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Research on Urban and Rural Involvement in Smart Elderly Services

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Abstract: This article aims to overcome the challenges faced by traditional elderly care services in China and discuss the development opportunities of smart elderly care services in urban and rural areas. Additionally, seek feasible countermeasures based on the basic ideas of smart elderly care to promote the transformation of urban and rural elderly care services to smart and intelligent. Therefore, we can bridge the gap between urban and rural areas, break the urban-rural dual structure, and encourage cities and villages to share the benefits of reform and development.

Keywords: Sharing concept; Smart elderly care; Urban and rural planning

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1. Introduction

In order to solve the severe problem of the increasing aging population, smart elderly care was developed and implemented in new projects in cities, alleviating the increasing demand for elderly care in cities to a certain extent. However, in rural areas where the aging process is significantly faster than in cities, they cannot enjoy this intelligent and convenient elderly care service. Therefore, methods to apply the urban smart elderly care model to rural areas so that urban and rural areas can share the fruits of reform and development has become an important topic at present.

2. The Circumstances of Smart Elderly Care Services in Both Urban and Rural Areas

2.1. Urban-rural differences in the pension system

First, the fragmentation of policies and the interpretation of uncertainties by subordinates have caused policy conflicts to occur from time to time. The pension policies introduced under the "fire brigade" model are not coordinated between superiors and subordinates, and there are cases of non-coordination between departments. Secondly, rural areas are large and sparsely populated, economic development is slow, and consumption under the "new rural insurance" cannot be guaranteed. Although the new rural insurance and urban housing insurance began to merge in 2014, but the difference between urban and rural areas still exists.

2.2. The old-age care model based on individual lifelong labor

At present, rural areas are still dominated by traditional family care, whereby "raising children to prevent old age." This is a home-based "back-feeding" extensive old-age care model based on individual lifelong labor. Along the loss of rural young and middle-aged population, urban advancement of globalization and the rapid development of science and technology could no longer meet the requirements of the times.

2.3. Imbalances between supply and demand of elderly care services

First of all, the evolution of family structure, namely the formation of 4-2-1 and 4-2-2 family models, has resulted in the decrease of capable supporters in rural areas and the increase of dependents [1]. Secondly, the rural backward environment and resource scarce elderly care institutions simply cannot meet the diverse needs of the elderly. The traditional concept is that it is enough to feed and wear warmth for the elderly. Comfortable accommodation and safe diet are often not satisfied, and the high-level needs of spiritual companionship cannot be guaranteed. The rural problem is greater than the city, and the security is lesser than the city. The serious imbalances between supply and demand makes the problem of the gap between urban and rural elderly care more prominent.

3. The Basic Principles of Smart Elderly Care Services Shared Between Urban and Rural Areas

3.1. People-oriented personalization

"People-oriented" policies should pay attention to the diverse requirements of different groups of people, tailor policies to local realities, and thoughtfully consider rural environment, communications, transportation, and other concerns, as well as personalize the pension model [2]. Foreign countries determine the needs of the elderly as 3M theories represented by economics (Money), medical (Medical), and mental (Mental). In our country, Maslow's hierarchy of needs theory can be used to describe the needs of the elderly more specifically. In terms of physiological needs, the Engel coefficient of rural elderly is much higher than that of urban residents. The average annual consumption expenditure is 7000-9000 yuan, and they are mostly used for basic clothing, food, housing and transportation. Furthermore, in terms of safety needs, more than 90% of rural elderly suffer from Arthritis, rheumatism, high blood pressure and other common diseases, but the new rural cooperative reimbursement does not have a high proportion of urban residents' medical insurance, and the elderly are facing the embarrassing situation of not being able to pay high medical expenses and not being able to get sick. Additionally, in terms of emotional needs, most elderly people can only communicate with their spouses and children in a small amount, and many elderly people have nowhere to resolve their loneliness. The needs of self-esteem and self-realization have almost become extravagant hopes for rural elderly people due to real life conditions [3]. Therefore, in order for the rural elderly to share the fruits of economic and social development and satisfy their strong desires in medical and health, day care, economic life, and spiritual comfort, it is necessary to improve the infrastructure and formulate a reasonable retirement plan.

