

# *Research on Harbin Smart Community-based Elderly Care Services*

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**Abstract:** Due to the rapid development of the aging population in Chinese society, the traditional service model of relying on the family as the unit of elderly care is currently unable to adapt to the needs of society. Therefore, the government proposes to activate the role of community-based organizations in elderly care services, and to provide intelligent social elderly care on a community basis and in conjunction with artificial intelligence platforms such as computers. The population aging situation in Northeast China is higher than the average level of population aging in China, and the penetration rate of computing and the Internet, such as artificial intelligence, is lower than that in other regions. Therefore, by means of the literature review and theoretical analysis, this paper chooses Harbin (Heilongjiang) as the research object, and mainly discusses the popularization of the intelligent community-based home elderly care service, as well as the solutions. The policy needs to popularize and train the service object in terms of technology in the process of implementation, so as to improve the degree of acceptance. In addition, the government needs to pay attention to the protection of information when popularizing intelligent community-based elderly care services to prevent problems such as information leakage that jeopardize the safety of the lives and property of elderly groups.

**Keywords:** community, elderly care, aging population, smart community-based elderly care

## 1. Introduction

With the increase in the ageing population and the gradual decline in the number of newborns, China is now fully entering an ageing society. According to data from the seventh population census, the number of elderly people in the country, especially those aged 60 and over, is about 264 million, accounting for 18.70 per cent of the total population. Among them, the aging level in Northeast China has been higher than the national average. According to the data of Harbin Statistical Yearbook 2021, the elderly population aged 60 and above in Harbin is 2,287,600, accounting for 24.12% of the total population [1]. And under the double pressure of aging and shrinking average family size, the traditional model of relying solely on the family to provide old-age services can no longer meet the growing life, health and social needs of the elderly. The 2022 government work report proposes that efforts should be made to solve the people's livelihood issues that are of general concern to the people, and at the same time, there is a need to actively respond to the social problems of an aging population and to accelerate the construction of an elderly care service system that is coordinated with home-based community-based institutions and

that combines medical care and recreation with nursing care. Among other things, the community-based home care service is a synthesis of traditional family care and professional institutional care, which allows the elderly to enjoy a high level of senior care provided by professional institutions on the basis of not leaving the familiar family environment. In addition, the 15th Party Congress of Harbin City has also put forward the goal of creating “seven metropolises”, of which the creation of a livable city is an important part of the goal [2].

However, the ideal ageing environment for many older persons is one in which all factors are harmonized, including the natural environment, supporting facilities and community services for the elderly. Although governments at all levels, from the central government to all levels, have attached great importance to the implementation of innovations in the model of ageing at home in urban communities, there are still many problems and deficiencies in practice, which fail to satisfy the needs of the elderly in terms of their life, health and social aspects of ageing, such as mismatches between the demand for and the supply of ageing services, insufficient support facilities for ageing services, insufficient levels of intelligence, and the small number of community-based professionals. Other countries and cities have already begun to explore in the community home wisdom elderly care as early as the 1980s, so we can learn from their research and development experience, and combined with the specific realities of Harbin, to improve the level of community home wisdom elderly care services in Harbin [3]. At the same time, with the continuous development of science and technology, senior care services can make full use of the Internet and big data, and integrate advanced technology into the community home care life. This can not only provide technical support for intelligent and convenient community home care services, but also promote the upgrading of the home care industry.

This paper discusses the popularization of community-based home-based intelligent elderly care services by means of literature review and theoretical analysis, and chooses Harbin City in Heilongjiang Province as the research object to elaborate on its problems and suggestions. The increase in the proportion of the elderly population continues to increase the pressure of social security services, especially the problem of old age is becoming more and more prominent. The analysis and study of intelligent and convenient community-based home care services can help society to alleviate the many problems brought about by the aging population, and assist the government and society to solve the problem of elderly services. An in-depth and systematic study of the theory of community-based home care in Harbin is of great significance to the improvement of the theory of old-age security and the social security service system, and it can also provide theoretical support and a basis for the development of community-based home care in Harbin and even in other urban areas of China in the future.

## **2. The Current Situation of Harbin's Community Home-based Intelligent Elderly Care**

According to Harbin Statistical Yearbook 2021, the elderly population aged 60 and above in Harbin is 2,287,600, accounting for 24.12% of the total population. The average annual growth rate of the elderly population aged 60 and above in the past five years is about 3%, and the proportion of the elderly population aged 80 and above is very high, accounting for 11.4% of the total population. More than 95% of the elderly population choose to age in the community or at home [1]. Harbin's population has been growing negatively for four consecutive years, and the phenomena of childlessness, empty nesting and aging are more prominent, with the degree of aging higher than China's average level. The vast majority of the elderly choose to age at home in the community, so the government has also done a lot of useful exploration in improving the community home care service model, and introduced relevant policies. With the support of the government, 271 new senior care service organizations have been built in the past three years, but compared with the large elderly population, these service organizations and facilities are still far from meeting the demand

