

Research on Collaborative Innovation of Community Home-Based Rehabilitation Medicine Based on Internet of Things Technology

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Abstract: Based on the analysis of the development status of community home-based rehabilitation medical services in China, we try to make full use of the advantages of modern information technology and collaborative and innovative management methods to explore community home-based rehabilitation medical services and build community home-based rehabilitation medical system under the guidance of community home-based intelligent elderly care model. We believe that the home-based rehabilitation medical model based on Internet of things technology is the only feasible solution to solve the rehabilitation medical treatment of the elderly under the background of large elderly population, limited medical resources and unbalanced distribution. Our unique suggestions for the development of home-based medical services for the elderly will help us overcome these problems and promote the development of home-based medical services.

Keywords: Internet of things; Community home-based rehabilitation medicine; Collaborative innovation

1. Introduction

With the continuous advancement of population aging, based on the characteristics of China's population structure and quantity, China has already become the country with the largest and fastest-growing elderly population [1-3]. The problem of providing for the aged has become a major social problem, among which the rehabilitation of the elderly is the core task of the problem of providing for the aged. The task is very arduous, which can be called a world-class problem and is not easy to solve. The reason why the rehabilitation medical treatment of the elderly in China is very complex. On the one hand, the total number of elderly care population is the most, the resources of rehabilitation medical treatment are relatively scarce, and the distribution is not balanced; on the other hand, other countries in the world have no similar experience to learn from. We simply copy the rehabilitation medical service methods of western developed countries, which is difficult to solve the problem of rehabilitation medical treatment under the background of large elderly care population, limited medical resources and unbalanced distribution in our country [4-6]. This paper attempts to make full use of the advantages of modern information technology and collaborative and innovative management methods to explore community home-based rehabilitation medical services under the guidance of community home-based intelligent elderly care model, and puts forward relevant suggestions according to the current situation of the development of home-based rehabilitation medical services, so as to promote the development of community home-based rehabilitation medical services. It is helpful to overcome the unique problem of rehabilitation medical service for the elderly in China.

2. Discussion on related concepts

2.1 Concept of collaborative innovation

Innovation is a creative activity of human society in order to change its own environment and meet the needs of survival and development. We put forward new methods and ideas with human existing experience, skills and knowledge. These creative activities can meet the growing needs of human society and be of great benefits. In 1971, the German scientist Haken put forward the unified thought of systematic synergy. He believed that all kinds of things in nature and human society generally have the phenomenon of order and disorder. Under certain conditions, order and disorder will transform each other.

Disorder is chaos and order is synergy. Today, with the development of human society, the meaning of synergy has further developed, including comprehensive synergy between people, between people and society, between people and machines, and between machines and machines.

Collaborative innovation means that under the guidance of synergy, the subjects participating in innovation activities coordinate and cooperate with each other to jointly promote the progress of things, so that each subject can benefit, enhance and develop together [7-8]. Multiple participants gather together to form a total force beyond the participants. The subjects in community home-based rehabilitation include families, communities, rehabilitation medical institutions, banks, schools, etc. In order to overcome the increasingly severe problems of population aging, especially the rehabilitation medical problems of the elderly, we must make all the subjects involved cooperate comprehensively and deeply. From the perspective of family, the elderly is in good health and self-care. They should actively choose home-based rehabilitation medical services, so as to avoid occupying the limited medical resources of the hospital. From the perspective of community, they actively organize forces to provide good conditions for the development of home-based rehabilitation medicine. From the perspective of rehabilitation medical institutions, they should build high-quality medical resources and first-class professional team to provide efficient and accurate rehabilitation medical services from the perspective of social public welfare. From the perspective of banks, they should undertake corresponding social responsibilities, provide low interest or interest free loans to rehabilitation medical institutions, and provide financial support for the development of home-based rehabilitation medical care. From the perspective of schools, they should actively set up the related majors of home-based rehabilitation medical, cultivate rehabilitation medical service talents, and provide talent guarantee for the healthy and orderly development of rehabilitation medical services. The above participating departments need to actively cooperate, complement each other and make collaborative innovation, which will form a greater joint force.

