Research on Smart Community Aging-in-Place Service Model

Jian Dong[1], Yintong Guo[2], and Jianru Xie[3](✉)

[1] School of Management, Guangdong Food and Drug Vocational College, Guangzhou 510520, Guangdong, China
[2] Health Management and Biotechnology School, Guangdong Food and Drug Vocational College, Guangzhou 510520, Guangdong, China
[3] School of Accounting Department, Guangdong Polytechnic of Water Resources and Electric Engineering, Guangzhou 510635, Guangdong, China
xiejr_gz@126.com

Abstract. Aging, low birthrate and the empty nest have been increasingly evident as our population aging has deepened. PEST analysis shows that the smart community aging-in-place service model, which integrates internet and Internet of things technologies with traditional old-age care services, can better meet people's needs and turn into a vigorous way to promote elderly care. This paper analyzes the connotation of the smart community aging-in-place service model, and constructs an information platform of aging-in-place service in a smart community based on the cross-border cooperation of multi-party endowment and social service resources, which provides a train of thought and promotes the development of the smart community aging-in-place service in China.

Keywords: smart community · community-based aging-in-place · elderly service mode

1 Introduction

In order to implement the Law on the Protection of the Rights and Interests of the Elderly, the Opinions on Promoting the Development of Senior Care Services, the National Medium and Long-term Plan for Actively Coping with Population Aging, etc., and to build a senior care service guarantee system that is "home-based, community-based, institutional-supplemented, and combined with medical care", the smart community aging-in-place service model that combines the Internet and senior care has been adopted, recognized and supported by the government and the public. At home, the elderly with diversified needs due to different classes or ages can also enjoy the more accurate and personalized services of daily living, medical health monitoring, arts and entertainment provided by the institutions for the aged, thus better promoting the development of China's elderly service industry [1].

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2 The Connotation of Smart Community Aging-in-Place Service Model

The smart community aging-in-place service model is a combination of "smart community + aging-in-place" – with the community as the leading role and the participation of multiple subjects such as families, service providers and social organizations, the "senior service ecosystem" will be built by integrating various resources such as property, medical treatment, entertainment, catering, home economics and education with modern intelligent scientific and technological means such as intelligent sensing, Internet of Things, big data, cloud computing and artificial intelligence, to solve the needs of the elderly in the community with the lowest cost, highest efficiency and most convenient services, and to provide the elderly with convenient, fast, scientific, practical and comprehensive elderly services [2].

3 PEST Analysis of Smart Community Aging-in-Place Service Model

According to the characteristics of the elderly service industry combined with the development trend of smart elderly care, the four major categories of political, economic, social and technological factors are analyzed in PEST [3].

3.1 Policy Environment

In April 2019, the State Council issued the "Opinions of the General Office of the State Council on Promoting the Development of Senior Care Services", which specifies the core policy of "Internet + Nursing" and "Smart Nursing Home", and makes planning and deployment for smart senior care. The "14th Five-Year Plan for the National Development of Aging Causes and Elderly Care Service System" issued in 2021 pointed out that it would promote the development of Internet + elderly care services, support the platform construction of community-based elderly care service institutions, and provide a menu of convenient services for the elderly in the vicinity.

3.2 Economic Environment

According to the "2021–2022 China Senior Care Industry White Paper", the scale of China's smart health and senior care industry in 2019 is nearly 3.2 trillion yuan, and based on the 2013–2020 senior care-related macro and industrial data combined with the system dynamics model, the scale of the smart senior care industry in 2022 will reach 9 trillion yuan, and the scale of"housing for the aged" will be 2.5 trillion yuan, and the scale of the elderly industry is expected to exceed 12 trillion yuan in 2025. China has a large number of elderly groups, huge consumption demand for smart old-age health products and services, a long industrial chain, wide coverage and large development space [4].

3.3 Social Environment

Various places have been promoting the aging-friendly transformation of community homes, focusing on supporting aging-friendly projects in the transformation of old city communities, installing elevators in community buildings, adding intelligent senior care facilities in the construction of new communities, building medical and health information platforms for community hospitals, etc., and various intelligent senior care products have started to enter senior families, all of which proved the progress of the concept of aging-friendly, policy and technology in the construction of aging-friendly environment in China. All these practices are the progress of the concept, policy and technology in the construction of an elderly-friendly environment in China.

3.4 Technical Environment

According to the Chinese Society of Gerontology and Geriatrics, smart senior care "can precisely meet the personalized professional service needs of the elderly". The information platform can integrate online and offline senior care service resources, accurately identify the senior care service needs of the elderly by big data analysis, provide personalized menu-type senior care solutions, and make senior care services more convenient. Various intelligent senior care products realize senseless safety control through data collection, face recognition, the Internet of Things and other technological means and terminal products, which provide new possibilities for the development of intelligent senior care and provide more humanized services for the elderly [5].

