Postprint: Influencing Factors on Physical and Mental Health of Community-Dwelling Older Adults and Empowerment Strategies for Medical Social Workers

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Abstract

Background Health issues among community-dwelling elderly populations have gradually become an important topic of widespread social concern, urgently requiring multi-subject collaborative intervention to construct a scientific and effective health support system. Objective To understand the health status and influencing factors of community-dwelling elderly individuals, and to explore service strategies for medical social workers to empower the improvement of physical and mental health among community-dwelling elderly. Methods From January to April 2024, 620 community-dwelling elderly individuals were selected from Shipingqiao Street, Jiulongpo District, Chongqing. Data were collected through questionnaire surveys, with the physiological and mental health status of the elderly measured using chronic disease prevalence and Activities of Daily Living scales, the Self-Rating Anxiety Scale (SAS), and the Geriatric Depression Scale (GDS). Multiple linear regression based on the Grossman health demand model was employed to explore influencing factors on the physical and mental health levels of community-dwelling elderly from five dimensions: personal characteristics, lifestyle, economic status, intergenerational support, and community services. Results A total of 606 valid questionnaires were recovered, with an effective response rate of 97.7%. Regarding physical health, 519 (85.6%) elderly individuals were chronic disease patients, with average scores of $(15.6\$\pm0.4)on the Physical Self-Maintenance Scale (PSMS) and (16.1\pm0.4)$ on the Instrumental Activities of Daily Living (IADL) scale. Regardi
The detection rate of moderate-to-severe anxiety was 56.3% (341/606), and the detection rate of moderate-to-severe depression was 28.7% (174/606). Multiple linear regression analysis results showed that factors including age, chronic disease status, smoking, alcohol consumption, regular physical exercise, personal annual income, frequency of contact with children, children's financial support,

health knowledge/health education services, spiritual comfort/psychological counseling services, and social interaction/entertainment activity services all had significant effects on the physical and mental health status of the elderly ($P<0.05$). Conclusion The physical and mental health status of community-dwelling elderly is poor with numerous influencing factors. Safeguarding their health is a complex systematic project that requires establishing a long-term and stable multi-subject collaborative empowerment service team with medical social workers as the main body and the community as the foundation, and further designing empowerment strategies for medical social workers to promote the improvement of health levels among community-dwelling elderly.

Full Text

Introduction

China's aging population is deepening, making elderly health an increasingly important social concern. Home-based elderly care is a systematic endeavor requiring multi-sectoral collaboration to improve service quality. Medical social work, as a vital social force, should actively participate and play a significant role. The service process of medical social work primarily involves applying professional knowledge, methods, and techniques to promote disease prevention, treatment, and rehabilitation among the elderly, alleviating patient suffering while adjusting interpersonal relationships to enhance social cohesion and improve health-related quality of life. Scholars have proposed that medical social workers play a unique role in improving psychological barriers among the elderly and assisting with discharge planning and health management [**?**]. The success of medical social work intervention in home-based elderly health services lies in achieving a successful transformation of the medical and health system—from "physical" healthcare to "physical and psychological" healthcare—enabling health services to better adapt to social development [**?**]. Most home-based elderly live without their children, meaning they face greater difficulties accessing medical care and lack adequate medical resources. This necessitates non-pharmacological treatment from medical social workers to safeguard their health. However, current research on home-based elderly health services focuses primarily on medical perspectives, and studies from the medical social work perspective tend to concentrate on the elderly's family members while neglecting the enhancement of the elderly's own capabilities [**?**]. Based on this context, this study investigates the physical and mental health of community-dwelling home-based elderly in Jiulongpo District, Chongqing, and designs empowerment service strategies for their physical and mental health improvement from a practical perspective, fully leveraging the advantages of medical social workers to enhance their health status and promote healthy aging.

