

A Study on the Community Wisdom Elderly Care Model in the Context of Digital Economy

Yijie Li, Yanyu Chen*

College of Economics and Management, Minjiang University, Fuzhou, Fujian, China

**Corresponding Author.*

Abstract: As the proportion of the elderly population in China continues to rise, the living pressure of the middle-aged group increases and the financial burden of the country gradually increases, it has become a priority to seek the empowerment of digital economy to the pension industry. In addition, the number of high-quality talents is gradually increasing, so it is particularly important to study how digital economy can promote and improve elderly care services in this context. From the perspective of community smart pension, this paper analyzes the three aspects of material resources (R), technology (T) and human resources (H), and deeply discusses the problems faced by the digital economy enabling community smart pension industry, such as insufficient digital application degree, lack of community smart application platform, lack of digital talents and application talents. The corresponding solution is proposed. It is hoped that this can provide reference significance for promoting the exploration of community smart pension mode, and provide enlightenment for future academic research and practical work in related fields.

Keywords: Digital Economy; New Economic Growth Theory; Community Smart Elderly Care; Digital Platform; Practical Personnel

At present, China has two global firsts in the problem of aging: first, it has the world's

largest elderly population; second, it has the world's largest rate of population aging. According to the data, China has officially entered the stage of heavy aging. Elderly problem is an unavoidable issue in our time, and the number of elderly people living at home accounts for the largest proportion among all kinds of elderly modes. In the era of digital economy, the digital economy through the economic scale effect to enhance the ecological welfare performance is mainly reflected in the promotion of residents' consumption, promote residents on the digital economy as a new form of economic and social development, is the driving force of economic transformation and upgrading.

How the digital economy empowers the recreation and nursing industry and the exploration of the smart aging model in the context of the digital economy can provide an effective path and strategy for the construction of the community elderly service system. The community wisdom elderly model can strengthen the integration and sharing of social resources, promote the interaction and communication between community residents, and build a healthier and more active elderly community. In addition, the analysis of the community wisdom elderly model can also provide a more scientific basis for government decision-making and guidance for the planning and improvement of elderly services.

1. Introduction

The scale of development of China's digital economy is getting bigger and bigger, and the vigor of development is also getting stronger and stronger. The scale of development of China's digital economy is getting bigger and bigger, and the vigor of development is getting stronger and stronger. The creation and development of information technology has provided mankind with new resources, wealth and new social productivity, but the economic

relations arising from the production, circulation and consumption of information are also becoming more and more diversified. How to make use of cutting-edge technologies such as big data, cloud computing, blockchain, artificial intelligence, etc., to promote social and economic development in the process of population aging, and how to optimize the supply side of the smart elderly service has been a much-anticipated issue of the times.

1.1 The Current State of Development of Community-Based Elderly Care in China

China's elderly dependency ratio has been rising year after year, and by 2022, the ratio of elderly dependency in China will reach 21.8%. China's demographic dividend period has already passed, and the young adults are now living under greater pressure and with a heavier burden. China's current elderly care model is "9073", with more than 90% of the elderly living at home with the help of social service organizations; 7% of the elderly taking care of themselves through "home care" (day care); and 3% of the elderly receiving centralized care in nursing homes. Under this model, we urgently need to explore a community-based intelligent aging model that meets the needs of today's society, unites the resources of all parties, alleviates the pressure of aging, and enhances the happiness of the elderly in their old age.

May 2022, the Ministry of Civil Affairs and other ministries issued the "Intentions on Deeply Promoting the Construction of Intelligent Communities" notice, relying on the intelligent community integrated information platform, innovative government services, public service delivery methods, to promote employment, health, health, medical care, assistance, old age, disability assistance, child care, protection of minors and other services "fingertip to do", "online to do", "services such as employment and health, health care, medical assistance, elderly care, assistance to the disabled, child care and protection of minors, and so on. In June of the same year, the Circular on the In-depth Implementation of the 2022 "Wisdom to Help the Elderly" Campaign was issued, requiring all localities and social organizations concerned with the elderly to organize face-to-face lectures, hand-to-hand teaching, and "pass-on assistance" between elderly

people in the implementation of the "Wisdom to Help the Elderly" campaign. In implementing the "Smart Elderly" campaign, localities and social organizations related to the elderly are required, through the organization of face-to-face lectures, hand-to-hand teaching, "passing on the knowledge" among the elderly, assistance from family members and online classes, to effectively help the elderly to improve their ability to use smart technologies, and to promote the resolution of practical difficulties encountered by the elderly in epidemic prevention and control.

