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Research on Collaborative Service System of Medical, Nursing, and Pension for Elderly Chronic Diseases Under Holistic Governance — A Case Study of Shandong Section of the Yellow River Basin

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Abstract: Against the dual strategic background of healthy aging and high-quality development of the Yellow River Basin, care for the elderly with chronic diseases has become a key field of regional people's livelihood services. At present, the services for elderly chronic diseases in the Shandong section of the Yellow River are plagued by the separation of medical treatment, pension, and nursing, uneven resource allocation, and insufficient collaboration among stakeholders. The traditional single-service model can hardly meet the long-term care demands of the elderly with advanced age and chronic diseases. Supported by holistic governance, collaborative governance, and integrated nursing theories, this paper sorts out the current situation and practical dilemmas of medical-nursing-pension services for the elderly with chronic diseases in the Shandong section of the Yellow River and analyzes the underlying causes through field surveys, questionnaires, interviews, and case studies. An integrated service system is constructed from four dimensions: service subjects, service contents, service procedures, and supporting carriers, with differentiated implementation paths and a four-dimensional long-term guarantee mechanism designed. The research results can provide practical references for cities along the Yellow River to optimize elderly health services and advance the in-depth integration of medical, nursing, and pension services, and help implement the Healthy China strategy as well as the upgrading of regional elderly care services.

Keywords: Shandong Section of the Yellow River; Elderly chronic diseases; Integration of medical, nursing, and pension; Service system; Collaborative governance

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1. Introduction

With the continuous deepening of population aging, the high incidence, long duration, and demand for long-term care of chronic diseases among the elderly have made the management of elderly chronic diseases an important issue in social governance and public services. The state has successively issued policy documents including the *Outline of the Healthy China 2030 Plan* and the *Outline of the Plan for Ecological Protection and High-quality Development of the Yellow River Basin*, clarifying the requirement to improve the elderly health service system and extend integrated medical and elderly care as well as long-term nursing services to grassroots levels [1]. As a core province in the lower reaches of the Yellow River, Shandong covers 9 cities along the Yellow River. There are prominent disparities in urban and rural population structures as well as the distribution of medical and elderly care resources, with a large elderly population and a high prevalence of chronic diseases [2].

At the current stage, grassroots services for the elderly with chronic diseases in the Shandong section of the Yellow River generally feature disconnection between medical treatment and elderly care, separation of nursing and pension, and fragmented services. Medical institutions focus on disease diagnosis and treatment yet lack capacity for long-term living care; elderly care institutions are not equipped with professional medical and chronic disease nursing qualifications; community nursing forces are weak with poor coordination among multiple stakeholders. Meanwhile, unbalanced urban-rural regional development, shortage of professional talents, disjointed policies, and insufficient financial support further restrict the improvement of service quality [3]. Under such a context, breaking industrial barriers and integrating service resources to build an integrated medical-nursing-pension service system adapted to regional characteristics bears both theoretical and practical significance [4].

From a sociological perspective, this study takes 9 cities along the Yellow River in Shandong as the research scope, focusing on the elderly aged 60 and above suffering from common chronic diseases such as hypertension and diabetes. It deeply integrates medical, nursing, and pension services, and explores a collaborative operation model of multiple stakeholders. The aim is to solve the pain points of current elderly chronic disease care and create a replicable and promotable integrated service paradigm to shore up the weaknesses of regional elderly health services [5].

2. Research foundation and regional development status

2.1. Theoretical basis of the research

This research is mainly supported by three theories: holistic governance, collaborative governance, and integrated nursing. Centered on the actual demands of the public, holistic governance stresses breaking departmental and industrial barriers and solving the fragmentation of public services through resource integration and process reengineering as well as multi-party cooperation, which is highly consistent with the internal requirement of multi-stakeholder linkage and full-chain services in the integration of medical, nursing, and pension services. Collaborative governance holds that the government, medical institutions, elderly care institutions, communities, social organizations, and other parties shall cooperate equally with clear rights, responsibilities, and shared interests, which is suitable for sorting out the roles and operation mechanisms of all participants in medical-nursing-pension services. Integrated nursing centers on long-term care for the elderly with chronic diseases, advocating the seamless connection of diagnosis, rehabilitation, daily care, and psychological counseling to form a closed-loop care service chain [6]. The three theories

complement each other and form a complete theoretical framework for constructing the service system for the elderly with chronic diseases in the Shandong section of the Yellow River.

2.2. Practical characteristics of medical-nursing-pension services for elderly chronic diseases in the Shandong Section of the Yellow River

First, the group of elderly patients with chronic diseases is large with diverse care demands. The proportion of the elderly population in the region keeps rising. All types of chronic diseases are the main health hazards for seniors, and most elderly patients with chronic diseases suffer from disability or semi-disability, requiring comprehensive services beyond basic diagnosis and treatment [7].