2.2 Introduction to Internet of things technology

With the rapid development of modern information technology, information technology has penetrated into all fields of our country, and earth-shaking changes have taken place in all fields. Internet of things technology is to connect all terminal devices with the Internet through sensors such as RFID to realize intelligent identification and management. The information system represented by the Internet of things technology takes the Internet as a virtual brain. The Internet of things, like our eyes and ears, has a certain perception function to monitor all external things. We can lead Internet of things technology into community home-based rehabilitation medical services, establish a physical health monitoring and tracking system for the elderly based on Internet of things technology, and understand the health status of the elderly in real time and continuously. According to the actual physical condition of the elderly, the system sends a warning to the rehabilitation medical service personnel, and the service personnel make corresponding diagnosis and provide services according to the warning.

3. Development status and problems of community home-based rehabilitation medical services in China

As China has built a well-off society in an all-round way, people's pursuit of quality of life has been continuously improved, among which national health is an important link. Rehabilitation medicine is an important part of China's medical system and plays an important role in the health of the whole people. In recent years, China's medical and health undertakings have developed rapidly and made considerable progress, basically meeting the basic needs of the general public, but the development of rehabilitation medicine is slow and still in the primary stage. This is because for a long time in the past, we did not pay enough attention to rehabilitation medical treatment, seriously insufficient investment, and the development concept lags behind, focusing on treatment rather than rehabilitation. All departments work independently and are difficult to form a joint force [9-11].

(1) There are legal loopholes in home-based rehabilitation medicine

At present, some medical institutions support door-to-door provision of rehabilitation medical services, so that the majority of patients, especially the middle-aged and elderly, can get services at home. However, at the practical level, there are many risks. For example, patients with sudden diseases or existing basic diseases are easy to lead to accidents. It is difficult to monitor the treatment process in real time, resulting in difficult to clarify the responsibility after disputes. Without a sound legal security system, the majority of medical staff are worried that they may face legal responsibility, and it is difficult

to continue to promote home-based rehabilitation medicine.

(2) The cost of home-based rehabilitation medicine is high, which is difficult for the general public to bear

At present, the national basic medical insurance coverage does not cover home-based rehabilitation medical treatment for the time being in most parts of China. The high cost of home-based rehabilitation medical treatment brings a heavy economic burden to patients and their families. The high cost is an important reason that hinders the rapid development of home-based rehabilitation medical treatment, making home-based rehabilitation medical treatment belong to the ranks of high consumption. We should strengthen the reform of national basic medical insurance, which make it cover home-based rehabilitation, so as to reduce the expenditure of patients, and let more patients actively participate in home-based rehabilitation.

(3) Lack of home-based rehabilitation medical talents

Home-based rehabilitation medical care lacks professional talents and relies more on the support of personnel from hospitals and other medical institutions. Most of them lack experience in home-based rehabilitation environment and have not received strict home-based rehabilitation medical training. Moreover, the medical staff in the hospital work very hard in the hospital, and many of them have no time and energy to provide home-based rehabilitation medical services. The majority of patients do not get a good sense of experience in home-based rehabilitation medical services, which hinders the healthy and orderly development of community home-based rehabilitation medical industry.

(4) The lack of a unified patient information sharing management system, which makes it difficult to provide rapid, efficient and accurate rehabilitation medical services

Home based rehabilitation medicine lacks a unified and shared patient information management system, which cannot be effectively connected with the information management system of the social security bureau and major medical institutions. It is difficult for patients' social security cards to directly pay for home-based rehabilitation medical services. The current patient management system cannot be connected to hospital institutions, and the personnel of home rehabilitation medical services cannot timely understand some basic information and disease information of patients. Patients generally have been repeated diagnosis and treatment, so the rehabilitation medical service staff cannot make correct diagnosis, or even delay the treatment of patients. Relevant government departments cannot timely understand the overall health status and changes of the elderly in their jurisdiction.