1.1 Study Participants

This study was conducted from January to April 2024 in Jiulongpo District, Chongqing. According to municipal government data, the district's elderly population (aged 60+) accounted for 22.83% of the total population by the end of 2023, indicating a serious aging problem. Using typical sampling and considering population aging levels, elderly health status, geographic location, and economic development, we selected Shipingqiao Subdistrict in Jiulongpo District. From its seven communities, two were randomly selected, and 620 home-based elderly individuals were randomly chosen from these communities as study participants. Inclusion criteria were: (1) age $\geq$ 60 years; (2) no severe cognitive impairment with adequate communication and comprehension abilities; (3) informed consent and voluntary participation after signing an informed consent form. Exclusion criteria: severe visual/hearing impairment and/or mental disorders preventing questionnaire completion.

1.2 Survey Instruments

Based on literature review and existing scales, we designed a questionnaire comprising three main sections: (1) general information including individual characteristics, lifestyle, economic status, intergenerational support, and community service utilization; (2) physical health status including chronic disease prevalence and disability, assessed using the Activities of Daily Living (ADL) scale; (3) mental health status including the Anxiety Self-Rating Scale (SAS) and Geriatric Depression Scale (GDS).

1.2.1 General Information Questionnaire Designed by the research team after literature review, 内容包括: (1) personal characteristics: gender, age, marital status; (2) lifestyle: current smoking, current drinking, physical exercise (regular exercise defined as $ $2 times/week); (3) economic status: annual personal income, social pension insurance participation; (4) intergenerational support: frequency of contact with children, children's financial support; (5) community service utilization: health knowledge/health education services, spiritual comfort/psychological counseling services, social interaction/recreational activity services.

1.2.2 ADL Scale The ADL scale includes two components: the Physical Self-Maintenance Scale (PSMS) and Instrumental Activities of Daily Living (IADL) scale [**?**]. PSMS comprises six items: walking, eating, dressing, bathing, grooming, and regular bowel movements. IADL comprises six items: taking public transportation, cooking, doing housework, using the telephone, shopping, and laundry. Each item has four options: "cannot complete at all," "needs help," "has some difficulty," and "completes independently," scored 4-1 points respectively. Total scores for both PSMS and IADL range from 6-24 points, with 6-14 indicating good/fair function, 15-19 poor function, and 20-24 very poor function.

1.2.3 Chronic Disease Prevalence Questionnaire Ten typical chronic diseases were included: diabetes, hypertension, arthritis, etc. Each disease had "no" and "yes" options, scored 0 and 1 respectively.

1.2.4 SAS We used the simplified SAS comprising eight items on subjective anxiety feelings. Each item had "yes" and "no" options. Five items were positively scored ("yes"=1, "no"=0) and three were reverse-scored ("yes"=0, "no"=1). Total scores of 0-3 indicated no anxiety, 4-6 mild anxiety, and $ $7 moderate-to-severe anxiety [**?**].

1.2.5 GDS We used the simplified GDS comprising eight items: low mood, restlessness, irritability, withdrawal, etc. Each item had "yes" and "no" options, with "yes" scored as 1 and "no" as 0. Total scores of 0-3 indicated no depression, 4-6 mild depression, and $ $7 moderate-to-severe depression [**?**].

1.3 Survey and Quality Control Methods

Before the survey, all investigators received unified training on questionnaire administration and item interpretation. At the start of the survey, participants were informed about the purpose, content, and completion method, ensuring informed consent. When necessary, investigators assisted elderly participants in completing questionnaires while avoiding leading questions. After collection, questionnaires were checked for completeness and logical consistency to ensure validity. A total of 620 questionnaires were distributed, with 606 valid questionnaires recovered (97.7% valid response rate).