1.2 The Use of Artificial Intelligence in the Field of Elderly Care

Under the background of digital economy, the application of artificial intelligence technology in the field of elderly is getting more and more attention. Artificial intelligence technology can monitor the physical condition of the elderly in real time, and provide personalized health management solutions once problems occur. For example, smart wearable devices can monitor the physiological parameters of the elderly in real time and provide early warning of abnormalities; smart homes can help the elderly live more conveniently through voice recognition and intelligent control systems. In addition, AI technology can also take into account the emotional needs of the elderly, providing emotional comfort, social interaction, psychological problems diagnosis and other services for the elderly, for example, intelligent companion assistants can provide a certain degree of emotional support, emotional value when the elderly feel lonely [1].

1.3 The Application of Big Data Technology in the Field of Elderly Care

The application of big data technology in elderly care services has become an important part of the current smart elderly care model. Big data technology can capture the C-end data of the elderly group in real time, and detailed and timely data can provide support when the young people provide personalized and customized solutions.

First of all, big data technology by capturing the behavior of the elderly, living habits, diet and other data, and combined with the health care advice provided by professional

physicians, to provide the elderly with a unique health care program for the elderly to escort the body. Secondly, the big data technology empowers the community wisdom of the elderly, the community as the grass-roots level where the elderly have the most contact, big data technology can help the community to analyze the data on the demand for elderly services, so as to optimize the allocation of community resources for elderly services, and match the supply and demand of elderly services to enhance service efficiency. At the same time, big data technology can identify potential physical problems and realize early intervention and prevention. Overall, the application of big data technology in the elderly can enhance the intelligent level of elderly services, provide more comprehensive and timely service support for the elderly, and promote the further development of the community wisdom elderly model.

2 Analyzing the Problems of the Community Wisdom Elderly Model Based on the New Economic Theory

American economist Paul Romer put forward an endogenous technological progress model in the 1990s: (1) technological progress is the basis of economic growth; (2) Most technological progress is the result of market demand; (3) Knowledge based achievements can be used repeatedly without additional costs. The cost is only the cost of the production development itself.

New Growth Theory in the model production function is a quantity of output related to capital, labor, human capital, and technological progress function form,

$$Y = F(K, L, H, t) \quad (1)$$

Where Y is total outputs, K , L and H are physical capital stock, labor input and human capital (incorporeal capital) stock, t is the technical level.

In terms of material materials (K), in the context of the digital economy, technological innovation has brought more material resources available for innovation. To continue to release the digital dividend of digital technology in the elderly care industry, we need to adhere to scientific and technological innovation and continue to promote the landing of scientific and technological achievements; In terms of technical capability

level (T), digital economy can integrate and utilize technical resources, and technology is the key element to promote industrial development. To improve the service quality of smart elderly care in communities, it is necessary to improve the material infrastructure. Establish a digital sharing platform with innovative ability, demonstration effect and core technology to help the development of smart elderly care in communities; In terms of talents (H), high-quality talents are the most critical factor for the development of the digital economy. One of the preconditions for a technological power is talents. In the field of community smart pension, a group of high-quality talents with ability, knowledge of technology and high learning ability are also needed.

2.1 Physical Capital Stock (K): Insufficient Technology Application and Digitalization

In China's health care industry, there are countless scientific and technological innovations from 0 to 1, but from 1 to 100 industries. There is still a long way to go. The related scientific and technological products of health care mainly have the following problems: First, the innovative products of health care science and technology are not compatible with the needs of the elderly, and the designed products do not meet the needs of the elderly; Second, the price of health care technology products on the market is relatively high, and ordinary families have no economic ability to consume. A basic version of a brand of intelligent bed for the elderly is as high as 100,000 yuan; Third, many scientific and technological research and development only stay in the research and development stage, and scientific research results can not be applied to the elderly. At present, there is an urgent need to improve the functions, low quality, and substandard quality of elderly care assistive devices.

