

Research on The Integration and Development of "AI Medical Care + Tourism + Health Care" Industry from The Perspective of Healthy Aging

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Abstract: As the degree of aging continues to deepen, the demand for medical services for the elderly is increasing. At the same time, the application of intelligent technology in the medical field is also booming, and the AI medical market has broad prospects. The elderly's demand for travel and vacations is also showing a growing trend, and health and wellness tourism is developing well. Therefore, it is of great significance to promote the construction of an age-friendly society by carrying out integrated innovation of AI medical, tourism and health care industries to realize the complementary advantages of the three. This study will analyze the significance and model of the integrated development of AI medical, tourism and health care industries, as well as the problems faced and path choices. The study believes that the development of smart medical care is the key to achieving industrial integration, and it is also necessary to strengthen top-level design, build a big data platform, innovate business models and other aspects; at the same time, cultivating compound talents with cross-knowledge is also an important measure to ensure integrated development one. The research aims to provide decision-making reference and suggestions for my country to promote the integration and innovation of related industries in the face of serious population aging.

Keywords: Aging, AI medical care, tourism, health care, industrial integration

1 Introduction

As China enters the stage of population aging, people aging gradually becoming aware of the potential disease risks brought about by the age of longevity, paying more attention to health issues, and actively maintaining and promoting their own health. With the extension of average life expectancy and the decline of fertility rates, the number and proportion of China's elderly population continue to grow. According to the National Bureau of Statistics, in 2000, China's population aged 60 and above accounted for 10.5%, and by 2020, it had reached 18.7%. The proportion of the elderly population will continue to rise in the future and is expected to exceed 30% by 2050.

Under the background of "big health" and an "aging population", health and wellness tourism is a new form of leisure tourism development and has become a fashion industry for the experience economy, leisure economy, and health care. Health and wellness tourism is a kind of health tourism centered on leisure, based on a good natural and cultural environment, with the purpose of health preservation, fitness, and relaxation. The development of the rural health and wellness tourism industry needs to be systematically optimized based on the three contents of tourism services, tourism products, and tourism experience. From the "National Health Tourism Demonstration Base Standard" in 2016 to the "Guiding Opinions on Promoting the Development of Health Tourism" in 2017, to the "Healthy China" strategy proposed by the 19th National Congress of the Communist Party of China, the national "14th Five-Year Plan" "Put the protection of people's health in the strategic position of priority development" proposed by the plan. The development of "AI medical care + tourism + health care" is an effective way to achieve the goal of comprehensive health, and it is also the key to achieving the strategic goal of a healthy China. Therefore, it is of great practical significance to explore the high-quality development path of "AI medical care + tourism + health care".

2 Significance of The Integrated Development of AI Medical Care and Tourism Health Care

2.1 Helps to Extend the Scope of Medical Services

Break through geographical restrictions and provide convenient telemedicine services through online platforms. If the elderly need medical consultation or a prescription when traveling, they can obtain timely diagnosis and medication guidance through the AI-assisted telemedicine platform. Provide more accessible home health care. Combining intelligent hardware and AI software, patients can obtain basic physiological parameter monitoring, rehabilitation training guidance, psychological counseling, and other medical services at home. Build a closed loop of health management. By using big data and AI, users' health data can be comprehensively analyzed to realize a full-process, closed-loop service from health assessment to disease prediction to health management.

Enrich tourism-style rehabilitation products. Medical institutions can set up rehabilitation centers in tourist destinations and develop health care products to meet the needs of the elderly for professional medical rehabilitation services during travel. As the sixth industry of medical services, medical tourism has broad development potential.^[1] (Choi, Yongrok et al) Provide full health management. For the elderly with chronic diseases, a whole-process health management plan can be designed to monitor their health status in real time during travel to ensure disease control and medication compliance. Expand the business model of medical services. Relying on AI medical technology, innovative business models such as mobile diagnosis and treatment vehicles and medical ships can be developed to cover a wider range of health tourism customer groups.

2.2 Meet the Travel Needs of the Elderly

The integrated development of AI medical care and tourism health care provides personalized tourism health planning services. According to the health status, needs, and preferences of the elderly, use big data and AI technology to formulate personalized travel routes, catering plans,

sports and fitness plans, etc. Construct a convenient and friendly tourist environment. Set up barrier-free facilities in tourist attractions, develop wearable AI medical equipment, and provide services such as smart tour guides and tourist information inquiries in combination with technologies such as voice and face recognition. Arrange for professional medical staff to accompany you throughout the process. For the elderly with limited mobility or chronic diseases, doctors and nurses can provide full-time accompanying services, and health status monitoring and nursing guidance can be carried out at any time.