1.4 Statistical Methods

Data were double-entered using EpiData 3.1 software to verify accuracy. SPSS 27.0 was used for data analysis. Categorical data were expressed as relative frequencies, and normally distributed continuous data as ($\bar{x}\pm s$). Multiple linear regression models were used to analyze factors influencing physical and mental health. Based on Grossman's health demand model, we set the sum of scores from ADL scales, chronic disease prevalence, SAS, and GDS as the dependent variable (overall physical and mental health level), and indicators from five dimensions—personal characteristics, lifestyle, economic status, intergenerational support, and community service needs—as independent variables [**?**]. $P<0.05$ was considered statistically significant.

2 Results

2.1 Basic Characteristics of Home-Based Elderly

Among the 606 participants: (1) Personal characteristics: 263 males (43.4%) and 343 females (56.6%); age distribution: 244 aged 60-69 (40.3%), 158 aged 70-79 (26.1%), and 204 aged $ $80 (33.7%); 346 married (57.1%) and 77 unmarried/divorced/widowed (12.7%). (2) Lifestyle: 279 currently smoked (46.0%),

311 currently drank alcohol (51.3%), and 348 exercised regularly (57.2%). (3) Economic status: 319 had annual personal income $ $10,000 yuan (52.6%), only 84 had income >20,000 yuan (13.9%), and 262 did not participate in social pension insurance (43.2%). (4) Intergenerational support: 61 contacted children daily or weekly (10.1%), while 11 had no contact (1.8%); 376 received 5,001-10,000 yuan/year in intergenerational financial support (62.0%). (5) Community service utilization: Over 50% did not receive health knowledge/health education services, spiritual comfort/psychological counseling services, or social interaction/recreational activity services.

2.2 Physical Health Status of Home-Based Elderly

Among 606 home-based elderly, 519 (85.6%) were chronic disease patients. The top three prevalent conditions were hypertension [313 cases (51.7%)], diabetes [277 cases (45.7%)], and arthritis [102 cases (16.8%)], see Table 1 . The average PSMS score was (15.57$±0.43)*andaverageIADLscorewas*(16.11±$0.39), both indicating "poor" functional status, see Table 2 .

2.3 Mental Health Status of Home-Based Elderly

The average SAS score was (4.41$±0.13), *withmildanxietydetectedin*43.7±$0.17), with mild depression in 38.1% (231/606) and moderate-to-severe depression in 28.7% (174/606). Specific anxiety and depression symptom detection rates are shown in Table 3 . When facing negative emotions, 317 elderly (52.3%) chose to "talk with others to vent emotions," 117 (19.3%) "kept it to themselves," 131 (21.6%) "relieved mood through recreational activities," and 41 (6.8%) "sought help from professional psychiatrists."

2.4 Comparison of Physical and Mental Health Status Across Different Characteristics

Significant differences in physical and mental health status were found across different individual characteristics (gender, age, marital status), lifestyle factors (current smoking, current drinking, regular physical exercise), economic status (annual personal income, social pension insurance participation), intergenerational support (frequency of contact with children, children's financial support), and community services (health knowledge/health education services, spiritual comfort/psychological counseling services, social interaction/recreational activity services) (P<0.05), see Table 4 .

2.5 Multiple Linear Regression Analysis of Factors Influencing Physical and Mental Health

Using physical and mental health status scores as the dependent variable (entered as actual values), we constructed multiple linear regression models. Models 1-5 included indicators from each of the five dimensions (individual characteristics, lifestyle, economic status, intergenerational support, community services)

as independent variables, while Model 6 included all 13 indicators from the five dimensions. Model 6 results showed that age, marital status, current smoking, current drinking, regular physical exercise, annual personal income, frequency of contact with children, children's financial support, health knowledge/health education services, spiritual comfort/psychological counseling services, and social interaction/recreational activity services all significantly influenced elderly physical and mental health status ($P<0.05$), see Table 5 .