Take the old-age beds as an example, the number of old-age beds has been on the rise. until 2021, the number of old-age care institutions in China has reached 42,696, with 5.305 million beds. But most of them, the elderly are living at home in the community, and most community services are not linked with the elderly service institutions. The proportion of intelligent old-age beds is relatively low, and it can only meet the needs

of preventing the elderly from falling out of bed in their sleep and adjusting the height of the bedside. Technologies such as heart rate detection, emergency alarm and preliminary diagnosis are not combined with them, and the degree of technology application is low.

2.2 Technical Level (T): Lack of Community Smart Application Platform

2.2.1 Lack of digital platform and low level of resource integration.

At present, the main supplier of old-age care services in China is the state, and the supplier is relatively single. The cooperation degree of other subjects such as social market non-governmental organizations is low, and many resources are undeveloped. Moreover, the supply roles of grass-roots government, community, social security and other departments are not clear, and the roles of providers, supervisors and executors of old-age services are ambiguous. China's current old-age care model is dominated by public direct management, which refers to the community old-age care service model in which the government invests in construction and community neighborhood committees operate and manage, or the government subsidizes and community neighborhood committees invest in construction and management[2]. In this mode, the government has great financial pressure, low work efficiency, low service quality and not rich service content, and most areas can only meet the basic material needs of the elderly. The lack of a large digital platform for community pension model makes the development of digital economy in the health care industry lag behind, especially the lack of digital application innovation ability and a powerful information sharing platform.

2.2.2 Lack of data platform, information islands, resulting in waste of resources.

Due to the lack of a digital platform for the elderly with community wisdom, an information island is formed within the old-age industry, resulting in a lot of waste of resources[3]. After the establishment of many home-based community pension service institutions or facilities, due to the lack of timely maintenance and repair, most institutions can not operate normally, and the number of facilities users is far less than the number of people who can carry them. 13.

95% of the users of the facilities are health of the elderly, and many elderly people who have a rigid need for community service but have limited mobility have not enjoyed or even heard of home community service facilities for the aged[4]. The increasing investment of public resources by the state has failed to improve the welfare status of the elderly at home[5].

2.2.3 Increased risk of data leakage

Under the background of digital economy, the development of community smart pension mode can not be separated from the support of digital technology, but the problem of personal privacy protection also follows. Personal information leaks frequently occur at home and abroad. In 2021, CCTV exposed an information leakage incident. If you give a small reward, you can download the resume of a certain platform at will without the knowledge of the subject. With the wide application of Internet of Things technology and big data technology, the personal information of the elderly may be leaked, leading to privacy risks. Therefore, in the process of building a digital pension service system, we must strengthen the protection of personal privacy and ensure that the personal information of the elderly will not be abused or leaked. At the same time, we should establish and improve privacy protection laws and regulations, clearly define the collection, use and protection methods of personal information, strengthen supervision over pension institutions and service providers, and protect the legitimate rights and interests of the elderly.

2.3 Human Capital (H): Lack of Digital Talents and Applied Talents

In the process of the development of health care industry, talents are the core element. The new economic growth theory holds that upgrading human capital can promote the growth of enterprises and obtain high-quality growth. The health care industry is a great demand for talents in the era of digital economy. The results show that the number of health professionals most needed in health care institutions is 49.33%, health technicians account for 25.88% and clinicians account for 18.87%. Basic standards for medical offices in old-age care institutions: "At least one medical office in old-age care institutions must be

qualified as a medical practitioner and at least one registered nurse." At present, health care institutions generally lack health talents in nursing, medical skills and doctors. In most communities, there are some problems in the service quality of home care for the aged, such as low efficiency, nonstandard, unprofessional and poor service attitude, which leads to the low satisfaction of the elderly with social organizations. This is mainly caused by the lack of digital talents and applied talents. Therefore, under the background of digital economy, talents should be trained from professional nursing and rehabilitation people talent, has risen to meet the above requirements, but also to master the relevant theories and technologies of the digital economy.