Provide refined travel medical insurance. Medical tourism has developed into a transnational emerging industry, which has also promoted the innovative development of the healthcare industry.^[2](AN Seow, CK Choong et al.)Combining the resources of medical institutions, providing basic diagnosis and treatment, first aid, medical transfer, and other services for the elderly during tourism, and handling disease monitoring and medication management well Rich and diverse recreational and sports activities. Relying on the resources of the destination, develop sports and fitness, forest bathing, hot spring health, and other recreational activities suitable for the elderly to meet the needs of play and physical fitness. Use VR and AR technology to enrich your travel experience. Some elderly people who cannot go out to travel can obtain an immersive travel experience through virtual reality technology, gaining fun and satisfaction.

2.3 Promote the Upgrade of Medical Consumption

The integrated development of AI medical care and tourism health care can innovate high-end medical tourism products. For high-end customers, research and develop innovative products that integrate high-tech medical technology and luxury vacation travel, such as cruise medical trips accompanied by private doctors. Create a boutique tourism route for medical treatment and health care. According to the medical demands and payment abilities of different groups of people, we design characteristic routes that combine recuperation, health care, and tourism experiences. Expand medical mobile service scenarios. Develop innovative service models such as medical mobile diagnosis and treatment vehicles and medical service ships to provide door-to-door professional medical services for health care tourism groups. Enrich medical cosmetology tourism projects. Relying on medical cosmetology technology and services, develop medical cosmetology treatments combined with scenic spot tours to meet customers' medical cosmetology needs.

Using VR and AR technology to create a virtual medical tourism experience. Customers who are unable to travel can obtain an immersive medical tourism experience online and experience high-end medical services. Integrate resources to build a medical and health care community. Build a high-end medical and health care community integrating medical treatment, rehabilitation, living, and health preservation in high-quality tourist attractions. Enrich the connotation of the online medical mall. The online medical mall has set up a medical tourism zone to provide a variety of medical tourism products and services.

3 AI Medical and Health Tourism Integration Development Model

3.1 Online and Offline Deep Integration Mode

The online and offline deep integration model of the integrated development of AI medical care and health care tourism can build a unified health management platform. Integrate online and offline medical data and build a customer-oriented health management platform through big data and AI technology. The platform can realize functions such as whole-process health monitoring, health assessment, and personalized advice. Provide health consultations and medical services online. Customers can conduct online medical consultations, obtain health consultation services from AI assistants or doctors, and customize remote medical monitoring solutions through mobile apps or websites. Offline medical institutions provide face-to-face diagnosis and treatment. Establish supporting medical institutions in tourist destinations to provide tourists with services such as face-to-face diagnosis, treatment, and basic health checks. And synchronously feed back the medical information to the health management platform.

Tourism activities integrate elements of health management. Add activities related to health management to the travel itinerary, such as fitness climbing with a doctor, special meals designed by a nutritionist, lectures by a doctor, etc. The online platform tracks and analyzes activity data. Provides continuous remote health management. After the tour is over, continue to provide customers with remote health monitoring and management through the platform to form a closed-loop service. Until the start of the next period of travel, a new evaluation report will be provided. This model makes full use of online and offline advantages, closely combines medical services and tourism experiences, and realizes deep integration with customer health management as its core.

3.2 Integration Mode of AI Virtual Technology and Tourism Experience

The virtual technology and tourism experience fusion model of the integration of AI medical treatment and health care tourism can use virtual technology to create immersive tourism scenes. Use virtual technologies such as VR/AR to create realistic virtual tourism scenes and experiences, such as virtual reality tour attractions, experience various entertainment items, etc. Use simulation technology to restore real medical scenarios. Use the medical simulation system to simulate various medical environments, surgical procedures and other details, allowing customers to experience complex medical procedures personally. Combine interactive devices to create a sense of participation. Use interactive equipment to allow customers to interact and operate in virtual scenes, increasing the sense of simulation and participation, such as virtual surgery simulation systems. Use multisensory stimulation to increase immersion. Integrated visual, auditory, tactile and other sensory inputs to create immersive virtual tourism and medical scenes, improve the authenticity of perception and play experience.

