accident, Another 10.1% said they need to participate in social activities and hope to provide related services.

In terms of the services provided by elderly care institutions, 62.7% of the elderly pay special attention to medical conditions, 12.1% to accommodation conditions, 14.1% to service quality, and 5.7% to spare time living arrangement in elderly care institutions. 5.2% of the elderly pay more attention to the diet conditions in elderly care institutions.

As for the future development of smart elderly care, 30.9% of the elderly people surveyed in this survey hope to provide intelligent service platform related to elderly care, and 23.5% hope to provide telemedicine services to solve their medical needs. Twenty percent of the elderly hope to have smart home products more suitable for the elderly, and 14.8 percent are willing to accept smart wearable devices for the elderly. At present, with the rapid development of science and technology, young people's life is becoming more and more convenient and their quality of life continues to improve, while the elderly are "shielded" from the rapid update of science and technology. Nowadays, intelligent products such as mobile payment and travel health code make the life of the elderly unable to be as convenient as before.

Intelligent era should cover each person. In the face of the elderly's demand for elderly care services, we should apply the new generation of information technology and intelligent hardware such as artificial intelligence, Internet of Things, cloud computing and big data to elderly care services. Home-based care services should be improved to meet the needs of the elderly for diversified and multi-level care services

## **4. Exploration of smart elderly care path mode exploration in Guangxi**

At present, great adjustments have taken place in the social life patterns of the Chinese people. On the one hand, people's life and environment are undergoing tremendous changes. Both institutional design and social governance, as well as the development of time and space dimensions that can be provided to people in real life, are fundamentally different from the past. On the other hand, in terms of the life and mental state of the elderly, with the deepening of the reform and opening up, people's lifestyle, quality of life and value pursuit have become increasingly diversified and updated, and people's requirements for material and spiritual life are also constantly improving. This reflects not only the progress of China's current social life, but also the prosperity and maturity of China's social ecology.

At the time of great material abundance, spiritual culture has also entered a golden age of development, and people's primary need for material wealth has turned to the higher need for spiritual culture. This is necessity of social development. According to The ERG needs theory of Adelfer, when people's survival needs respect for interpersonal relationship needs and the need for self-realization are simultaneously produced, according to the desire reinforcement law of ERG theory, when the material needs of survival are satisfied, the higher needs of respect for interpersonal relationship and self-realization will be strengthened.

The needs of interpersonal relationship, respect and self-realization are often carried by spiritual culture in human society. Technological innovation has broken the restrictions of time and space. With the advent of the Internet era, cultural exchange has become a normal part of life. The changes in the lifestyles of the elderly and the development of new technologies such as the Internet and artificial intelligence have given the elderly more modes to choose.

### **4.1 Community grid management + community endowment**

As the construction of elderly care institutions in Guangxi lags behind the economically developed areas in the early stage, the elderly care mode of the elderly is mainly based on home care. Home care services are closely related to community services. At present, most community services for the elderly are in the business of community services, which are carried out regularly or irregularly by community workers. On the basis of the existing community service system and management network, optimizing the community service mode, relying on the community grid management, establishing the information-based community elderly care service platform can be regarded as an optimal method to improve the quality of community elderly care service at home.

In 2015, in accordance with the requirements of "grid management, information support, three-dimensional prevention and control, and convenient services", Guangxi improved the grass-root comprehensive service management platform, accelerated the construction of urban and rural comprehensive grid, and the construction coverage rate of comprehensive control centers reached 98%. The coverage rate of grid management reached 69.75%. Grid management is a refinement of social governance. Management units are subdivided into each grid. Grid members are mostly acquaintances in the grid community.

## 4.2 Smart home + home care

With the application of science and technology in people's life, more and more smart home devices have been developed, such as smart mattresses that can detect sleep quality, electronic bracelets that can detect pulse data, etc. These smart devices are more and more widely used.

These intelligent products constantly collect relevant data of users, but the data is scattered in the data center of their own products. They only use the data to optimize customer experience and product upgrading, and these data are of great significance to timely grasp and understand the health status of the elderly. Intelligent household equipment can be used to create comfortable old elderly care environment that occupy the home, government is required to review the corresponding optimal old smart products. Taking smart home endowment of whole house home installation as an examples, the sample model can be used to the entire old people, provide the reference on the improvement of the optimal aging household environment.

Related intelligent home equipment. On the one hand, the smart elderly care system should be used in an open manner to share the data related to smart elderly care among service providers based on the security level of information to break the information island, enrich and improve the information data of the elderly, improve the background database, speed up the establishment of a unified platform for the development of public service data, and enhance the pertinence and accuracy of services. On the other hand, credit management should be implemented to ensure the information security of the elderly.

## 4.3 Internet + hospital medical care + home care

In response to the national exploration of the mode of combining medical care and elderly care, the PPP project between the government and social forces is operated with the support of Internet technology to establish a new mode of nursing care, which includes hospital medical care and home care. Fully excavate the medical resources of basic hospitals, and provide elderly medical care services for the elderly by basic hospitals, so as to guarantee the elderly's medical treatment and the treatment and monitoring of long-term chronic diseases. Using the Internet to perfect the function of a key calling device of intelligent system, the disability, half the disability elderly care elderly care service, such as older people intelligent monitoring equipment, installation and arrangement in guardianship hospital nurses provide regular health checks, if there is a sudden illness one-click calling device can directly call an ambulance and export related medical data of the elderly.

Tertiary medical institutions and relevant medical colleges relying on the advantages of medical technology resources give full play to their competitive advantages in medical rehabilitation, daily health care, emergency rescue and scientific research and cooperate with enterprises to achieve the integration of industry, education and research. And through the integration of institutions and enterprises such as old-age health care, old-age necessities (production), nursing personnel training and practical training (learning), geriatric diseases medical research (research), to achieve the combination of medical care, production, education and research, in order to improve the enterprise chain efficiency of old-age care industry.

## Acknowledgments

This paper is a phased achievement of the Research on the Development Path of Smart Elderly Care in Guangxi (2020KY54003) (2020), which is a project to improve the scientific research basic ability of young and middle-aged teachers in Guangxi colleges and universities.

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