ORIGINAL RESEARCH

Medical Treatment and Health Service Demands among the Community-dwelling Elderly: Influencing Factors and Countermeasures

Xiaofang Su, MM; Mingyue Li, MM; Qinghua Wang, MM

ABSTRACT

Objective • China has an aging society; the issue of aging is becoming increasingly serious. This study aimed to explore the factors influencing the demand for medical treatment and health care services among the elderly and offer countermeasures and suggestions.

Methods • In this cross-sectional study, a questionnaire method was used to inquire about 386 elderly people in three communities from Bincheng District, Binzhou City, and Shandong Province.

Results • The demand of community-dwelling elderly for chronic disease medication consultation services was 91.71%, with 53.88% in urgent need of the service. Their demand for dietary guidance was 91.19%, with 52.07% having a great demand for the guidance. The demand for medical expenses guarantee was 87.82%, and those in great need accounted for 47.93%. 84.98% required hospice care service, with 31.87% in great need of the service. The demand for psychological and spiritual services was 84.20% and 44.56% of them reported high demand for it. From multiple regression analysis, the factors influencing the demand of the elderly for medical treatment and health care services were identified as the sources of income, harmonious relationship with their children, medical expenses guarantee, and psychological and spiritual services, with statistical significance ($P < .05$).

Conclusions • Chronic disease medication consultation service, dietary guidance, and medical expenses guarantee are listed as the top three demands among the elderly living in the community from medical treatment and health care services. This warrants an urgent need to establish a multi-level, personalized, and diversified medical treatment and health care model, with improved long-term care insurance system, and trained medical professionals to provide professional services in order to improve the quality of life and health level of the elderly. (*Altern Ther Health Med.* [E-pub ahead of print.])

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INTRODUCTION

According to the 7th national population census, the aging population is a serious issue in China, with 18.6% of the total population aged over 60 years and 14.8% aged over 65 years. It is estimated that the elderly population in China will reach 487 million by 2050. It has become a long-term strategic task for the country to cope with the aging population.[1,2] Medical treatment and health care services require integrated development. It is imperative to integrate medical service resources and old-age service resources to provide the elderly with basic life care services along with the provision of ambulances, physical examinations, and health care for the elderly.[3-5] The Planning Outline of "Health China 2030" proposes to promote the combination of medical treatment and nursing care, and to provide the elderly with health and old-age care services such as hospitalization during treatment, nursing care during rehabilitation, life care during disease stabilization period, and end-of-life palliative care. Medical treatment and health care are the core components of the social pension service system and key aspects of realizing the high-quality development of pension services. The concept is to combine pension services with medical and health service resources to provide all-round health services for residents.[3,6,7] Constructing a government-led, socially involved, and market-oriented elderly care service model is the key to meeting the diversified service needs of social groups, and to realize a diversified, standardized, scientific, and an industrialized development of the combination of medical treatment and health care.[8,9] The purpose of this study is to explore the influencing factors and countermeasures of the demand for medical treatment and health care services among the elderly living in the community.

PATIENTS AND METHODS

Research participants

From March to August, 2022, three communities in Bincheng District, Binzhou City, and Shandong Province were selected as survey sites, and 386 community-dwelling elderly (259 females and 127 males; aged 80-96 years, mean: 85.5 ± 6.5 years) were investigated by cluster sampling. Inclusion criteria: (1) age ≥80 years; (2) living in the community for ≥ 12 months, with the resident health records established in community healthcare centers; (3) clear mind, normal cognitive function, and certain communication ability; (4) voluntary participation with informed consent obtained from participants and their families. Exclusion criteria: (1) inability to cooperate with the investigation due to severe hearing impairment or language barrier; (2) cognitive impairment, serious physical illness or terminal illness, etc.

Research tools

The questionnaire and interview outline were designed according to the purpose of the study. The interview outline focused on the elderly's medical treatment, psychology, emotion, medication for chronic diseases, type of medical insurance and relationship with their children. The contents of the questionnaire consists of two parts: 1) general information of the population, including gender, age, marital status, relationship with children, educational level, source of income, medical insurance type, chronic diseases, and family structure; 2) Health Service Demand Questionnaire Among the Elderly in the Community: the questionnaire included 10 items, investigating psychological needs of the elderly, medical care needs, relationship with children, medical expenses, family physician, green channel for medical treatment and referral, dietary and nutrition guidance, medication consultation for chronic diseases, etc. Each item was rated on 3 levels: very needed (86-100 points), moderately needed (60-85 points), and not needed (under 59 points). The reliability and validity of the questionnaire is 0.824 and 0.887 respectively.