3 Discussion

3.1 Demographic Characteristics and Physical and Mental Health of Community Home-Based Elderly

Multiple linear regression showed that age and marital status influenced health status. With increasing age, physiological functions decline, daily activity capacity decreases, and risks of chronic diseases like hypertension, diabetes, and heart disease increase, leading to poorer physical health [**?**]. Age-related declines in hearing and vision also affect daily activities, potentially causing low self-efficacy and depressed mood, thereby harming mental health. Married elderly benefit from family care, which is conducive to physical and mental health. Interestingly, gender was not a significant factor in this study, contrary to previous research [**?**] that suggested different body structures and social roles by gender could affect health.

3.2 Lifestyle and Physical and Mental Health of Community Home-Based Elderly

Current smoking and drinking negatively impacted health status, consistent with previous findings. Ning et al. [**?**] demonstrated that smoking and drinking directly affect physical health and indirectly affect mental health, specifically showing significant negative correlations between long-term smoking/drinking and cognitive ability. Alcohol is harmful to the brain, and long-term drinking accelerates brain atrophy; loss of brain volume is a key factor in memory and cognitive decline, which may lead to increased anxiety and depressive symptoms, reducing mental health. Among lifestyle factors, physical exercise had the most significant positive impact. Scientific exercise not only enhances physical fitness, metabolism, and immune function but also helps relieve stress and improve emotional states, benefiting mental health [**?**].

3.3 Economic Status and Physical and Mental Health of Community Home-Based Elderly

Economic status significantly influenced health, consistent with Wang et al. [**?**]. Annual personal income had a greater impact than pension insurance. While pension insurance provides economic support and security, reducing pressure and including medical services that reassure elderly about their future, higher

income enables better living standards and access to high-quality medical services including regular check-ups, chronic disease management, and emergency assistance, all benefiting health. Low economic status may also affect health behaviors like smoking, drinking, and dietary habits, which in turn impact health [**?**].

3.4 Intergenerational Support and Physical and Mental Health of Community Home-Based Elderly

Intergenerational support significantly affected health. Frequent contact with children was a protective factor with clear positive effects. Higher contact frequency was associated with lower risk of health problems and better overall status. Research shows that regular interaction and communication with children helps home-based elderly maintain good emotional states, improving mental health [**?**]. Lack of children's care and companionship may lead to depression and anxiety, harming health. Children's financial support also positively influenced health, though less strongly than contact frequency, likely because while financial support reduces economic burden, it cannot alleviate loneliness and isolation [**?**].

3.5 Community Services and Physical and Mental Health of Community Home-Based Elderly

Community services were protective factors for health. Providing health knowledge/health education services significantly improved elderly health awareness and preventive care skills [**?**]. Regular spiritual comfort/psychological counseling services effectively reduced psychological stress and helped elderly master psychological coping methods, improving negative emotions [**?**]. Social interaction/recreational activity services effectively prevented social isolation and loneliness, thereby avoiding associated depression, anxiety, and accelerated physical decline [**?**].

4 The Intrinsic Connection Between Medical Social Workers and Health Improvement, and Strategy Development

4.1 Intrinsic Connection

Our findings reveal concerning physical and mental health status among community home-based elderly, particularly in mental health, with long-term unhealthy states seriously affecting quality of life. In this context, society is highly concerned about improving their health status. Medical social work, as an important component of the healthcare system, provides comprehensive and professional services to address clients' problems and needs. Therefore, medical social work intervention can play a key role in improving home-based elderly health and mitigating negative impacts from various factors. The main functions include: (1) Promoting lifestyle changes by serving as health educators

and medical resource linkers, advocating healthy behaviors, linking medical resources, and conducting health education activities to improve health awareness and enable disease prevention and control. (2) Alleviating economic burden by advocating for policy development, mobilizing social organizations to provide financial support, and increasing policy awareness to ensure elderly receive entitled benefits. (3) Enhancing intergenerational support by coordinating relationships, facilitating effective communication between elderly and family members, organizing family contact opportunities, and ensuring effective care and support. (4) Promoting community service improvement by serving as bridges between clients and medical institutions, community organizations, and other professionals to facilitate information flow, resource allocation, and coordinated division of labor.

