

Design and Optimization of Internet + Home Care Service Model

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Abstract—China's aging problem is getting more and more serious, but China's old-age resources are seriously inadequate, and the problem of imbalance between supply and demand is very serious. The traditional way of providing for the elderly has been difficult to meet the needs of the elderly for the efficiency of the elderly, the way of service, and the comprehensive pension. However, in recent years, Internet technology has been combined with China's aging problem, and "Internet +" has gradually become the main solution path and means of realization for the problem of old-age care. This article takes "Internet +" and urban community home care services as the starting point, and applies new generation information technologies such as Internet, mobile Internet, Internet of Things, big data and cloud computing to the community home care service model, enabling the informationization of families and communities. The old-age service resources are fully integrated, so that the relevant data of the elderly can be shared in real time among different providers of old-age care services, and the formation of a new type of old-age service model of "Internet + community home care" is promoted.

Keywords—Old-age pathway; "Internet+"; Smart retirement; Pension model; Pension service

I. INTRODUCTION

According to the National Bureau of Statistics, in 2016, China's population aged 60 and over was 230 million, accounting for 16.7% of the population; the population aged 65 and over was 150 million, accounting for 10.8% of the total population. The number of elderly people suffering from chronic diseases such as hypertension, diabetes and cardiovascular diseases is also increasing year by year, accounting for 123 2008 in 2008, 157 2008 in 2008, and 245 2013 in 2013. In 2015, 36.2% of empty nesters aged 65 and over in China the empty nest rate of the elderly aged 60-64 accounted for 37.6%, the empty nest rate of 55-59 years old accounted for 39.5%, and the empty nest rate of 50-54 years old accounted for 44.1%. It is expected that more than half of the elderly will become empty nesters in the next 20 years. According to the statistics of the "Fourth China Urban and Rural Elderly Living Situation Survey" released by the National Office for the Elderly, the number of disabled elderly people in China is about 40.63 million, accounting for 18.3% of the elderly population. It is predicted that by 2020, China will lose. The number of elderly people will increase to 42 million, increased to 61.68 million in 2030 and increased to 97.5 million in 2050. China's aging is increasing, but China's

old-age resources are seriously inadequate, and the problem of imbalance between supply and demand is very serious. In the era when the Internet leads the rapid development of the industry, the use of the "Internet +" spring breeze to take away the "silver crisis" has become a new measure to adapt to the times.

Xiao Yu, Sun Yue pointed out that the "Internet + pension" model has a good development prospect. At this stage, "Internet + pension" is a pension service model from concept to reality, smart devices, online platforms and software and offline services. These three major segments promote the effective matching of demand and supply of aged care services, and point out that the development and application of smart devices is difficult to cross the "silver digital divide", information security is difficult to guarantee, online platform supervision and offline service tracking are both missing, and policy lag When the real problem is raised, the "Internet + pension" model is finally proposed [1]; Yang Guojun believes that "Internet + pension" has crossover, crosses industrial boundaries, penetrates and integrates various formats, changes the allocation of old-age resources and aggregates of innovative enterprises. By means of deepening the structural reform of the "Internet +" pension supply side, it can meet the diversified, multi-level and multi-type old-age service needs of the elderly [2]; Korean believes that the "Internet + pension" service model is social pension The inherent requirement of industrial transformation is the era engine of mass entrepreneurship and innovation. It is conducive to enhancing the efficiency of service management and solving the shortage of service personnel [3]; Pan Feng, Song Feng believes that "Internet +" makes the matching of pension supply and demand, optimize the allocation of resources, enhance the efficiency of service management, and solve the problem of lack of service personnel [7]. At the same time, the state also attaches great importance to "Internet + pension". On June 24, 2016, the State Council issued the "Guiding Opinions of the General Office of the State Council on Promoting and Regulating the Development of Big Data Applications for Health Care"; February 20, 2017 The Ministry of Industry and Information Technology, the Ministry of Civil Affairs and the National Health and Family Planning Commission issued the "Smart Health and Pension Industry Development Action Plan (2017-2020)". It can be seen that for the development of "Internet + pension", academic and political circles have reached a high degree of agreement, and the next step is how to make "Internet + pension" from concept to reality.