4 To Construct an Information Platform for Smart Community Aging-in-Place Service

4.1 Module Design of Emergency Assistance Service

In terms of emergency assistance, smartphones are worn by the elderly, so that when they encounter sudden diseases, accidents and other emergencies, they can make a one-touch emergency assistance alarm through video, providing solid security for the elderly [6]. In terms of fall alarms, the elderly wear a fall detector with them. If they fall accidentally, the system can immediately find and alarm in a preset way, and immediately notify their children, community, property and inspection personnel to come to their homes for assistance. In terms of inactivity alarm, through the human body activity perception and other equipment, when the elderly are inactive for a long time, they can send out alarm information in a preset manner to find and check for assistance in time [7].

In case of burglary, emergency burglary prevention services can be provided to elderly families through alarm networking services, and a 24-h, all-weather linked alarm prevention mode can be implemented to ensure the safety of the elderly at home and the safety of their family property.

Through the system configuration of relevant sensors, it can realize the monitoring and automatic alarm of various dangerous information such as gas leakage, running water and fire, and keep an eye on the safety of the environment in which the elderly live [8].

4.2 Module Design of Medical and Health Care Service

It adopts digital medical monitoring, using smartphones and watches to install corresponding medical monitoring software, accepting and processing digital signals from various home portable digital medical devices such as ECG, blood sugar, pulse, blood pressure, weight, etc., and uploading them to the street platform and community platform to realize the real remote digital medical monitoring function, ensuring that the elderly are known when they are sick, will be accompanied by someone to see a doctor for dispensing medicines, do not need to go out for medical services, and know their own health status. In terms of peace of mind, according to the needs of the elderly or their children, meal service, walking assistance and life escort can be launched for the elderly [9].

4.3 Construction of O and M Service Model

The government department mainly assumes the role of guide and sponsor, is the main source of financial resources, and is responsible for the formulation of laws, regulations and policies; the elderly assessment organization is responsible for formulating the corresponding assessment standards and providing assessment training to the personal managers of the elderly; the service provider assessment and training organization is responsible for collecting the information of each service organization, providing assessment and training to the service organizations; the staff of the community aging-in-place service centers act as the personal managers of the elderly, assess the elderly after the training by the elderly assessment organizations, and are responsible for the elderly during the whole process from the application of services to the feedback of services; and the specific services are mainly provided by profit-making organizations and non-profit social service organizations.

5 Conclusion

Smart community home-based elderly care service is the future development direction of China's community-based elderly care service. This model is guided by the government and based on the community, with the participation of multiple subjects such as families, social organizations and service providers. This model relies on smart communities and makes full use of big data, the Internet and other technologies to build a smart community aging-in-place service information platform and integrate senior care service resources. It provides life care, nursing care and medical care services for the aged according to their actual needs, and constructs a convenient, safe, comfortable, efficient, healthy and human-oriented integrated smart community service model for the aged at home, to achieve smart governance, provide quality old-age care services, and improve the well-being index of residents [10].

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References

1. Dai Zhipeng, Ma Weiping. 2018. Sports, Medicine and Elderly Care: Construction of paths to intervene with the elderly's health. Scientific Research on Aging, 6(09):55-66.
2. Xu L., Li L. Internet + intelligent elderly care: a community-based aging-in-place service model based on O2O concept [J]. *Chinese Journal of Gerontology*. 2021,41(12): 2675-2681
3. Huang X. L. Research on aging-in-place service model of Nanning city smart community [J]. *Journal of Nanning Polytechnic*. 2021,29(06): 73-79
4. Wang Xuezhen. 2020. Exploring the Development Path of "Internet Plus" Elderly Care Services in Communities. Journal of Hunan Administration College, 4:102-111.
5. Chen Jie. 2020. Optimization and Measures for embedded "Internet Plus" Medicine-Sports Combination Model. The Guide of Science & Education, 25:160-162.
6. Zeng X. Y. Research on the service mode of "aging-in-place" based on smart community [J]. *Journal of Changzhou Institute of Technology (Social Science Edition)*. 2013,31(06): 92-94
7. Zhao Chao. 2020. Research on Community Home-based Elderly Care Services under Medicine-Sports Combination Model: A Case Study of Z District in P City. Neijiang Technology, 41(06):106–107+129.
8. Wang Xin.Collaborative Innovation Construction of Community Pension Service System under Big Data Background[J]. Journal of Lanzhou University(Social Sciences), Vol.48, No.1, pp. 36–45, 2020.
9. Zhang Z. G. Safety first: an analysis of community-based aging-in-place service model: research on the systematic construction of intelligent elderly safety service platform[J]. *China Security & Protection*. 2022,(06): 93-96
10. Tang M. L. Research on the construction of smart community-based aging-in-place service model [J]. *Northwest Population Journal*. 2017,38(06): 58–63+71