3.2. Specialization of the supremacy of science and technology

Elderly care services are getting more intelligent as a result of ongoing R&D, innovation, and promotion of high-tech products. For example, radio frequency identification technology, for example, may read and identify data information via radio signals; dedicated sensing technology, which converts information into data via equipment perception and delivers it to the terminal for reprocessing; cloud storage technology is a virtual storage space with large features such as capacity, space saving, and fast response. In addition, there's also huge data processing, visualization, and simulation technology, among other things. Technology affects lives; high-tech, networked technical assistance makes rural smart senior care more professional, and a complete network platform satisfies the needs of the elderly at various levels.

3.3. Urban and rural co-ordination also sharing

In the new era of socialism with Chinese characteristics, the main social contradiction in China has been transformed into a contradiction between the people's growing need for a better life and unbalanced and inadequate development. Therefore, it is necessary to coordinate urban and rural areas and promote coordinated regional development, so that urban and rural areas can share the benefits of reform and

development also achieve common prosperity. At present, China has taken the lead in investing resources in new projects for smart elderly care in some cities. The current task is to introduce urban experience and technology to the countryside and share the results of smart elderly care. It is transformation rather than reconstruction. This not only saves resources but also promotes the integration of urban and rural areas [4].

3.4. Cooperativities of multiple subjects

Smart elderly care services require the participation of multiple entities such as the government, enterprises, and society, as well as coordinate with each other to operate in a coordinated manner. Only when each subject performs its own duties and responsibilities can achieve a win-win situation for all parties. Among them, the government plays a leading role, mastering the formulation of major policies and policy guidance. Then, the enterprise is responsible for funding and contribution, stationing in rural areas, and providing advanced elderly care equipment and services for the elderly, which is the link between the government and rural elderly care. Additionally, the society is responsible to provide volunteers and other talent supplies also provide public opinion supervision. The mutual cooperation of the three is the due meaning of realizing the smart old-age care in rural areas.

4. The Construction and Application of the Urban-Rural Sharing Model of Smart Elderly Care Services

Based on the actual conditions of urban and rural areas, this article refers to the military cyberspace combat strategy to construct a smart elderly care model that realizes urban and rural sharing (**Figure 1.)** to promote the development of elderly care [5].

4.1. The design of the urban-rural sharing model for smart elderly care services

In accordance to cyberspace, the smart elderly care service model is spatially divided into physical layer, information layer and cognitive layer. Through many different nodes and networks, the entire model is interconnected, forming a large system, and its degree of integration can be continuously improved and improved.

4.1.1. The physical layer is the nerve center

The physical layer is the space where matter and energy exist. In the information era, it specifically refers to the network and electromagnetic waves. The big data is sent to terminals such as computers, the Internet, and the Internet of Things mainly through wireless, broadband and other transmission equipment, as well as the stored data is calculated and analyzed in the cloud. Its position is equivalent to the nerve center of the model, playing an important role in regulating, controlling, and processing information. As the bottom layer of the model, it has the highest influence and technicality.

4.1.2. The information layer is a neuron that transmits information

The information layer is the middle layer of the model, responsible for sensing, storing, and transmitting information, which is equivalent to the role of neurons in the reflex arc, and exchanges information through the incoming and outgoing data. First, receive information through identity perception, location perception, image perception, and state perception. Then, store the information resources in the business information database, the management object database, and the perception device database. Finally, after the analysis and processing of the physical layer, the information is transmitted through the sensing device.

4.1.3. The cognitive layer is the information sensor

The cognitive layer is at the top of the model and is also called the perceptual layer or the psychological layer. Mainly include user experience, feedback and evaluation. The user experience is equivalent to the sensor, which can feel the application of the model at any time; the feedback and evaluation are equivalent to the effector, which mainly conducts post-evaluation in the three links before, during and after the event,

and can scientifically analyze the utility of the model.