Research methods

Using cluster sampling method, three communities in Bincheng District and Binzhou City. including Bilin Community, Fuqian Community, and Wanliu Community, were selected as research sites because of the main community. The investigators received unified training, introduced the purpose and significance of the study to the subjects and their families, committed to anonymity and confidentiality, and obtained written informed consent from participants. 450 paper-based questionnaires were distributed centrally during community physical examination and chronic disease lectures, and team members helped the subjects fill out and answer the questionnaire. 386 valid questionnaires were obtained, with a recovery rate of 85.78%.

Statistical analysis

Statistical Product and Service Solutions (SPSS) 26.0 software (IBM, Armonk, NY, USA) was utilized to perform statistical analysis on the data. The t-test or variance analysis was adopted for the analysis of measurement data denoted by (mean ± standard deviation). Count data were expressed in percentage or composition ratio, and differences were identified by the χ^2 test. Multiple linear regression analysis was carried out using the logistic regression model. Statistical significance was present when $P < .05$.

Table 1. Current State of the Demand for Medical Treatment and Health Care Services Among the Community-Dwelling Elderly (n = 386, %)

Items	Very needed	Moderately needed	Not needed
Medication consultation for chronic diseases	208(53.88)	146(37.82)	32(8.29)
Family physician service	124(32.12)	176(45.60)	86(22.28)
Care services	139(36.01)	173(44.82)	74(19.17)
Exercise supervision	134(34.72)	187(48.45)	65(16.83)
Dietary guidance	201(52.07)	151(39.12)	34(8.81)
Psychological and spiritual services	172(44.56)	153(39.64)	61(15.80)
Harmonious relationship with children	129(33.42)	162(41.97)	95(24.61)
Medical expenses guarantee	185(47.93)	154(39.89)	47(12.18)
Smart medical care	117 (30.31)	170(44.04)	99(25.65)
Hospice care	123(31.87)	205(53.11)	58(15.02)

Note: demand selection rate = very needed + moderately needed.

Table 2. Analysis of Factors Influencing the Demand for Medical Treatment and Health Care Services Among the Community-Dwelling Elderly

Independent variable	β value	SE value	β value	*t* value	*P* value
Source of income	12.422	0.874	0.863	15.580	.000
Harmonious relationship with children	-1.850	0.635	-0.140	-2.435	.016
Medical expense guarantee	2.182	0.844	0.117	2.483	.015
Hospice care needs	-2.673	0.676	-0.213	-3.873	.000

Note: $R^2 = 0.748$

RESULTS

Demand status of the community-dwelling elderly for medical treatment and health care services

Among the elderly living in the community, the demand for chronic disease medication consultation was 91.71%, with those in urgent need accounting for 53.88%. Their demand for dietary and nutrition guidance was 91.19%, with 52.07% in great need of this service. The demand for medical expenses guarantee was 87.82%, and those in great need accounted for 47.93%. Their demand for hospice care service was 84.98%, with 31.87% of them in great need. 84.20% of the elderly needed psychological and spiritual services, with 44.56% highly needing them. See Table 1 for details.

Analysis of factors influencing the demand for medical treatment and health care services among the community-dwelling elderly

Multiple stepwise regression analysis was performed with the score of medical treatment and health care service demands as the dependent variable, and five factors including economic income, education level, harmonious relationship with children, medical expenses and hospice care needs of the elderly as independent variables. The test levels to include and exclude variables were $\alpha = 0.01$ and $\beta = 0.10$, respectively. The results showed that the difference in the stepwise

regression equation was statistically significant (F = 51.457, $P < .05$), and finally four variables entered the multiple stepwise regression model, which could explain 74.8% (R^2 = 0.748) of the difference in the demand for medical treatment and health care services. See Table 2 for details.