AI systems provide intelligent interactions. Use AI technologies such as speech recognition and semantic analysis to build intelligent virtual images, realize natural language interaction, and provide customers with active services. Big data drives custom content generation. Relying on big data to analyze user preferences, adjust virtual content in real time, and automatically generate personalized virtual tourism and medical experience. This model provides users with CUSTOMIZED, immersive medical and tourism experience through virtual technology, making up for offline restrictions.

3.3 Deep Integration Model of Tourism and AI Medical Care

The model of deep integration between tourism and AI medical care can strengthen strategic cooperation between medical institutions and travel agencies. Hospitals and rehabilitation centers can reach strategic cooperation with travel agencies to jointly design products that deeply integrate medical care and tourism and provide customers with one-stop services. Integrate medical data to achieve whole-process health management. Use wearable devices, sensors, etc. to obtain health data during the journey and combine AI analysis to provide services such as health assessment, disease early warning, and medication reminders. Use AI-assisted systems to provide smart medical care. The AI diagnostic system assists doctors in improving diagnostic efficiency and accuracy. Intelligent exoskeletons, nursing robots, etc. assist in providing rehabilitation care.

Build a closed loop of medical care, health care, and tourism services. Telemedicine advice is provided prior to travel. Organize customized health care activities during the journey. Remote medical monitoring and rehabilitation guidance after travel Set up a temporary medical point to provide services for passengers. Set up temporary clinics, medical vehicles, etc. in tourist attractions to provide outpatient services for tourists. And form remote consultations with large hospitals. Develop characteristic medical-themed tourism products. Such as acupuncture and moxibustion health tours, hot spring health care tours, etc., deeply integrate medical services and tourism to form a replicable product model. Through the comprehensive integration of medical resources into every link of tourism, the in-depth synergy between tourism and medical care will be realized, and a development pattern with complementary advantages will be formed.

4 Problems and Countermeasures Faced by the Integrated Development of AI Medical Treatment and Wellness Tourism

The application of artificial intelligence (AI) technology in the medical and wellness tourism fields is constantly expanding and showing a trend of integrated development. However, this integrated development also brings a series of challenges and problems. There are differences in the regulation of medical devices and artificial intelligence across countries. ^[3] (Arima, H., Kano, S.) It mainly reflects the following aspects: (1) Data privacy and security. With the increasing application of AI technology in the medical and wellness tourism fields, it involves the collection, storage and analysis of large amounts of user data. However, the privacy and security of this data becomes a serious issue and is vulnerable to hacking or unauthorized access. How to ensure data security and privacy is an urgent problem that needs to be solved. (2) Technical standards and specifications. At present, the relevant technical standards and specifications for the integrated development of AI medical care and wellness tourism have not yet been perfected. There are interoperability issues between different platforms and the lack of unified standards for various technical applications, which has brought unnecessary confusion to the industry, restricting its further development. (3) Ethical and legal issues. The application of AI in the medical and wellness tourism fields involves many ethical and legal issues, such as the transparency and explainability of artificial intelligence algorithms and the responsibility of robot doctors. In addition, safety and effectiveness evaluation standards for AI medical products also need to be established urgently. (4) Human-computer interaction and user experience issues. The application of AI technology needs to take into account human-computer interaction

and user experience to ensure the effectiveness and ease of use of products and services. However, the current application of AI in the medical and wellness tourism fields has problems such as poor user experience and insufficient technical interactivity, which requires more research and improvement. (5) Social acceptance and policy support. The integrated development of AI medical treatment and wellness tourism requires widespread social acceptance and policy support. However, the public currently has certain concerns and distrust about the application of AI in the medical and wellness tourism fields, and the government and relevant departments have relatively insufficient support for the formulation and support of relevant policies.

To sum up, the integrated development of AI medical care and wellness tourism faces a series of problems and challenges, which require joint efforts from all parties to solve them. The following strategies can be used to respond: (1) Establish a sound data privacy and security protection mechanism, including data encryption, access control, security audit and other measures. By strengthening data security and privacy protection, establishing technical standards and specifications, and strengthening ethical and legal supervision, Strengthen social publicity and policy support. (2) Promote the unification and mutual recognition of technical standards and specifications among different industries and eliminate obstacles to technical docking and interoperability. Establish an industrial collaboration mechanism to promote technology sharing and exchanges and promote the in-depth development of industrial integration and innovation. (3) Encourage enterprises to actively explore new business models, combine the characteristics and application scenarios of artificial intelligence technology, develop disruptive innovative products and services, and improve human-computer interaction and user experience.