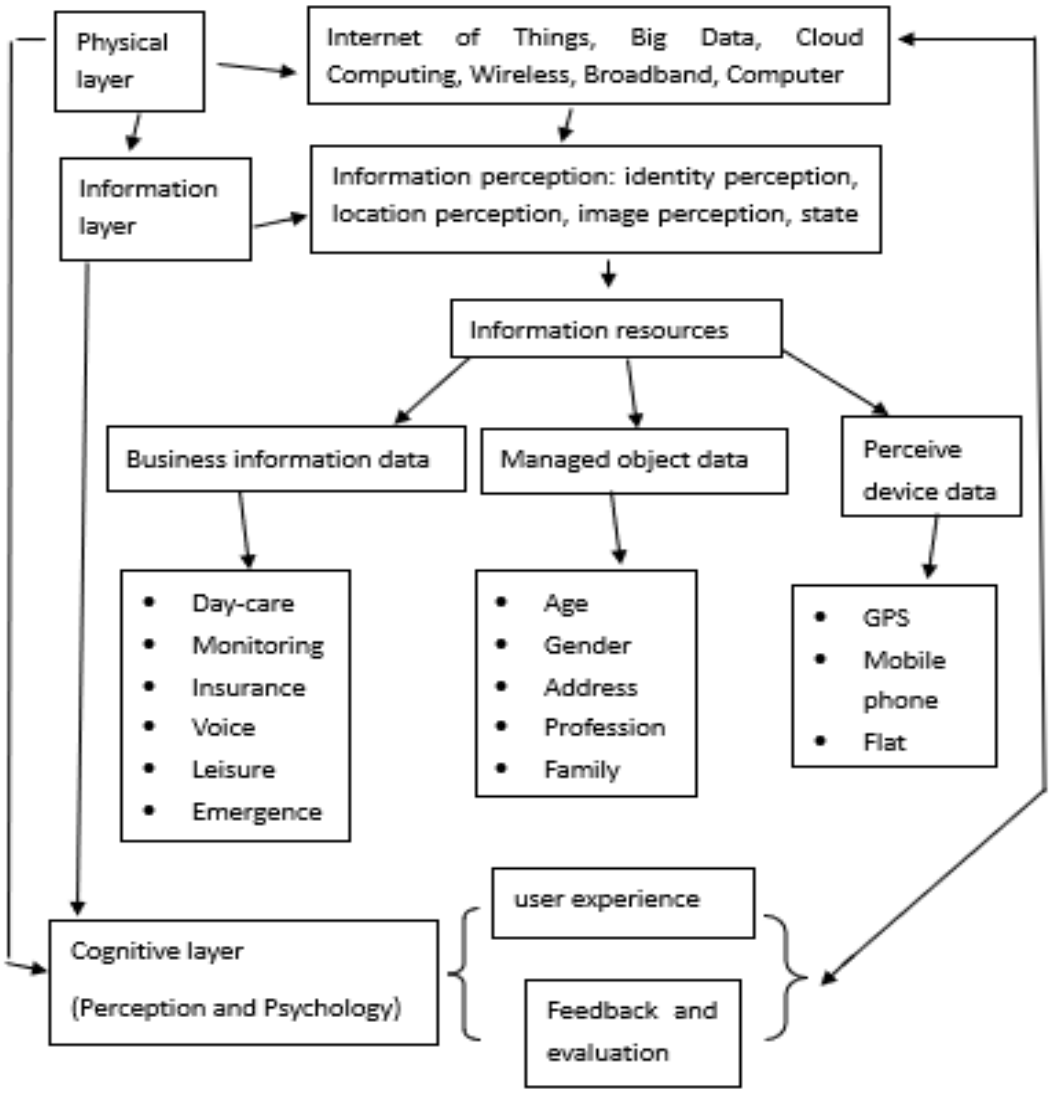

Figure 1. Smart elderly care service model

4.2. Application and operation of the urban-rural sharing model of smart elderly care services

The smart elderly care service model is the sharing of existing resources between urban and rural areas, combining traditional home care, institutional care, and community care, and applying modern information technologies such as the Internet and the Internet of Things to care for the elderly to provide basic social care, remote monitoring, also medical care for the elderly. Voice conversation, entertainment sharing and emergency call services are some of the features of the smart elderly care service model [6].

4.2.1. Provide basic services

In urban areas, due to the constraints of traditional concepts, elderly people generally choose the model of home-service companies, which keeps the vacancy rate of beds in elderly care institutions high. While there are elderly people with disabilities and dementia in rural areas, five-guarantee households have low insured households with a high proportion of elderly people, their daily lives are difficult, they are in urgent need of care, and there is a high demand for elderly care institutions, but there are very few institutions and caregivers who can provide services. The imbalance between supply and demand for elderly care is more pronounced in urban and rural areas. As a result, material distribution centers in rural areas can be

established to move idle or surplus resources from cities to rural areas. This not only exchanges resources with cities, but it also saves cost and solves the problem of elderly people in rural areas who are left unattended.