DISCUSSION

The medical treatment and health care system is a new type of health management model for the elderly, which is health-centered, government-led, and encourages the active participation of social forces. Under the strict access system and supervision and management system, the market competition mechanism is introduced to strengthen the cooperation between pension institutions and medical institutions, communities, and families, so as to meet the diversified pension needs of the elderly and build a harmonious and healthy aging society. In November 2021, the Opinions of the CPC Central Committee and the State Council on Strengthening the Work of Aging in the New Era proposed to further promote the combination of medical treatment and health care, to build a pension service system and a health support system for the elderly that are coordinated by home and community institutions and combined with medical treatment and health care services.[10] Social capital and social forces are also encouraged to participate in the combination of medical care and old-age services, to solve the old-age care problems for the elderly to the greatest extent. It also needs to address basic life issues as well as medical aid, rehabilitation care, and psychological and hospice care. It is expected that medical treatment and health care services will be extended to communities and families, and family doctors and nurses will be contracted to provide on-site medical and care services for the elderly.[11]

The current state of the community-dwelling elderly for medical treatment and health care services

As indicated by Table 1, the top three demands for medical treatment and health care services were chronic disease medication consultation, dietary guidance and medical expenses guarantee. The reasons, we hypothesized, may be as follows: the elderly in the community have multiple comorbidities and debilitating syndrome, resulting in a high demand for drug consultation services for their chronic diseases and dietary and nutritional guidance services. The medical expenses guarantee is related to the current situation of medical treatment for the elderly, which pays attention to the coexistence of multiple diseases and the debilitating state of them and advocates "individualized intervention and diversified support strategies". Therefore, in terms of "medical treatment", the needs of the community-dwelling elderly are mainly manifested in services such as chronic disease medication consultation, dietary guidance, and medical expenses guarantee. In terms of "health care", the service needs of the elderly mainly include nursing and health care, physical activity and exercise monitoring, maintenance of healthy living habits, harmonious relationships with their children, smart medical care, and palliative care. These measures can meet the medical and health needs of the elderly living in the community, and they can enjoy their old age in peace with access to "the elderly have access to medical treatment and care".[12,13] Under the strategic environment of Healthy China, medical treatment and health care as a new pension service model, combines medical resources with pension resources, which is advocated by the concept of health management in our country. It adds preventive care, spiritual care, hospice care, and other non-medical services on the basis of traditional medical services, which is an ideal state at the end of the life cycle of the elderly and a comprehensive medical and nursing model for the elderly.

Analysis of factors affecting the demand for medical treatment and health care services among the community-dwelling elderly

Multiple stepwise regression analysis was performed with the score of the demand for medical treatment and health care services as the dependent variable, and four factors (source of economic income, harmonious relationship with children, medical expenses guarantee, and hospice care needs) as independent variables (Table 2). The results revealed significant differences in the stepwise regression equations of the four factors (F=51.457, $P < .05$). The income source determines the quality of life, independent decision-making, status, and voice of the elderly in the family. Based on the traditional Chinese concept of providing for the aged, most elderly people choose home-based care, especially those who can take care of themselves and have a harmonious relationship with their children. They prefer to live separately, and their children often go home to visit and happily enjoy family time. Making full use of community medical and health resources, developing community home-based medical treatment and health care service models, and conducting regular home visits, as well as dietary and health guidance, psychological counseling, etc. can provide diversified, personalized, and multi-level medical treatment and health care for the elderly to enhance their quality of life.[14] In addition, it is necessary to help the elderly who can take care of themselves to prevent chronic diseases, promote the maintenance of ability, encourage the frail elderly to live independently, and guarantee the disabled elderly a dignified life in their later years.

According to the planning pattern of the social pension service system in China, medical treatment and health care services should be carried out in families, communities, and institutions at the same time. For the elderly cared at home, medical treatment and health care services can be provided by adding home care, online nurses, and home visits.[15] In addition, we can fully integrate the resources of community medical institutions and community care institutions, expand the functions of community medical care institutions to provide convenient medical treatment and health care services for the elderly in the community, and gradually develop end-of-life care and hospice care services,[16] so that the elderly can live with dignity. With the implementation of the "Healthy

China 2030 Plan" strategy, people's health awareness has been continuously enhanced, and the medical treatment and health care industry has shown a trend of rapid development. According to the diversified needs of the elderly for the quality of life in their later years, it is necessary to provide daily care and convenient medical services to solve the problem of "having access to health and medical care for the elderly".