3 The Digital Economy to Promote the Development of Community Wisdom for the Elderly Countermeasures

3.1 Digital Economy Activates the Physical Capital Stock of Community Elderly Care Industry (K)

3.1.1 Digital economy technologies to help improve the utilization of resources in elderly care institutions

Actively innovate digital technology to solve the problem of low resource utilization provided by elderly care institutions, communities, parks, and other areas. In order to improve the resource utilization efficiency of elderly care institutions and analyze the influencing factors of resource utilization efficiency, such as building area, number of elderly care institutions, and number of employees, AI spatial layout technology can be used to optimize the layout of elderly care institutions. Satellite and other technologies can be combined with big data platforms to optimize site selection and achieve supply-demand matching.

3.1.2 Accelerating the degree of technology adoption

As a result of family miniaturization and urbanization[6], it is becoming increasingly common for young people to live apart from their parents, and "empty nesting" will become the new norm for older families. Empty nesters refer to a special group of elderly people who live alone or live with their couples without children. Forecasts indicate that by 2025 the

number of empty nesters in China will reach 113 million, and by 2050 the number of empty nesters will exceed 200 million. China's empty-nest households to reach 90% by 2030[7]. For the elderly living at home and the empty-nested elderly, we should speed up technological innovation and design ageing-friendly, convenient and cost-effective products. For the elderly living at home and the empty-nested elderly, we should speed up scientific and technological innovation, design ageing-friendly, convenient and cost-effective products, and use the power of science and technology to ensure the basic safety of the elderly. In addition to meeting basic physiological needs, we should also pay attention to the psychological conditions of the elderly.

In 2021, the development of senior care services, through the construction of "digital barrier-free" senior care service scenarios, the realization of "digital barrier-free" senior care services, the formation of a new model of "digital governance" of senior care government services, the construction of "intelligent medical" "cloud platforms", the realization of "cloud supervision" of senior care services. The development of a new model of "digital governance" for senior care government services, the construction of a "cloud platform" for "intelligent medical care", and the realization of "cloud supervision" for senior care services. The new model of "governance of elderly services", the construction of "intelligent medical" "cloud platform", the realization of "cloud supervision" of elderly services. Shanghai Min'an Fa [2022] No. 13 issued the "Elderly Services "One Key" Scene Promotion and Application Work Program", which implements the "One Key Registration", "One Key Calling The citywide implementation of the "One-Click" program includes "One-Click Registration", "One-Click Taxi Calling", "One-Click Rescue". These are concrete measures to accelerate technological progress.

3.2 Digital Economy and Technology Enable Community Elderly Care (T)

3.2.1 Investing in a digital sharing platform for the community-based elderly care industry

Data is the core resource of the digital economy. In the context of the development of the digital economy, building an integrated big

data platform is our future trend, and smart community home-based care is no exception. Building a data platform will integrate multiple resources such as capital, finance, medical care, and community based care, so as to reasonably help the development of digital, intelligent, and industrialized community based care for the elderly in China. In addition, considering that enterprises are the main force of technological innovation and the main battlefield for the landing of technological products, the government should actively advocate for enterprises to participate in national non confidential public utilities such as the elderly care industry through PPP mode, participate in integrated data platforms, prevent information silos, and reduce the imbalance between supply and demand.

To build a unified digital platform for the community elderly care industry, it is necessary to improve the digital infrastructure, build a high-speed broadband network, and accelerate the construction of a digital cultural and creative service platform; it is necessary to enhance the degree of informatization of the industry, and to promote the application of digital technology in traditional community elderly care services, so as to make it truly beneficial to the people.