Let the "Internet + pension" move from concept to reality, and the effective establishment and practice of the "Internet + pension" model is inseparable. Many scholars have proposed new ideas for the construction of the "Internet +" pension model. Yan Yongzhi and Wang Huiying believe that the "Internet + pension" model is not simply "Internet" and "aging". The soul of this model is the real combination of "Internet" and "aging service". Innovation and other Internet thinking orientation, based on innovation, based on cross-border cooperation, strengthen top-level design, clarify division of labor, prevent risks, strive to fight for "integration", and create "Internet +" big data robots and other technologies. "The new form of wisdom for the elderly [5]. Li Chunhong believes that in the information age, in the face of the lag of the development of the social pension model, it should combine the three elements of the system's own functions. Development, participation in subject management and aging audience acceptance, build a comprehensive the new model of "Internet + community pension" O2o [6]. Pan Feng, Song Feng started from the introduction of the existing problems of the existing community pension model, put forward the "Internet +" to expand the development of community pensions, and from the "Internet + Community pension system, "Internet + community pension" participation in the main responsibility and "Internet + community pension" safeguards propose three ways to establish smart home care services and implementation paths, including system construction, service subsystem construction, operation and Application system construction; government leadership, corporate introduction and social participation; safeguards include technical support, financial security and application security [7]. From the perspective of the above scholars, it can be seen that in order to effectively "Internet +" and pensions Integration, need to make full use of mobile Internet, big data, cloud computing, robotics and other technologies; second, there are It is necessary to process information for the elderly. Collect resources, collect data monitoring data, and establish an information database that reflects the needs of the elderly. Third, the demand side of the elderly service, the supplier and the civil party should be transparent in information and realize the online pension. The effective connection between demand and offline services.

From the above literature, we can see that the future development trend of "Internet +" pension is upward. The path construction and implementation of the "Internet +" home pension model has the necessary technical foundation and hardware conditions: First, "Internet +" The pension platform needs to make full use of mobile Internet IoT, big data, cloud computing and other information technologies. Second, the "Internet +" pension platform can collect information resources for the elderly, monitor data collection for household data terminals, and form an information database that fully reflects the needs of the elderly. Third, the "Internet +" pension platform can realize the interconnection of the demand side, supply side, and civil affairs departments of the aged care service; Fourth, the "Internet +" pension platform can fully match the online demand with the offline service. Promote the "Internet +" pension model from concept to reality.

II. PROBLEMS IN THE TRADITIONAL PENSION MODEL

There are differences in the fees for old-age services and different treatments. Traditional old-age care is mainly based on family pension and old-age care institutions. The old-age care institutions operate in a profit-based mode. There are differences in pension service fees. Older people with higher fees enjoy better services, but invisibly increase most families. The investment in pensions has increased the burden on families, and most families are unable to afford huge pensions. The low-cost old-age care institutions, the service facilities are not complete enough, the safety and health problems are difficult to protect, and the children's mental stress and anxiety are increased. At the same time, the elderly are not only harmed by their poor health care facilities, but their mental health is also affected.

The professional level of the aged care staff is low. The overall education of the aged care workers in China is low, and the following are the re-employed personnel. The service awareness is weak, the pension reserve is insufficient, and the phenomenon of abuse of the elderly by individual black pension institutions is frequent. The awareness of the standardized management of the aged care service personnel is relatively poor, the young people are less involved in the community pension service, and the regularized and professional training system for the aged care service personnel has not been established and improved. The salary standards for the aged care workers are still low. At the same time, there are few colleges and universities offering old-age care services. Few college students are engaged in the old-age service industry. The reserve strength of the high-quality teams for the aged care services is obviously insufficient. It will be difficult to effectively improve the aged care services in the short term. The degree of specialization of personnel.

The demographic structure and the impact of an aging society on the family pension model. The family planning policy changed the traditional demographic structure, and the 421 family model was born. That is, two young people have to bear the burden of four elderly people, and at the same time raise a child. The pressure of the only child to support the elderly and raise their children is increasing. The traditional concept of family pension is affected by the pressure of children's survival, and the elderly are discouraged from nursing homes. With the rapid development of the economy, the life expectancy of the Chinese population is also significantly increasing, and the aging of the population is accelerating. Nowadays, the pressure of life and the competitiveness of young people have increased dramatically. The children's outing work has also caused the problem of old-age care for empty nests and elderly people living alone. Traditional family pensions have been difficult to meet the old-age pensions of young people and young people. Survival expectations.

Although the current mainstream pension model appears earlier and has a relatively longer development time, they all have corresponding problems. First of all, for home care, there are more emergencies. Old people often have problems such as aspiration, misconduct, fall, loss, self-injury or injury (the old man who is demented). These problems are not enough to rely

on artificial strength. For the elderly who are demented and disabled, real-time dynamic monitoring is needed, but as the current family is gradually miniaturized, the pressure of life increases, and the children go out to work, so that the children become more comfortable with taking care of their parents. Insufficient force, therefore, family members' efforts alone cannot be accompanied by 24-hour escort. The elderly nowadays are a very lonely and lonely group. There are few opportunities to talk with people, lack of friends, lack of psychological care, what they really need in their hearts, and children are not clear. This has a problem of lagging information communication.