Second, service supply is fragmented with disconnection between medical, nursing, and pension services. Medical treatment, nursing, and pension fall under different competent departments with obvious industrial barriers, and each type of institution has its own deficiencies, leading to broken services when the elderly transfer between venues.

Third, the distribution of resources is unbalanced across regions and urban-rural areas. Central urban areas boast concentrated resources and sound service models, while counties, towns and rural areas have backward facilities and a single service mode, resulting in a wide gap in service levels.

Fourth, a collaborative mechanism for multiple stakeholders is absent. The rights and obligations of the government, medical institutions, elderly care institutions and other relevant parties are ambiguous, with overlapping functions, prevarication and disconnected information sharing, failing to form a regular collaborative service pattern.

3. Problems and root causes of medical-nursing-pension services for elderly chronic diseases

3.1. Main practical problems

Fragmented services with a low level of integration. Medical treatment, elderly care, and nursing operate independently without forming a closed-loop service covering the whole process. There is poor connection of medical and care services for elderly people with chronic diseases across all stages, and difficulties in medical consultation and disconnection in care services are prevalent. There is a mismatch between supply and demand and a lack of targeted services. The existing services adopt a one-size-fits-all model, failing to distinguish differentiated demands of seniors with varying physical conditions. The supply of corresponding services is insufficient and cannot meet the actual needs of the elderly group [8]. Grassroots service capacity is inadequate. Primary elderly care institutions face a severe shortage of professional nursing staff and insufficient professional skills among current employees. Meanwhile, the penetration rate of age-friendly smart devices remains low, and modern service approaches are lacking. Service standards are inconsistent, with inadequate supervision and evaluation systems. No unified service specifications, charging criteria, and evaluation systems have been established within the region, leading to uneven service quality among different institutions. In addition, the dynamic supervision mechanism is incomplete, making it hard to guarantee service quality.

3.2. Underlying causes of the problems

Prominent institutional and mechanistic barriers exist, as medical care and elderly care fall under separate

administrative systems. There is a lack of regular communication and collaboration mechanisms among relevant departments, with policy formulation, resource allocation, and industry supervision carried out in isolation, which hinders the integration of services at the institutional level. The training system for professional personnel lags behind the needs. Relevant colleges and universities adopt a narrow orientation in talent cultivation and fail to foster interdisciplinary professionals. Meanwhile, grassroots posts offer limited salary and career development prospects, making it difficult to attract and retain employees and posing great challenges to the development of the talent workforce. The structure of capital investment is irrational. At present, most funds are channeled into large medical institutions and public elderly care facilities, while insufficient support is provided to grassroots communities, private elderly care institutions, and home-based care services. In addition, social capital lacks enthusiasm for participation, and a diversified fundraising mechanism has not been established [9]. Theoretical research is poorly integrated with practical application. Most existing studies focus on macro policies and general models, without conducting targeted research tailored to the urban-rural gaps and regional characteristics of the Shandong section of the Yellow River Basin. The proposed solutions are poorly implementable and cannot underpin grassroots practice.

4. Construction of integrated service system

4.1. Overall framework of the integrated service system

4.1.1. Dimension of collaborative service subjects

Clarify the division of rights and obligations of multiple stakeholders to build a collaborative pattern of "government guidance, medical institutions as the main body, elderly care institutions undertaking services, communities providing support and families participating." The government undertakes top-level design, policy formulation, resource coordination and supervision; medical institutions at all levels are responsible for chronic disease screening, diagnosis and treatment, emergency rescue and rehabilitation guidance; elderly care institutions focus on daily life and long-term care; communities act as grassroots hubs to conduct information collection, supply-demand matching, home-based services and health education; families bear basic care responsibilities. A cross-departmental joint meeting system shall be established to open communication channels among health, civil affairs, and human resources departments and break administrative barriers [10].

4.1.2. Dimension of integrated service contents

Centering on the full-cycle care demands of elderly chronic patients, integrate services into a complete chain: screening → diagnosis and treatment → rehabilitation → daily care → health education → psychological counseling.

Basic medical services: regular chronic disease screening, physical condition monitoring, medication guidance and emergency referral; Professional nursing services: rehabilitation training, wound care and home-based companionship for complications and disabled seniors; Elderly care services: catering, daily living and accompanying services; Value-added services: health lectures, psychological counseling and cultural activities to satisfy both physical and mental health demands of the elderly.

Service grades shall be divided according to seniors' physical conditions to provide customized services and solve the mismatch between supply and demand.

4.1.3. Dimension of closed-loop service procedures

Build a closed-loop service process of "demand assessment → scheme formulation → service implementation → feedback collection → dynamic adjustment." First, communities cooperate with medical staff to conduct health assessments for local elderly chronic patients and grade their health and care needs. Second, customized medical-nursing-pension service plans are formulated based on assessment results. Third, corresponding stakeholders carry out various services. Feedback from the elderly and their families shall be collected regularly, and service contents shall be adjusted in real time according to changes in physical conditions and demands to ensure continuity and adaptability of services.