5 The Path to The Integrated Development of AI Medical Care and Health Care Tourism

5.1 Strengthen Top-Level Design and Introduce Policy Support

Strengthen the top-level design and introduce policies to support the integrated development of medical care and health care tourism. Formulate a special development plan to clarify the strategic positioning of integrated development. At the national or local level, a special plan for the integrated development of medical and health tourism can be formulated to clarify key areas, key areas, and development goals. Establish a cross-departmental coordination mechanism to form a policy synergy. Establishing a health care + smart tourism economic circle.^[4] (Yang Jing) Multiple departments such as medical care, tourism, and civil affairs jointly hold working meetings, establish a regular communication mechanism, and form policy synergy (Figure 1).

Introduce preferential policies to support integrated development projects. Integrative development projects can be given policy support for a certain period of tax relief, land use, financing, etc. Relax market access and encourage social capital participation. Appropriately relax market access in medical care, elderly care, tourism and other fields, and encourage social capital to participate in integrated development in various forms. Add pilot demonstration areas for integrated development to accumulate experience.

Select some areas as pilot demonstration areas, support the deep integration in this area, and summarize the experience and promote it to the whole country. Some scholars pointed out the development strategies of smart medical care for the elderly through case studies.^[5] (Luo Zhuohui, Li Xiangyu et al.) Increase financial support and improve the level of industrial software and hardware. Through financial transfer payments, special funds and other channels, increase financial support for infrastructure and public services. Formulate standards and norms to regulate the order of development. Establish and improve regulations and standards for medical tourism, long-term care, etc., and standardize service behaviors for integrated development.

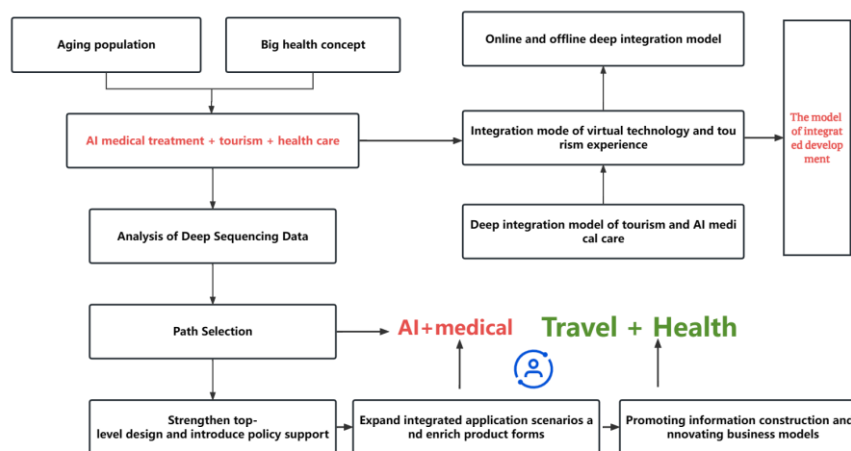


Figure 1. Demonstration of the model and path of the integrated development of medical and health care tourism.

5.2 Expand the Integration Application Scenarios and Enrich the Product Forms

Expand the application scenarios of the integration of medical care and health care tourism, and enrich the path of product forms. It is possible to develop products combining family and community medical care. In the home and community environment, provide services and activities such as home medical care, day care, rehabilitation care, etc., to enrich the lives of the elderly. Launched medical care prescription tourism products. According to the health status and needs of the elderly, develop tourism routes that provide personalized medical services. Build an experience town that combines medical care and nursing care. To create a characteristic town of medical care, elderly care and elderly care that integrates medical care, culture, entertainment and accommodation. Develop virtual digital medical care products. Relying on technologies such as VR/AR, the elderly who cannot go out can also obtain a virtual experience of medical care. Promote the construction of medical virtual universe ecological scenes under the background of smart medical care.^[6] (Lei Yu) Launched medical care services for the elderly living alone. Design a service package of on-site medical care and life care for the elderly living alone. Develop tourist routes suitable for aging. Adjust the content and methods of tourism, and design more suitable travel routes for the elderly. Provide one-stop medical care services. Provide supporting medical, rehabilitation, cultural and entertainment services in nursing homes and communities.