According to the China Civil Affairs Statistical Yearbook, in 2021, less than 50% of communities will be equipped with open-air sports facilities, activity centers for the elderly and standardized garbage disposal facilities. The health condition of middle-aged and elderly people is generally poor, with 70.77% of them having poor physiological health, 77.25% of them having average or poor self-assessed health, and 35.34% of them having mild or severe depression. For example, a community builds a community elderly care system platform to integrate quality elderly care service resources in the market and the grid operation resources of the community to create a 5-minute elderly care living circle, which covers a variety of functions for the elderly, such as medical consultation, health care consultation, housekeeping service, convenient assistant, and sharing of life. It provides the elderly with convenient and comfortable products and services in the fields of clothing, food, housing, transportation, utilities, entertainment, medicine and other material and spiritual culture.

3.2.2 Strengthen information security and intellectual property protection

In order to ensure the right to privacy of older persons, information on their health status and living habits may be recorded and analyzed by digital platforms. In order to ensure the privacy rights of the elderly, it is necessary to formulate strict policies on information security and data privacy protection, and to play the role of legal protection. On the other hand, we should research, develop and innovate technologies to prevent information leakage, and through encryption technology and permission management, ensure that the personal information of the elderly is not illegally accessed or tampered with, so as to improve the security and reliability of digitalized elderly management. Only under the premise of effective protection of personal privacy, the community wisdom elderly care model can better provide convenient and safe elderly care services for the elderly.

Strengthen the protection of intellectual property rights, incentivize researchers to adhere to scientific and technological innovation, protect the innovative achievements of digital technology, and help the achievements of the digital economy in the community elderly care industry. It also strengthens the supervision of platform operators and service providers, builds a complete evaluation system, and promotes the construction of the evaluation to help improve the function, simplify the operation, and adapt the service to the aging of the community elderly.

3.3 Develop Digital Education, Cultivate and Attract Professional Talents (H)

Firstly, utilizing digital technology to empower volunteer organizations, volunteers can use big data platforms to post needs, seek help, and find organizations on volunteer platforms. This can enable volunteers to help those who truly need help, improve work efficiency, and timely promote the platform to attract more and more high-quality talents. In addition, it can also be carried out from the following three aspects.

First, to increase the participation of professionals. It is necessary to actively absorb professionals such as lawyers, doctors, teachers, artists, industry technicians and so on to join the community volunteer service, and

incubate volunteer teams in specialized fields, such as "legal volunteer team", "doctor volunteer team", "software engineer volunteer team" and other professional volunteer teams, to provide professional services for community residents with their professional knowledge and skills. The volunteer teams in specialized fields, such as "legal volunteer teams," "doctor volunteer teams," "software engineer volunteer teams," and so on, provide professional services for community residents with their professional knowledge and skills.

Secondly, it is to create professional volunteer service projects. At present, most of the community volunteer services are located in the mass, comprehensive services, it is difficult to meet the community people's diverse service needs, should vigorously promote the establishment of professional volunteer organizations and according to their own expertise to position the service areas, find the service object, to create a number of such as home appliance repair, rights assistance, psychological counselling, hygiene and epidemic prevention, rehabilitation, health care, emergency rescue and other professional volunteer projects, effective response to the community residents "urgent, difficult, worrying and hope" and other service needs. Community residents "urgent, difficult, worry and hope" and other service needs.

Thirdly, professional skills training for volunteers should be strengthened. Insufficient or lack of professional skills is a major factor restricting the quality of volunteer services. It is necessary to establish a sound training and education system for volunteers, regularly train volunteers and provide them with professional guidance, training service skills and strengthening professional ability. At the same time, we can make full use of the Internet platform to innovate training methods, combining online and offline modes, practical coaching and video guidance, providing volunteers with multi-channel learning and exchange opportunities, and improving the overall professional level of the volunteer team.

4. Conclusion

4.1 The Practical Significance of the Community-Based Smart Aging Model

The practical significance of the community

wisdom elderly model is that it provides an effective path and strategy for the construction of the community elderly service system. It can strengthen the integration and sharing of social resources, promote the interaction and communication among community residents, and build a healthier and more active elderly community. In addition, the practice of community wisdom elderly care model can also provide a more scientific basis for government decision-making, and provide guidance for the planning and improvement of elderly care services. Overall, the significance of the practice of community wisdom elderly care model is to promote the modernization and intelligence of elderly care services, better meet the needs of the elderly, and improve the quality of life and sense of well-being of community residents.