The elderly can make reservations for meal delivery and housekeeping on-site service through the smart elderly care platform. Only one transmission device (wearable, portable or fixed, depending on the needs of the elderly) is required at that time. For example, set housekeeping service to "1," the elderly can press the "1" button to call the back-end staff to equip them with supplies and provide on-site service. (See **Figure 2.**)

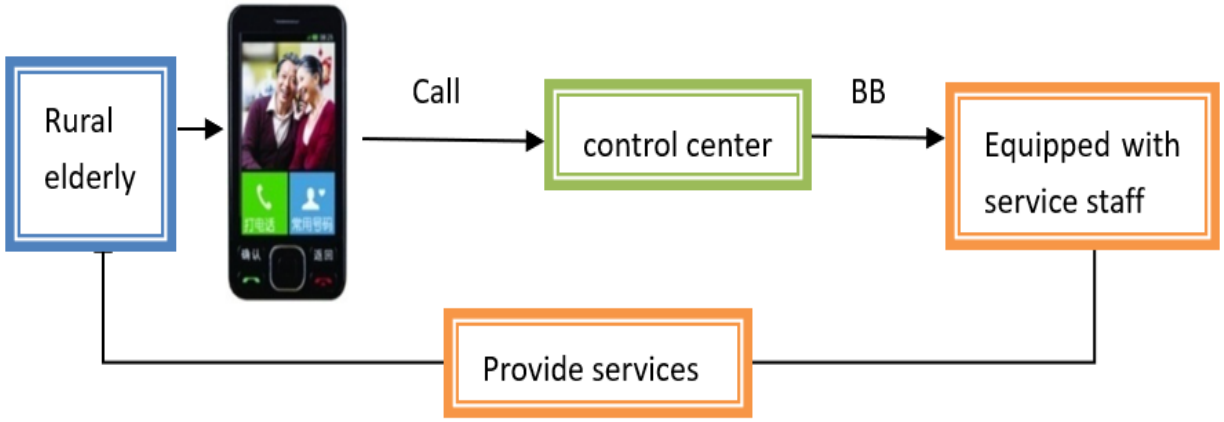

Figure 2. Flow chart of service provision

4.2.2. Conduct out remote monitoring

As long as a small chip is used to store all the activities of the elderly and upload them to the computer, the background personnel can observe their activities anytime and anywhere, also can respond in time when there is an emergency, effectively avoiding risks; use the existing GPS where the it is connected to the countryside to track the whereabouts of the elderly in real time when they are out, especially for those suffering from Alzheimer's, which can effectively prevent accidents; the gravity sensor is used to monitor the elderly's actions, and emergency rescues can be dispatched in time if problems occur. Children can also download apps that have been developed and put into use in the city for free to remotely observe the food, clothing, shelter, and other connected information of the elderly who have been left behind, in order to avoid unconsciousness. The use of a remote monitoring system is a form of technology sharing in both urban and rural areas, and the usage of an application is a kind of technology sharing in both urban and rural areas.

4.2.3. Shared healthcare

In terms of medical and health care, apartments for the elderly in cities that integrate medical and pension functions often have insufficient users and idle resources. Then, elderly people in rural areas with medical conditions can be connected to nearby urban elderly apartments. On the one hand, they can be compared to traditional nursing homes for the elderly. Sick elderly people, on the other hand, do not need to travel between rural areas, hospitals, and nursing homes. Besides that, they can spend more time with their children who work in cities and contribute to the urbanization process. This combination of medical and nursing care saves costs and is easy to operate. The elderly only needs to press the smart pager on the bedside, and the medical staff will arrive in 5 minutes; for the rural elderly who have no conditions, they only need to wear a small device which can upload their daily physical health index to the database, and professional medical staff can analyze their health status and arrange special care. When encountering elderly people with poor physical conditions or disabilities, once their physical indicators fluctuate slightly,

early detection and early treatment can be achieved, and precision medicine can be realized to realize the sharing of urban and rural elderly talents and hardware facilities.

4.2.4. Real-time voice conversation

Through the popularization of the voice dialogue function, the elderly living in rural areas can have real-time conversations with cloud platform staff without leaving their homes, confiding them about life's worries and sharing daily fun to relieve their boredom. During the New Year and New Year holidays, the urban back-office staff can regularly call and greet the elderly in the cities and rural areas within their jurisdiction, instead of sending warmth to their children who are migrant workers. The staff can also communicate with them remotely, inform them of new and interesting things at home and abroad, and comfort their lonely souls, so as to achieve a true sense of "mental care" and provide spiritual satisfaction for the rural left-behind elderly.