4. All departments cooperate and innovate to actively build a community home-based rehabilitation medical system

Under the background of increasingly serious population aging, the largest aging population in the world and very tight medical resources in China, how to provide high-quality rehabilitation medical services for a large number of elderly people in China is the most urgent problem to be solved. Traditional medical system centered on medical institutions can no longer meet the actual needs of China's rapid population aging, fewer children of family and social urbanization. Home-based rehabilitation medical is the only feasible solution to solve the population aging in China. On the one hand, it can revitalize the existing living resources; on the other hand, the elderly can get medical rehabilitation services at home and save the resources of the medical system. It is urgent and of great practical significance to build a home-based rehabilitation medical service system. The construction of home-based rehabilitation medical system based on modern information technology such as the Internet of things is inseparable from the active participation of families, government departments, enterprises and other participants. The collaborative participation of multiple departments will be more conducive to form a greater joint force. At the same time, the information management system of home-based rehabilitation medical service must be based on the Internet of things technology, which is different from the traditional management system. The relevant personnel of all participants can monitor in real time and pay fees online, so as to provide efficient and accurate rehabilitation medical services. This system will help to provide high-quality medical rehabilitation services for the elderly, reduce the family burden of the elderly, reduce their medical costs, and alleviate the pressure of medical institutions.

(1) Establishing and perfecting the legal system and norms of home-based rehabilitation medical service is conducive to the development of home-based rehabilitation medical service

First of all, from the institutional level, we should establish and improve the legal system and code of

conduct of home-based rehabilitation medical services, so that the majority of home-based rehabilitation medical staff can follow in their work. The majority of home-based rehabilitation medical service personnel and patients have legal protection, and they are more able to engage in home-based rehabilitation medical services, so as to promote the healthy, orderly and standardized development of home-based rehabilitation medical undertakings. They can more actively participate in the home-based rehabilitation team,

(2) We will actively promote the reform of the medical insurance system and allow the national basic medical insurance and commercial insurance to cover home-based rehabilitation medicine

Most of the elderly are old and frail, and they are inconvenient to move. Home-based rehabilitation medical service is one of their choices. They must consider the cost. The coverage of national basic medical insurance must include home-based rehabilitation medical services, which will greatly reduce the payment cost of the elderly. When the expenses of some diseases may be large and the national basic medical insurance cannot be fully met, the third party commercial insurance should be introduced to provide rehabilitation medical insurance for the elderly in the community as much as possible. Let the majority of patients have the willingness and consciousness to choose home-based rehabilitation medical services.

(3) Cross departmental collaborative innovation to establish a professional home-based rehabilitation medical service team

All departments should establish correct concepts, strengthen the construction of home-based rehabilitation medical service team, and make collaborative innovation. From the perspective of national policies, we should formulate special policies to encourage more people to engage in home-based rehabilitation and improve their social status. To set up majors in colleges and universities, we should train professionals in the elderly care series and train a steady stream of talents for home-based rehabilitation medical services. Governments at all levels will increase the investment in special education funds for rehabilitation medical treatment, and materially encourage more personnel to invest in home-based rehabilitation medical services. All service personnel must receive strict and standardized training, so that they can have more experience and skills, and build a strong professional home-based rehabilitation medical service team.

(4) Establish a unified and standardized rehabilitation medical information management system based on Internet of things technology

A unified and standardized home-based rehabilitation medical information management system must be a modern information technology management system based on Internet of things technology. It can monitor the monitoring status of the elderly in the community in real time, provide door-to-door services in time, and carry out remote rehabilitation medical services. It is the key to whether the elderly in the community can get home rehabilitation medical treatment efficiently and accurately. The home-based rehabilitation medical information management system needs the cooperation of all participants and the effective connection of their systems, so as to facilitate the effective circulation of information, the sharing of patients' basic information and disease information, avoid repeated examination and make correct diagnosis. It is conducive to the integration, analysis and utilization of rehabilitation medical data, and formulate unified rehabilitation evaluation and medical standards on this basis, so as to provide evidence for two-way referral of rehabilitation.

5. Conclusion

In this paper, we propose a home-based rehabilitation medical model based on Internet of things technology, which makes full use of the advantages of modern information technology and collaborative and innovative management methods to build community home-based rehabilitation medical services. The community home-based rehabilitation medical service model requires all-round and collaborative cooperation of all participants, which will produce greater joint force. Using the advantages of modern information technology, it will be the only feasible solution to solve the rehabilitation of the elderly under the background of large elderly population, limited rehabilitation medical resources and unbalanced distribution. We also put forward relevant suggestions on the construction of community home-based rehabilitation medical system. These suggestions will promote the development of community home-based rehabilitation medical services in China, which will help to overcome the unique problems of rehabilitation medical services for the elderly in China.

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