4.2 Future Prospects for the Development of Elderly Services in the Digital Economy

In the future, the digital economy will promote the transformation of the traditional elderly care model into a smart elderly care model, paying more attention to the needs, health and well-being of the elderly. The community wisdom model for the elderly will become the mainstream trend of future pension services, based on the community, relying on digital technology to provide more comprehensive and efficient pension services.

With the continuous innovation of technology and the integration and sharing of social resources, the future of elderly services in the era of digital economy will be characterized by more diversified and sustainable development. The government, enterprises and all walks of life will work together to create an all-round and three-dimensional elderly service system to meet the growing and diversified needs of the elderly.

The future development of elderly services is promising, and the digital economy will provide new impetus and opportunities for the innovation and enhancement of elderly services. However, it is also necessary to pay attention to the risks and challenges that come along with it, such as the protection of personal privacy, information security and other issues that need to be emphasized and paid attention to. With the popularization and deepening of digital senior care management, the future community wisdom senior care

model will usher in a better development prospect.

4.3 Issues for Further Study

The development of the community smart aging model in the context of digital economy presents a series of new problems and challenges, which need to be further studied in depth. Firstly, as the problem of social aging becomes more and more prominent, how to realize the popularization and sustainable development of the smart elderly model is an important issue. Secondly, how to evaluate the effect of the application of digital technology in the elderly service and how to protect the security and privacy of users' personal information are the urgent research challenges that need to be solved. In addition, how to evaluate the economic and social benefits of the community smart elderly care model, and how to realize the integration and sharing of social resources are also worthy of in-depth research. Finally, the risk of smart aging model, the influence of social culture on digital aging, and the future development trend of smart aging in the community are also important issues that need to be further explored. Through in-depth study of these issues, we can provide more valuable guidance and suggestions for the practice of smart aging model and promote the development prospects of aging services in the era of digital economy.

Acknowledgments

This paper is supported by The Teaching Research and Construction Project of Minjiang University "Research on the Optimization Path of E-commerce Major Construction under the Background of New Liberal Arts"(MJUJG2023B008), The 14th Five Year Plan for Education and Science in Fujian Province in 2022, titled "Research on the

Cultivation Model of E-commerce Talents Based on the Integration of Industry and Education in the Context of Digital Economy"(FJJKBK22-026), Teaching Research and Construction Project of Minjiang University "Demonstration Major of Industry Education Integration: E-commerce Major"(MJUSFZY2023001).

References

- [1] Chen Chanting. Lengshuijiang, Hunan: "Social Work+Charity+Internet" Helps Elderly Care Services. China Social Work, 2021 (33): 23-24
- [2] Chen Tongming, Ma Yan. Discussion on the Home based Elderly Care Model in Ningxia Communities. Ningxia Social Sciences, 2018 (3): 120-127
- [3] Zhang Wenjuan and Wei Meng: A Study on the Willingness and Influencing Factors of Institutional Pension for the Urban Elderly — Taking Xicheng District of Beijing as an Example, Population and Economy, 2014(20):10-13.
- [4] Yu Zhao, et al., "Supply and Demand-Related Decisive Factor sin the Utilization of Non-Medical Community Health care Services among Elderly Chinese, "International Journal of Environmental Research and Public Health ,2021,(1).
- [5] Zhang Chi, Hu Han, "Urban-Rural Differences: The Impact of Social Support on the Use of Multiple Health care Services for Older People," Frontier sin Public Health, 2022, (10).
- [6] Wang Xue. Evidence of Risk Damage from Personal Information Disclosure. Nanjing University of Law, 2023 (03): 172-192
- [7] Li Jianwei, Ji Wenqiao, Qian Cheng. The development trend of China's deep aging population and elderly care service demand Reform, 2022,336 (2): 1-21