for services. At present, Harbin City, the elderly care business in accordance with the development plan formulated by the Heilongjiang Province to carry out the transformation. By the original guaranteed old-age social service system gradually turned to market-oriented old-age. Pension services also from the original single type to the socialization of comprehensive transformation. Some exploration has also been carried out in the construction of intelligent elderly service platforms. In 2017, the city's elderly service hotline "12349" was opened, and Nangang District set up the "Jialehui" service platform docked with the "120" emergency center. "service platform, Xiangfang District in 2018 using the Internet + intelligent service platform, launched the care of the empty nest elderly program, for them to install home intelligent monitoring equipment, the body of the elderly and the living conditions of real-time monitoring, to provide them with emergency rescue and life help services [4].

### **3. Problems and Causes**

#### **3.1. Low Level of Intelligence**

In 2020, the intelligent pension service industry gradually entered the maturity period after development, but the overall construction of intelligent pension facilities in Harbin City started late. The main performance is that the online service platform is used for a short time (4-5 years), the information collection equipment is in the primary stage (mainly some intelligent wearable equipment, mobile pager, GPS locator, daily health detector and some other equipment), and the degree of automation is not high (a lot of equipment needs to be manually triggered by its relevant functions). Therefore, the current smart elderly service facilities are only applicable to some of the elderly who are in good physical condition and can learn the relevant operations, while most of the elderly are unable to use the existing relevant platforms and equipment due to their low level of education or partial incapacitation [5]. Therefore, the current infrastructure construction required for smart elderly services does not meet the requirements of the elderly and elderly service personnel to use them. In addition, the platform's utilization of the data already collected on a daily basis is not particularly adequate. Existing platforms are unable to analyze the collected data in depth and provide it to the service supply side, which is not conducive to the service supply side's timely adjustment of supply services according to demand. Data such as health tests have also not yet been shared with healthcare monitoring platforms, so the efficiency of data utilization needs to be improved.

#### **3.2. Low Willingness of the Elderly to Receive Smart Elderly Services**

Smart elderly services require the use of smartphones and body-worn devices for data collection and analysis, service booking, and evaluation and feedback, which requires users to have a certain level of competence in the relevant operations. However, according to the 2021 Harbin City Statistics, the current percentage of Harbin's elderly with junior high school education or below is 66.3%. As there is a positive correlation between the literacy level of the elderly and the willingness to accept, it is difficult for the elderly with a low literacy level to use the smart elderly service platform. Although Harbin has opened the 12349 public welfare hotline to help the elderly, most of the elderly do not know the information about the smart aging service platform, and have not seen or heard the publicity content related to the smart aging service platform, so there is no opportunity to contact the smart aging platform services. In addition, based on the negative correlation between age and willingness to accept smart elderly services, the older the elderly the lower the willingness to accept [6]. However, there is a positive correlation between health condition and willingness to accept, i.e. the better the health condition, the more willing the elderly are to accept smart aging

services. In addition, the willingness of the elderly living with their children is stronger than the willingness of the elderly living alone.

### **3.3. Inadequate Supply of Elderly Services**

The growing demand for community-based home-based intelligent ageing is an important part of the people's demand for a better life. At present, more than 90% of the elderly in Harbin City choose community home care, but the number of more functional community elderly service stations is very small, far from meeting the demand. According to statistics, the proportion of elderly people over 60 years old in Harbin City who do not live with their children has reached 65%, and the issue of access to medical care is one of the common problems these elderly people encounter in their lives [4]. Elderly people suffer from a high proportion of basic diseases, and usually need common prescription drugs to govern and physical indicators to check. Most of the existing elderly care institutions cannot provide the services required for daily medical care, resulting in the need for the elderly to visit major hospitals and purchase regular medications. This is not only time-consuming and laborious for the elderly, but also raises the risk of being infected with other diseases and is a waste of medical resources. The current elderly service platform lacks a module to solve this problem.

### **3.4. Lack of Harmonized Industry Standards**

As many of the technologies have not been put into formal use, there is duplication in the construction and services provided by various elderly care institutions and uneven service quality. In terms of industrial layout, the newly built community-based senior care institutions are generally concentrated in the main urban areas, and there are large differences in the services provided by different institutions. In terms of the regulatory mechanism, there is a multi-departmental cross-functional situation in Harbin's community home-based intelligent aging, which directly leads to communication inefficiencies and other situations, and thus the overall service efficiency is not high [7]. In addition, due to the same lack of information security supervision, it is unable to satisfy the environment that needs to ensure the information security of the users of the elderly machine in the process of smart elderly service.