III. CONCEPTION AND DESIGN OF INTERNET VIRTUAL WISDOM HOME CARE PATH SELECTION MODEL

A. *The process of obtaining the community home care service against the background of "Internet +"*

Regardless of the demand for aged care services, the business acceptance process of the Community Home Care Service Management Center is as follows: The first step is to make service requests through telephone voice, Internet, WeChat platform, various smart seniors and their families. The terminal and front-end service channels; the second step is that the community aged service management center performs service and area matching according to the user's needs and locations, and performs service scheduling and other operations. The third step is for the aged care provider to accept the order and contact the customer and dispatch the relevant service personnel. Door-to-door or network service; in the fourth step, the community aged care service management center will respond to customers within 24 hours according to relevant requirements, to understand the satisfaction and improvement opinions of the elderly and their families on the elderly services; the fifth step is the community family. Nursing service. The information platform automatically aggregates and collects the

elderly care service needs, saves the procedures and opinions of the elderly to obtain services, and ranks the service providers on the platform; the sixth step is the community pension service management center. The service level of the aged care provider should be properly admitted and withdrawn in time, and the new suppliers should be absorbed in time to update and maintain the information of social workers and volunteers.

1) *The foundation of the "Internet + home care" service model*

The "Internet + Community Home Care" service model should consist of a unified community home care service information platform and three basic systems (ie, basic information database system, old-age service subsystem, business system, operational application system), and provide The unified interface of the service system of social departments such as departments and community health care departments [8]. According to the "Statistical Report on the Development of China's Internet Network", as of December 2016, the number of Internet users in China reached 731 million, equivalent to the total population of Europe. The Internet penetration rate reached 53.2%. The report also pointed out that the mobile Internet is closely linked to the offline economy. In recent years, various aged care service organizations have vigorously developed mobile medical software, and mobile platform software, terminal hardware and smart pension wearable devices have developed rapidly. Therefore, the huge mobile device holdings and the development of related software provide a solid foundation for smart home care. Intelligent hardware is mainly aimed at managing chronic diseases and health problems of the elderly, achieving the purpose of real-time environmental monitoring and personal health monitoring. It is mainly used to focus on user development, improve user experience, pay attention to B/C communication, and activities, positioning, sports, Major aspects such as chronic diseases, door locks, payment, health, and the environment play an important role.