5.3 Promoting Information Construction and Innovating Business Models

Build a unified health information platform. Integrate customer health data, and establish a unified health information platform through cloud computing and big data technology. Develop an online medical service system. Establish a full-process settlement system for hospital medical insurance under the "smart medical" model.^[7] (Li Bing, Sun Zhenning et al.) Construct a network medical service system covering consultation, prescription, medication guidance and other modules, so that users can obtain medical advice online. Use the mobile Internet to provide health management services. Through the mobile APP, remote health monitoring, rehabilitation exercise teaching, and symptom reminders are managed for users. Use precise recommendation algorithm to match services. According to the results of big data analysis, accurately push medical tourism products or services suitable for different users. Carry out the construction of medical tourism e-commerce platform. Integrate online and offline resources to create a comprehensive medical tourism e-commerce platform. Use the Internet marketing model to expand the scope of services.^[8] (Liu Yue) Relying on network marketing to cover a wider range of potential users and provide customizable telemedicine services. Use digital technology to optimize service processes.^[9] (Xie Dongmei, Yang Yi et al.) Use digital and intelligent means to simplify the service process and improve service efficiency.

5.4 Cultivate an Integrated Development Ecology and Build a Synergy Mechanism

Cultivate a talent team that conforms to integrated development. Strengthen the cross-training of talents in the fields of medical care, nursing, tourism, management, etc., and cultivate compound talents. Build a big data platform for medical tourism. Integrate multiple data resources such as medical care, tourism, transportation, and meteorology to build a medical tourism big data platform. Promote strategic cooperation between medical and tourism enterprises. Encourage hospitals, travel agencies, hotels, insurance companies, etc. to carry out in-depth cooperation to form industrial chain synergy. Create a medical tourism alliance. Establish a medical tourism alliance, carry out industry exchanges, self-discipline, and protect the rights and interests of members. Improve medical tourism standards and regulations. Formulate standards and specifications for service processes, quality monitoring, and emergency response. Provide differentiated financial and investment support policies. Innovative investment and financing services for the integrated development of medical care and elderly care, providing venture capital, discount funds, etc. Strengthen coordination among government departments. Establish a normalized medical tourism coordination mechanism to form a policy synergy.

6 Conclusion and Prospects

6.1 Conclusion

This study will analyze the significance, model selection and path selection of the integrated development of AI medical care, tourism and health care industries. The study believes that the integration of AI medical care and tourism and health care industries can extend the scope of medical services, meet the travel and medical needs of the elderly, and promote the upgrading of medical consumption. The mode of integrated development can adopt the deep integration of online and offline, the combination of virtual technology and tourism, the deep integration of

medical treatment and health care tourism, etc. The development of smart medical care is the key to realizing industrial integration. It is also necessary to strengthen top-level design, build big data platforms, and innovate business models. At the same time, cultivating interdisciplinary talents with cross-knowledge is also one of the important measures to ensure integrated development.

On the whole, promoting the integrated development of AI medical care and tourism and health care in the context of aging is of great significance to expanding the supply of elderly services and improving the quality of life of the elderly. It is necessary to increase policy support at the national level and take appropriate incentives to guide social capital to actively participate in investment in related fields. This study provides decision-making reference and suggestions for my country to promote the integration and innovation of related industries in the face of serious population aging situation.

6.2 Deficiencies and Prospects

Although this study has made an in-depth study of the research model, it is not comprehensive enough to evaluate the economic benefits of integrated development. Comparative research on different models needs to be strengthened. There is a lack of specific empirical case studies. Further in-depth research is needed on the specific path of industrial integration ecological construction. The risks and countermeasures faced by integrated development need further discussion. Follow-up studies will make up for these deficiencies and make the results more instructive.

With the advancement of technology, the integration of AI medical care and tourism health care will become more intelligent and personalized in the future. It is expected that the integrated development models of different regions and different groups of people will show a trend of diversification. In the future, the innovative application of virtual reality technology in medical tourism can be explored. The application of medical and health big data provides a broad space for integrated development. International medical tourism and regional collaboration are also worthy of further study.

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