4.2.5. Pursue entertainment sharing

For the elderly, this belongs to a higher level of demand. The realization of this demand can reflect the respect for the elderly and make them more dignified. In cities, public welfare cultural facilities can be opened preferentially for the elderly, and preferential policies such as parks, gardens, and scenic spots tickets are provided for leisure and entertainment for the elderly. The older universities give a large space for retired senior people to continue their studies, and tuition fees for the elderly who are poor can be reduced. It is possible to overcome the geographical limits of urban and rural areas and meet the needs of rural older people for entertainment, relaxation, learning, and sharing using the smart senior care service platform. The elderly can adjust it to the leisure and entertainment mode or the learning sharing mode through the transmission equipment (see **Figure 3.**), and a series of services will pop up for the elderly to choose. The application of this platform can not only promote the exchanges between rural and urban elderly people, also share urban and rural development information, but also gather the wisdom of urban and rural elderly people to achieve wisdom sharing.

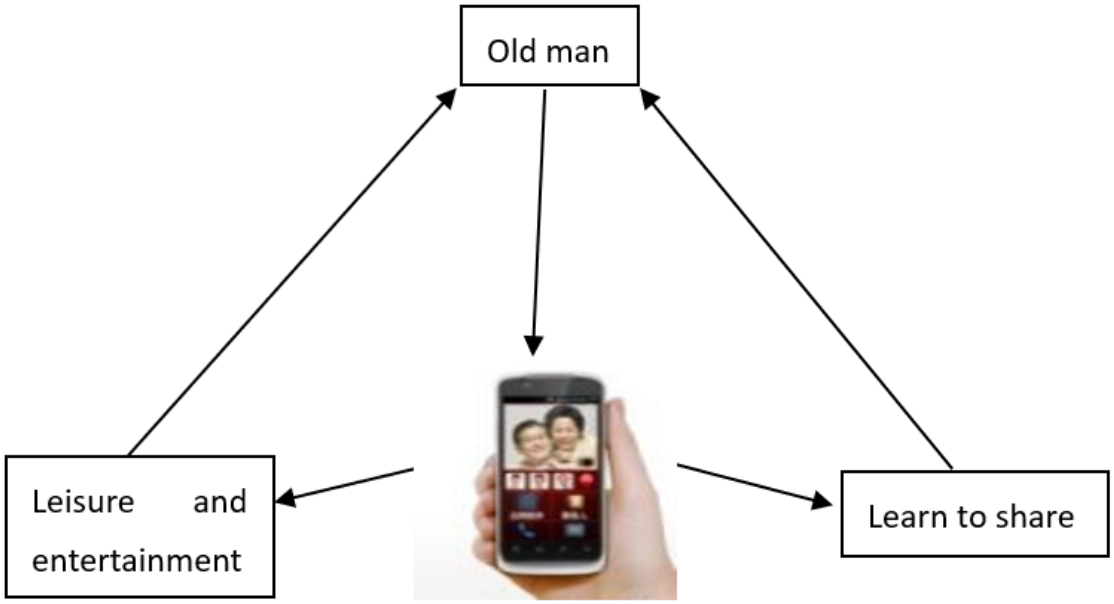

Figure 3. Flow chart of leisure and entertainment or learning sharing mode through the transmission equipment

4.2.6. Implement emergency calls

The elderly can press the emergency button through mobile terminal devices such as mobile phones and smart watches. The location of the elderly can be quickly locked, and basic information such as the address, contact information of family members, and medical history of the elderly can be displayed (see **Figure 4.**). For the elderly with medical history, they can contact the nearby village clinic for emergency treatment, and if necessary, send an ambulance for emergency treatment. Mobile terminal equipment should also be designed to achieve "simplification of operation and complete functions." For example, amplify the numbers of the buttons of the mobile phone, and add the voice recognition function to the smart watch to facilitate the operation of the elderly. Thus, to realize the linkage between urban and rural areas and work together to ensure the safety of rural elderly people.

