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Research progress on treatment burden and intervention measures for elderly chronic disease comorbidity

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Abstract. With the acceleration of global aging, chronic diseases have become a critical factor threatening the elderly population. This study analyzes the current status and intervention measures of treatment burden among elderly chronic disease comorbidity patients from economic, psychological, and social perspectives. Disparities between urban and rural areas, patient health literacy, and incomplete medical systems are key factors exacerbating this burden. Measures such as enhancing health literacy, optimizing medical insurance policies, promoting multidisciplinary diagnosis and treatment models, and improving home care can alleviate patient burdens. Future efforts should focus on the diversification and individualization of treatment burdens, equitable resource allocation, enhancement of patient self-management capabilities, and improvement of patient quality of life.

Keywords: elderly patients, chronic disease comorbidity, treatment burden, health literacy.

1. Overview of Treatment Burden

In the 21st century, with the accelerated global aging and changes in disease spectrum, chronic diseases have replaced infectious diseases as the major threat to human health [1]. Studies predict that by 2050, the population aged 65 and above will reach 370 million, accounting for over 25% of the total population [2]. As the elderly population grows, so does the number of chronic disease patients. The concept of chronic disease comorbidity, defined by the WTO in 2008 as the coexistence of two or more chronic diseases in the same patient, affects 65.14% of China's elderly population [3, 4]. Chronic disease comorbidity, characterized by numerous diseases and complexity, poses significant challenges to patient capacity. Excessive treatment burden may lead to poor medication adherence, psychological burden, non-compliance with medical advice, and even treatment abandonment. This study discusses factors influencing treatment burden and proposes measures to alleviate it, providing a basis for reducing treatment burden among elderly chronic disease comorbidity patients.

Treatment burden, an emerging concept in healthcare literature, refers to the excessive burden of healthcare measures that can complicate patient conditions and lead to poor compliance [5]. It includes not only medication expenses but also all types of healthcare expenditures and psychological burdens [6]. This can result in higher hospitalization and mortality rates. Its meaning continues to evolve in research, being a dynamic concept that changes with treatment outcomes [7, 8], encompassing healthcare, humanistic care, and financial expenditures, requiring a comprehensive perspective.

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2. Factors Influencing Treatment Burden in Elderly Comorbidity Patients

2.1. External Factors

2.1.1. Urban-Rural Development Disparities

Data from the Seventh National Population Census shows that the proportion of elderly population aged 65 and above in rural areas is 17.72%, 6.61% higher than in urban areas. The imbalance in urban and rural labor forces inevitably leads to a higher degree of aging in rural areas, weak infrastructure, and issues such as left-behind elderly. In the process of urbanization in China, rural left-behind elderly have a high prevalence of chronic diseases with long treatment cycles, thus increasing the probability of chronic disease poverty. Studies show that the average annual medical expenses for chronic disease patients in rural areas are 1.47 times higher than those for non-patients [9]. For rural elderly populations, the probability of falling back into poverty due to illness is much higher than other groups.

In addition to material poverty, psychological burdens cannot be ignored. Taking depression as an example, studies by domestic scholars have successively confirmed that the prevalence of depression among rural elderly chronic disease patients is higher than that among urban elderly chronic disease patients [10, 11]. In urban areas, elderly patient depression is mainly related to age and the number of chronic diseases, while in rural areas, the probability of elderly patient depression is closely related to marital relationships, smoking behavior, and drinking behavior [10]. Influenced by regional characteristics and educational levels, the health behavior capabilities of rural elderly people are lower.

2.1.2. Medical Insurance Policies

Affected by the diversity of chronic diseases in elderly comorbidity and the different treatment methods for each disease, the proportion of medical insurance reimbursement varies. Research shows that in tertiary hospitals, the reimbursement ratio of the New Rural Cooperative Medical Insurance is significantly lower than that of the Employee Basic Medical Insurance under the same conditions, thereby increasing the economic burden of such medical insurance patients [12]. In addition, with the development of the medical industry, new or imported drugs are beginning to attract attention. Such drugs often fall into the category of out-of-pocket expenses, posing a heavy burden on elderly chronic disease comorbidity families with weak economic foundations.

2.2. Internal Factors

2.2.1. Age and Gender

Research has shown that with increasing age, the prevalence of chronic diseases among the elderly population also increases, focusing on memory-related diseases, hypertension, lung diseases, and others [13]. Compared with males, females have longer life expectancy but poorer health conditions, resulting in a higher prevalence of chronic disease comorbidity among women [14]. Considering factors such as menopause and pregnancy, the probability of specific diseases is significantly higher among women than among men.

2.2.2. Types and Number of Chronic Diseases

Literature shows that the more types and longer durations of chronic diseases elderly people have, the heavier their treatment burden becomes. Often, physical and mental comorbidities coexist, such as depression and Alzheimer's disease [15, 16]. With the increasing duration of chronic diseases, the risk of disability also increases, and disability is one of the important factors leading to chronic diseases, such as pressure injuries caused by long-term bed rest. Moreover, there is a direct link between illness and medication. With an increase in the number of diseases, especially chronic diseases requiring long-term medication, the types of corresponding medications also increase. This results in differences in drug types, contraindications, medication times, and dosage, making the medication process cumbersome and thereby causing mental burden.

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2.2.3. Health Concepts and Literacy

Health literacy refers to the ability of individuals to access and understand health information and use it to maintain and promote their own health. For individuals, health concepts and literacy directly affect the prevention, judgment, treatment, and recovery from diseases. In Zhao Ying's research [17], a survey of hospitalized elderly chronic disease patients found that those with low health concepts have a lower acceptance of external knowledge, have difficulty changing their own concepts, are unwilling to make changes themselves, and rely solely on hospital and medication treatments. This practice is detrimental to the recovery of chronic diseases and thus increases subsequent treatment burdens.