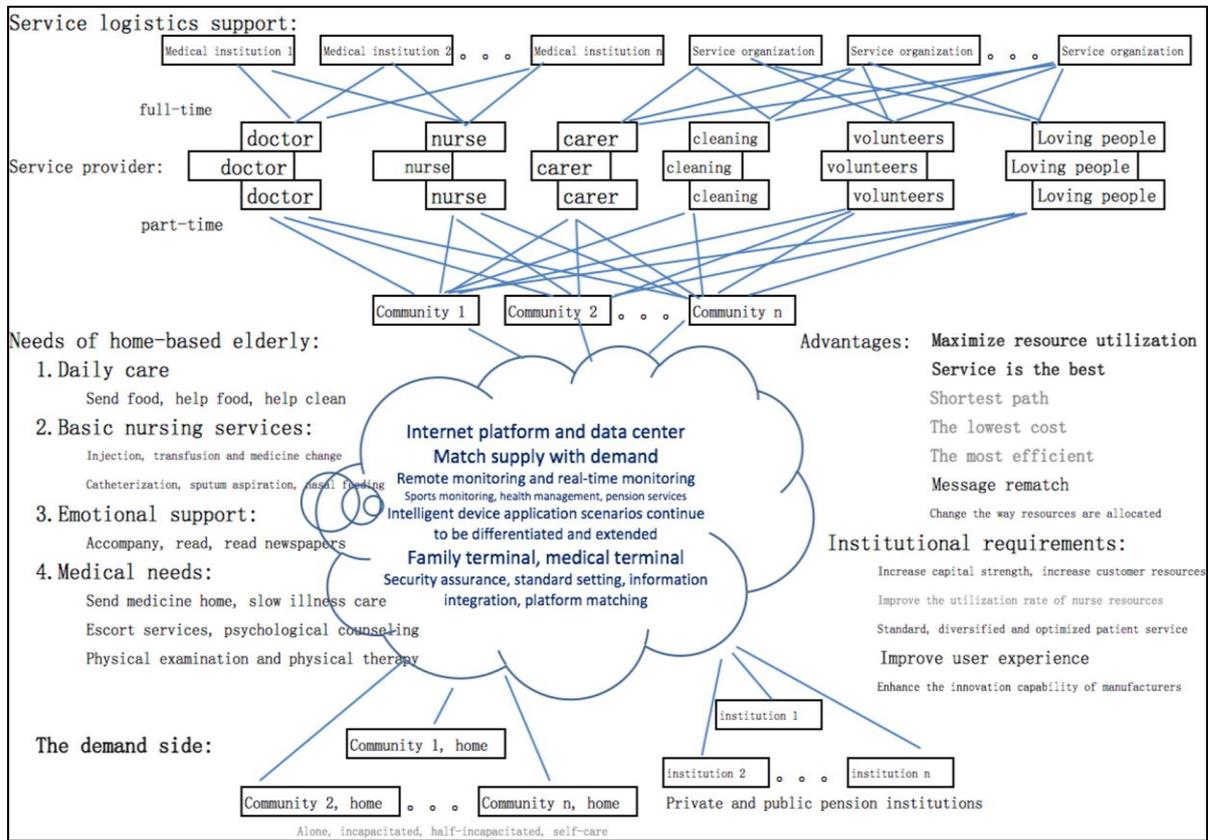


Fig. 1. The service model of "Internet + Home Care Community"

B. "Internet + home care" service model

The model aims to connect the elderly who need old-age services in various communities to form a service ecological zone. According to the needs of the elderly, the service terminals allocate resources to allocate resources to provide the elderly with the services they need, in the shortest. Meet the needs of the elderly in time. In this model, medical resource providers, pension agencies, and real estate provide resources and logistical support to the service providers.

The service model of "Internet + Home Care Community" is shown in Figure 1. The smart device in this model uploads the data of the elderly health management, exercise monitoring, pension service, and physical indicator monitoring of each old-age community to the platform (Internet service terminal), which analyzes resources and integrates all resources in the service chain. The elderly provide nearby resources to serve them.

1) The "Internet + Home Pension" model can meet the needs of the elderly

a) Life care service

The elderly and their families mainly use the hotline telephone, smart phone, smart TV, WeChat platform, smart APP, smart wearable device and other means to actively make service requests to the aged service providers through the community home care service personal operation platform. After the review and distribution of the community pension service management center, the order is formed, the pension

service provider executes the order, and the community home care service management center uniformly conducts service return visit and evaluation.

b) Medical care service

In view of the timeliness and professionalism of medical care services, in addition to being able to request services through telephone and WeChat as well as life care services, it is more convenient to use smart blood pressure monitors, smart blood glucose meters, and smart bracelets worn by the elderly themselves. And other equipment, using the Internet of Things technology to collect and wirelessly transmit health information for the elderly, and scientific management in the cloud.

c) Mental comfort service

By using information technology such as "Internet +", it is not only possible to provide online video chat function for the elderly who are inconvenient in legs and feet, but also to enable the elderly to stay in the home without using the mobile phone and computer equipment to establish real-time contact with others and children. It is convenient for the elderly to make an appointment for community workers to chat or accompany them, which greatly expands the spiritual life of the elderly. Figure 4 Internet virtual wisdom home care path selection mode.

d) Emergency rescue service

By utilizing information technology such as wireless sensors and alarm systems, the elderly can obtain medical care, drug delivery, and psychological counseling services at the emergency. At the same time, they can use network monitoring and remote monitoring to detect the abnormalities and physical conditions of the elderly. An abnormality in the environment.

IV. CONCLUSION

In recent years, China's demographic structure has changed rapidly, and the problem of old-age care brought about by the accelerated population aging has become more and more affected by society. There is widespread concern that the problems of traditional family pension and community pension models are becoming more and more prominent. However, the rapid development of information technology such as "Internet +" will provide new tools and ideas for solving these problems. The integration of "Internet+" and urban community home care services can alleviate the problems existing in the current supply and demand sides of urban community home care services, and also meet the needs of different levels of aged care services for the elderly. It will be the current solution to the traditional home care services. There are effective ways to deal with various drawbacks. The healthy development of the "Internet + Community Home Care" service model requires not only the unified management and arrangement of people, finances and materials in the community, but also the coordination of cooperation among all parties in the community, and thus the promotion of "Internet + community home care" services. The model takes root as soon as possible.

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