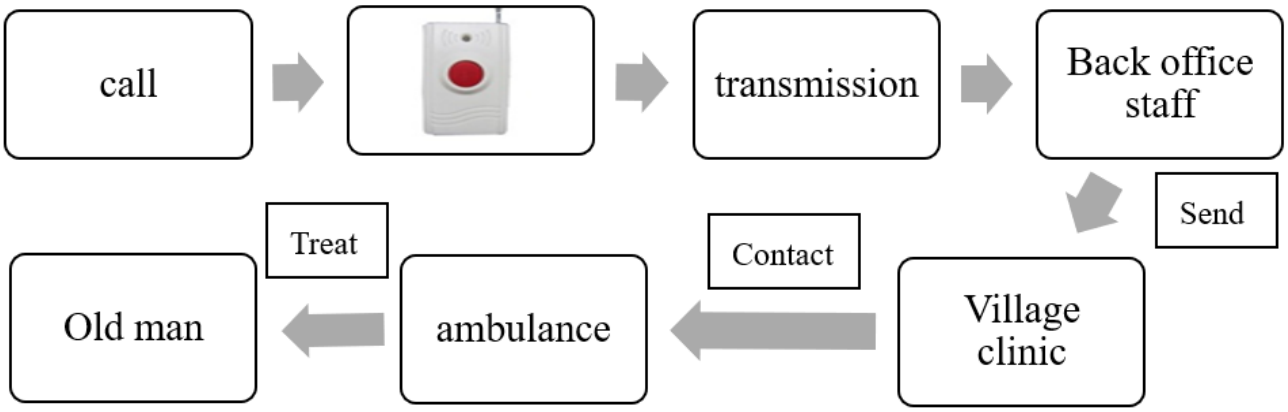

Figure 4. Emergency call flow chart

The rural elderly, their children, as well as urban and rural elderly care service centers with shared resources are connected through the smart elderly care service model to provide basic life services, remote monitoring, medical care, and spiritual consolation to the elderly in rural areas. The elderly's health and quality of life will increase as a result of their demands.

5. The risks and prospects of smart elderly service sharing

Smart elderly care services have natural advantages over traditional elderly care methods, but they will also encounter a number of problems in actual operation, which must be avoided. To begin, a smart system is made up of a set of program codes. When a code becomes disordered, it becomes paralyzed as a whole, affecting the system's normal operation. Second, even if private firms intervene, old-age care as a social welfare must retain its public welfare attributes so that people can truly benefit from it. Therefore, it is necessary to find a balance between public welfare and profit, as well as to rationally allocate the proportions of home care, public welfare communities, institutional pensions, and profitable institutional pensions, in order to create an old-age care pattern based on public welfare and supplemented by multiple levels. Third, because smart elderly care is a new industry, the relevant rules and regulations aren't yet complete, and the supervisory authority's obligations are unclear. When providing aged care services in rural areas, many companies would compete for consumers and slander each other, harming the interests of enterprises and villagers' behavior. Fourth, many elderly people are unaware of the importance of smart elderly care. This requires early publicity efforts to persuade them to voluntarily accept and afford this service through participation in experiences, knowledge popularization, and reasonable and acceptable fees. The advancement of technology has made it impossible to tackle problems using traditional and outdated approaches. We must shift our perspectives and ways of thinking, rely on intelligent technology to

transform society, and apply the sharing concept to both urban and rural areas. Give full play to the late-comer benefits of smart elderly care, bridge the gap between urban and rural areas, share the benefits of reform and development, and expand the "last mile" of elderly care services in both urban and rural areas.

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References

[1] 2017, "Decisively Win Over the Completion of a Well-Off Society in an All-Round Way, and Win the Great Victory of Socialism with Chinese Characteristics in the New Era" (pamphlet of the report of the 19th CPC National Congress), People's Publishing House, Beijing.

[2] 2019, National Two Sessions Government Work Report (full text), People's Daily Online http://industry.people.com.cn/n1/2019/0317/c413883-30979771.html.

[3] Qu Z, 2016, Wisdom for the Elderly: Opportunities, Challenges and Countermeasures, Journal of Hunan Administration Institute, (3):108-112.

[4] Deng D, Xian M, 2015, Problems and Countermeasures in the Implementation of the New Basic Pension Insurance System for Urban and Rural Residents, Economic Aspect, (9) :8-12.

[5] Zhai Z, Chen J, Li L, 2016, The General Trend, New Characteristics and Corresponding Pension Policies of China's Population Aging, "Journal of Shandong University: Philosophy and Social Sciences Edition," (5) :27-35.

[6] Peng Q, 2016, "Internet + Home Care," Smart Home Care Service Model, Journal of Xinjiang Normal University (Philosophy and Social Sciences Edition), (9) :128-135.