4.2 Intervention Strategies for Medical Social Workers

Since elderly daily life revolves around the community, medical social workers bear critical responsibility for funding, service content, and quality assurance in home-based elderly health services. To fully utilize social and community resources, we must establish a multi-collaborative service team led by medical social workers, integrating resources from government, community, medical institutions, and social organizations to provide comprehensive health services and substantively improve quality of life.

(1) Funding Guarantee Strategy. Medical social work agencies, responsible for government-purchased social work service projects, receive funding to complete health improvement tasks for home-based elderly. With professionalization of social work, funding sources will become increasingly secure. Medical social workers must also serve as resource linkers, integrating charitable organizations, interested enterprises, online crowdfunding, and offline donations to raise funds and materials for impoverished elderly. For those with mobility difficulties, social workers and volunteers can teach handicraft skills for product sales to generate income. When necessary, for able and willing elderly, social workers can establish talent databases to provide reemployment information and alleviate economic burden.

(2) Service Content Guarantee Strategy. Medical social workers must fully function as health educators and organizational coordinators. First, they recruit, train, and manage volunteers to build relationships with home-based elderly. They collaborate with medical institutions, communities, and volunteers to establish a "shared health record information system" for home-based elderly, enabling regular health status updates and service tracking. Based on this, they invite community health service medical staff to conduct targeted health education lectures and knowledge competitions covering disease prevention, nutrition guidance, medication management, and healthy lifestyle skills to promote self-management capabilities. For mental health, they establish counseling points with communities and medical institutions, provide psychological counseling, and conduct regular home visits with volunteers to offer emotional

and psychological support, helping elderly master emotional regulation techniques. During and after activities, social workers and volunteers collect health status data through online classes or home visits to update health records and adjust activity formats for maximum effectiveness.

(3) Strategies to Enhance Intergenerational Support and Social Capacity. Medical social workers help elderly living alone establish family networks using mobile phones, encouraging regular contact with children to promote intergenerational communication, deepen emotional bonds, and improve mental health. For elderly living with children, they help regulate family relationships through regular home visits, encourage children's active participation in health services, and organize family activities to build harmonious relationships. For elderly who are advanced in age and living alone, they establish WeChat groups by region and building to maintain close contact, disseminate community activity information, reduce 隔阂, and eliminate concerns. Additionally, they form groups of elderly with common needs or interests, conduct regular group activities, build communication platforms, and organize games and handicraft activities to promote interaction, stimulate life passion, enhance social skills, and improve physical and mental health.

(4) Multi-faceted Venue and Environmental Condition Guarantee Strategy. As resource linkers and organizers, medical social workers can fully mobilize social resources such as charitable organizations to provide material support for elderly health activities, assist communities in establishing various activity venues, and gradually improve community infrastructure for square dancing, fitness exercises, cultural performances, and chess activities, providing hardware support for elderly health services.

In summary, this study proposes service strategies for medical social workers to empower home-based elderly health improvement, laying a foundation for exploring and innovating community home-based elderly health service models. However, as society develops, new problems and needs will continuously emerge in community home-based elderly health services, requiring continuous optimization of empowerment services. While broadening collaborative service subjects and innovating service content, we hope empowerment services will comprehensively enter the internet information era, making home-based elderly health services intelligent and more efficiently meeting their physical and mental health needs.

Author Contributions: Li Bin and Zhong Yu proposed the main research objectives and ideas, performed quality control, and supervised the manuscript. Ge Mengfei was responsible for research design, data processing, statistical analysis, and manuscript writing and revision. Han Jing and Xiao Yu designed the questionnaire, conducted the survey, and collected and organized data.

Conflict of Interest: The authors declare no conflict of interest.

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Note: Figure translations are in progress. See original paper for figures.