According to official data from the National Health Commission of China, the health literacy level of Chinese residents is 29.70%, indicating room for improvement. For elderly patients with chronic diseases, it is particularly important to enhance health literacy, reduce external dependence, and take responsibility for their own health.

3. Intervention Measures for Treatment Burden

3.1. Adopting Diverse Measures to Enhance Health Literacy

Health literacy, which relates to whether patients can correctly understand and manage their diseases, has been universally recognized as one of the most economical and effective strategies to maintain national health. Tang Yuan et al.'s survey [18] shows that elderly patients with comorbid chronic diseases are eager to improve their health but often lack adequate communication and interaction skills. This suggests that while elderly patients deeply desire effective disease management, certain factors such as physical aging or lack of understanding of modern technology create barriers.

Based on this, education for such groups can employ a combination of online and offline approaches. Online methods can include informative videos and educational films to popularize knowledge about elderly diseases, while offline efforts should involve medical institutions collaborating with community health services to conduct health education and regular home visits. Tailored care should be provided to specific groups, and health plans should be developed based on different diseases. Through subtle influence, channels for disease information retrieval can be expanded, improving health literacy among elderly patients. This can reduce unnecessary disease-related expenses and avoid catastrophic health expenditures resulting from repeated visits and treatments for comorbid chronic diseases [19].

3.2. Harnessing Family Support

For most elderly chronic disease patients receiving home care, family support plays an irreplaceable role in their recovery process. This support primarily includes nursing care, financial support, and psychological care. Strong family functionality helps enhance patients' self-management capabilities and reduce disease recurrence rates [20]. However, some studies indicate that the family functionality of elderly chronic disease patients is moderate to low [21], often due to the lack of professional nursing skills that hinder effective support.

Moreover, family support for elderly rural residents, especially those left behind due to the outmigration of labor, is notably weaker. This group lacks emotional support and companionship, contributing to weaker self-management capabilities and emphasizing the importance of strong family functionality in rural areas, a significant factor in disparities in treatment burden between urban and rural areas.

Therefore, for elderly patients undergoing home recovery, efforts should focus on increasing family members' awareness and caregiving skills. Medical institutions can educate caregivers on specific nursing measures for patients, assess improvements through online consultations, and collaborate with community primary service institutions to provide treatment and management services for chronic diseases. For rural or semi-urban areas with a significant elderly population, community services should play a substitute support role, including regular home nursing visits and psychological counseling, ensuring the relative stability of patients.

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3.3. Adjusting Protection Systems

Research by Liu Ming et al. concludes that economic burdens for elderly patients with comorbid chronic diseases are concentrated in hospitalization and medication expenses[22]. For hospitalized patients, professional medical staff are responsible for their care, with treatment burdens primarily focused on management rather than the various issues faced by non-hospitalized patients. Medication is the most pressing concern for all elderly patients with comorbid chronic diseases, with financially challenged patients struggling to afford medications, resulting in non-adherence to prescribed regimens and increased treatment burdens for patients [23]. The analysis of influencing factors from the MTBQ questionnaire survey shows a lack of uniform standards for social insurance subsidies at present [24]. Therefore, spending burdens should be assessed and adjusted for patients under different social security types.

Considering uninsured or economically burdened patients with comorbid chronic diseases, specific assistance policies should be developed. This could include increasing medical insurance reimbursement rates, expanding the list of reimbursed specialty drugs, and easing application conditions for special outpatient services. Regarding disparities between urban and rural medical insurance systems, adjustments to rural insurance systems should synchronize as much as possible with urban systems, thereby minimizing regional differences.

3.4. Establishing Multidisciplinary Joint Diagnosis and Treatment Clinics

Affected by various chronic diseases, elderly patients often face the situation of "seeing multiple doctors", which is not only time-consuming and labor-intensive but also leads to suboptimal prescriptions or examinations from different departments, often resulting in the issue of "over-prescription" [25].

The concept of multidisciplinary team treatment (MDT) originated in the United States in the 1990s, referring to clinical multidisciplinary teams discussing a specific disease to develop standardized and individualized optimal treatment plans for patients [26]. For elderly patients with comorbidities, a "one-to-many" treatment model can be implemented. This allows patients to receive diagnoses for all their diseases within the same department, saving patient time and promoting the centralized allocation of medical resources to better serve such patients.

4. Conclusion and Prospects

Currently, the burden of elderly patients with comorbid chronic diseases is mainly reflected in economic burden and symptom burden. Economic burden is the most prominent issue for most patient families in China. A survey of end-stage renal disease dialysis patients in Henan Province found that the economic burden of hemodialysis far exceeds that of peritoneal dialysis[27], but there is no significant difference in effectiveness, reflecting significant differences in various medical treatments. Considering the different medical insurance systems and uninsured populations in China, economic burden remains the most daunting issue.

Symptom burden is closely related to the number and types of chronic diseases and encompasses the patient's number of symptoms, severity of symptoms, distress caused by symptoms, and impact on daily activities and quality of life [28]. For elderly patients suffering from multiple symptoms due to cancer, alleviating symptom burden effectively improves treatment burden. Palliative care in China serves as a typical example.

Currently, domestic and international research on the treatment burden of elderly populations with comorbid chronic diseases is flourishing, but most studies focus on single diseases, which may lead to deviations from reality due to their limitations. Future research should integrate research conclusions with practical improvements involving multidisciplinary cooperation, with hopes to continuously enrich and improve subsequent research.

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