4.1.4. Dimension of service supporting carriers

Construct a unified regional elderly health information platform integrating resident health files, chronic disease data, and elderly care information to realize information sharing and data exchange among medical institutions, elderly care institutions, and communities. Relying on the information platform, remote monitoring, online consultation, and reservation services are available to connect online and offline channels and break information silos for higher service efficiency.

4.2. Design of differentiated implementation paths

In view of the unbalanced urban-rural development and substantial disparities in resources among prefecture-level cities in the Shandong section of the Yellow River Basin, a one-size-fits-all approach is discarded, and three types of implementation approaches are formulated. The first is the resource integration approach, which coordinates all types of medical resources within the region, promotes the downward distribution of high-quality medical resources, and encourages medical institutions to sign contracts with elderly care organizations to carry out paired medical-elderly care cooperation so as to realize complementary advantages. The second is the grassroots implementation approach. Centered on community-based and home-based services, it develops home-based on-site nursing and community day care services to bridge the last mile of service delivery and meet the needs of most elderly people with chronic diseases to receive elderly care at home and medical treatment nearby. The third is the regional balanced development approach. A paired assistance mechanism between prefecture-level cities will be established, under which developed cities will support underdeveloped ones by sharing service models, experience, and professional talents. This will narrow the urban-rural gaps across regions and achieve balanced development of services throughout the whole area [11].

5. Long-term guarantee mechanism of the integrated service system

5.1. Policy guarantee mechanism

Improve local supporting policies and industrial norms in line with Shandong's elderly care plans, Healthy China strategy and Yellow River development plans. Clarify the access standards, service specifications and division of rights and obligations for the integration of medical, nursing and pension services, and issue cross-departmental collaborative management measures. Introduce supportive policies for private elderly care institutions and grassroots community service stations to simplify approval procedures and guarantee the implementation of service integration at the institutional level. Smooth the transition between old and new policies to ensure policy continuity.

5.2. Talent guarantee mechanism

Build a three-in-one talent system featuring "training + introduction + on-the-job training" [12]. Encourage local colleges to set up majors such as elderly nursing, health care and chronic disease management to cultivate interdisciplinary targeted talents. Improve salaries, professional titles and welfare policies for grassroots staff to enhance post attractiveness and introduce professional medical and health care talents. Establish regular on-the-job training covering chronic disease nursing, emergency disposal and communication skills to upgrade the professionalism of existing service teams.

5.3. Capital guarantee mechanism

Form a diversified financing mechanism with government investment as the mainstay, social capital participation and public welfare support. Increase fiscal budget inclination for grassroots medical-nursing services, focusing on the construction and operation of service facilities in rural and township areas. Introduce preferential policies to guide enterprises and social organizations to participate in the elderly care industry. Encourage public welfare organizations and volunteers to provide voluntary services to cut operation costs and expand funding sources [13].

5.4. Evaluation and supervision guarantee mechanism

Set up a comprehensive evaluation system incorporating service quality, elderly satisfaction, chronic disease control effect and multi-stakeholder collaboration efficiency, with monthly spot checks, quarterly assessments and annual overall reviews. Build a dynamic supervision platform to monitor the whole process of service delivery, charging standards and staff performance. Smooth feedback channels to accept public supervision and complaints, and continuously optimize service contents based on evaluation results, forming a virtuous cycle of "service – evaluation – rectification – improvement" [14].

6. Conclusions and prospects

Taking the 9 cities along the Yellow River in Shandong as the research scope, this paper combines multidisciplinary theories and adopts empirical research to analyze the current situation, problems, and root causes of medical-nursing-pension services for elderly chronic patients. It systematically constructs an integrated service system, differentiated implementation paths, and a four-dimensional long-term guarantee mechanism. The study finds that fragmented services, mismatch between supply and demand, and unbalanced development prevail in regional elderly chronic disease care, stemming from administrative barriers, insufficient stakeholder coordination, and inadequate guarantee systems, as well as backward service modes. Promoting the integration of medical, nursing, and pension services is an inevitable way to solve the current dilemmas [15]. The integrated framework built based on relevant theories can break institutional barriers and realize in-depth integration of three types of services. The differentiated paths matched with a four-dimensional guarantee mechanism are the key to the long-term effective operation of the system. The system fits regional characteristics and boasts strong operability and replicability. The integration of medical, nursing, and pension services for elderly chronic diseases is a systematic project requiring overall government planning and joint efforts of all parties.

Against the background of healthy aging and high-quality development of the Yellow River Basin, such services will develop toward intelligence, refinement, and universal benefit. Future research can

explore smart service models with digital technology and optimize the system based on pilot tracking data. This research can provide references for local policy formulation and similar regions nationwide. With the improvement of guarantee mechanisms and popularization of the model, the regional care level for the elderly with chronic diseases will be steadily lifted, effectively enhancing seniors' sense of gain, happiness, and security.

Disclosure statement

The authors declare no conflict of interest.

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