## **4. Suggestion**

### **4.1. Enhancing Technology Development**

The extent to which technology is utilized determines the degree of intelligence of intelligent elderly services. It is possible to draw on the experience of applying some age-friendly products from abroad and utilize the scientific research results of local research institutes to develop new products, thereby changing the situation in which existing equipment is not easily operated by the elderly. In the design of products, it is necessary to develop terminal equipment that actively captures information according to the psychological characteristics and behavioral habits of the elderly, using technologies such as the Internet of Things, voice recognition, image recognition and so on. In addition, in the development of the elderly service platform, it is necessary to avoid the problem of the elderly not being able to use it smoothly due to too many operation paths. By designing an operating system with a friendly interface, the elderly can complete the operation alone. In response to the online medical needs commonly found among the elderly, the platform can develop a medical care module, thus effectively solving the problem of the elderly's difficulty in going to the hospital to see a doctor [5]. The module can support online operation to meet the daily

medical needs of the elderly by keeping records of their case diagnosis records, routine drug purchase records, and routine examination needs.

#### **4.2. Providing Professionals Support for Intelligent Elderly Care**

The proportion of professionals in community-based elderly care facilities in Harbin is low. Mainly because the elderly service industry is generally recognized as domestic service nature of the work, and the job is not well paid. At present, this type of position can not attract relevant professionals, and can not meet the needs of the elderly in the spirit of comfort and other higher level of professional talent. In this regard, organizations need to increase their efforts to train professionals in local universities and vocational colleges, and encourage graduates to have a proper understanding of elderly services. In addition, the government can give some preferential policies to professionals, such as raising wages, improving the working environment, and giving appropriate policy preferences for promotion and continuing education, so that more talented people will be willing to devote themselves to the elderly care industry [8].

#### **4.3. Strengthening Advocacy Efforts**

There is a need to step up publicity on intelligent elderly services, for example, by organizing thematic activities for publicity on a community basis, and also by using banners, slogans, and bus bulletin boards. For some mobility problems, not often go out to walk the elderly, the community can be organized to carry out household publicity. In addition, you can also use the community's WeChat group to introduce the elderly and their families to the relevant functions of the intelligent elderly service platform, as well as to explain the use of the relevant modules. So that the elderly and their families fully understand the convenience and low cost of the smart elderly service platform, including online appointment for medical care, home care, home care and other services [9].

#### **4.4. Training Operation of the Platform**

The use of the smart elderly service platform requires the operation of intelligent terminal devices to complete the realization of telemedicine, home appointment and other services. Through a visit to the Citizen's Learning Center of Harbin College, we learned that the center has set up free training courses for the use of smart devices for the elderly, which are offered on a cyclical basis. The selection of course trainers was also based on patient and experienced professionals. The overall effect of the training is good, as shown by the fact that the elderly can master the use of smart devices. In addition, the community also makes full use of local colleges and universities or other volunteer organizations to popularize and train the elderly to use the various functional modules of the Smart Elderly Service Platform, as well as to skillfully operate smartphones [8]. Volunteers usually organize training activities centrally on a community basis, or go to households to explain and train the elderly and their families. While helping the elderly to familiarize themselves with the operation of the smart elderly service platform, the utilization rate of the smart elderly service platform can also be increased.

#### **4.5. Additional Demand for Services**

By improving the functional modules of the Smart Elderly Service Platform, the data collected or generated by the platform can be analyzed in-depth, thus tapping into the demand for elderly services for the elderly. The smart elderly service platform collects, analyzes and integrates the data and provides them to the various institutional sectors cooperating with the platform, such as

professional medical institutions, volunteer organizations, elderly care institutions, assisted living services and convenient catering, so that they can better provide services for the elderly. In addition, The data automatically uploaded through smart devices can be shared with family members and emergency centers to provide early warning of special situations where certain risk indicators exceed the normal range, which can save lives in a timely manner [10]. Therefore, it is possible to set up a module to add a request for service demand in the smart elderly service platform. Elderly people will upload personalized demands tailored to their own situation through the module of soliciting service demands, and the platform will categorize and summarize such data, thus helping to develop functions that are more in line with the actual requirements of the elderly.

## 5. Conclusion

This paper points out the future social potential of smart aging by analyzing the problems and suggestions of community-based smart aging services in Harbin. The development of the Internet and computer technology has provided a platform and direction for a new way of aging, but due to the older population's fear of new things, rejection, and low acceptance, the scope of popularization is lower than the expected goal. Meanwhile, the low level of platform intelligence and the lack of reasonable supervision standards have also added to the difficulty of promoting community-based intelligent ageing. However, the government and the community need to pay attention to the popularization and training of service recipients in the implementation process. It is also necessary to enrich the usability and functionality of the platform by continuously exploring customer needs. In addition, the government needs to pay attention to the protection of users' information when popularizing the smart community elderly care service, and further improve the market norms of the smart community elderly care service platform to ensure the rights and interests of users.

However, this article mainly analyzes the existence of the phenomenon through the perspective of theoretical analysis, and does not assess it through quantitative methods. Meanwhile the suggestions given in the article are all based on literature reading without socialization test. In the future, more information on elderly services in urban areas will be collected to test the problems of this article.

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