Countermeasures and suggestions

Integrating "medical treatment" and "nursing care" resources to build a "medical and health care" integrated service mechanism. Under the leading role of the government, we should make use of the resources of community health service centers, medical institutions at all levels, and nursing institutions to promote the multi-directional and multi-level flow of medical and nursing resources among different institutions, and establish an orderly service mechanism for medical treatment and health care to support medical care for nursing, and promote the role of nursing in medical care. At the same time, information and intelligent means can be utilized to break through the boundaries of "medical" and "nursing" resources, accelerate the application of medical care services based on the Internet of things, big data, and artificial intelligence, and promote the application of new modes and methods such as health consultation, intelligent consultation, and care services.[17]

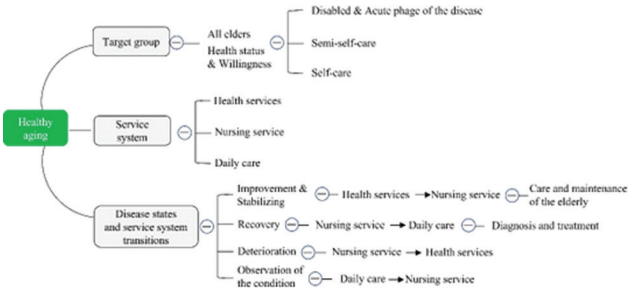
Establishing a "multi-level, personalized, and diversified" medical treatment and health care service model. Medical institutions at all levels should be encouraged to leverage their advantages in medical resources and professional medical personnel, and integrate multi-level medical resources such as medical treatment, rehabilitation, and health care with institutional old-age care and community home-based pension in a structured and precise manner, so as to strengthen the deep collaboration mechanism between pension institutions, community pension service centers, and nearby medical institutions. In addition, the driving role of the combined medical and nursing institutions should be encouraged to effectively improve the quality of service.[18] Moreover, new concepts, technologies, and methods can be used for reference in the field of old-age care, so as to provide multi-level, personalized, and diversified services for the elderly with different service needs.

Improving the long-term care insurance system and implementing relevant medical treatment and health care policies. First of all, commercial care insurance and government-led long-term care insurance system can be established to provide support for "medical treatment and health care" pension services for different groups of elderly. Second, we should optimize the policy of medical treatment and health care, and encourage social forces to integrate medical treatment and health care. Furthermore, resources should be optimized and integrated to provide the elderly with high-quality and convenient medical services, and to achieve full-life-cycle health management. It is also necessary to improve the payment policy of medical insurance, expand the payment scope of medical insurance fund by regions and stages in health monitoring and evaluation, chronic disease screening, rehabilitation care, disease diagnosis and treatment, etc., gradually increase the number of geriatric diseases covered, and adjust the reimbursement ratio of medical insurance fund.[19] In addition, other measures such as improving the long-term care insurance system, relying on the information service platform, and creating "Internet + medical care health and time banking" can also help to improve medical treatment and health care services.

Strengthening the construction of a personnel system for medical treatment and health care services under the Public-Private-Partnerships (PPP) mode. PPP refers to the partnership formed between the government and civil society or private organizations to build public infrastructure. The rights and responsibilities of both parties are clearly defined through contracts to ensure the smooth completion of cooperation and achieve a win-win situation for both. Exploring PPP investment and financing modes can actively promote health and pension, tourism, internet, fitness and leisure, and promote new health industries and new forms of business. The medical treatment and health care service is the integration of medical resources such as medical equipment, technology, and medical staff, with old-age care resources such as maintenance institutions and nursing staff, to ensure rehabilitation, nursing and daily care services for the elderly, and meet various needs of the clients. In addition, the training of geriatrics doctors, nurses, and elderly care workers should be strengthened; they should also be encouraged to work in medical treatment and health care institutions, and enjoy the same treatment or preferential policies of the medical institutions in terms of salary, title promotion, and continuing education. Practitioners should have professional skills in geriatrics, as well as professional qualities such as ethics, care, empathy, communication skills, teamwork, information technology application, etc.[19] Education and training should be carried out for the existing employees of the institution to ensure that they are certified to work.

The PPP project of medical treatment and health care means that the government and social capital sign a contract with an equal relationship under the concept of co-consultation, co-construction, and co-management, and complete the tasks and objectives set in the contract within the specified time. In this way, innovative old-age service products integrated with medical resources can be provided to the public on the basis of traditional institutional pension.[20] It is also possible to reduce the government's financial burden by introducing social capital, or achieving the goal of "streamlining administration and delegating powers" through government-based purchase of services. Furthermore, in addition to sharing risks through cooperation, the government can provide preferential policies or special support to the social capital participating in medical treatment and health care PPP projects, which is conducive to promoting the development of medical treatment and care services under the PPP model. In a word, developing medical treatment and health care services under the PPP model and

Figure 1. Mind Map of Healthy Aging



improving the medical treatment and health care service system can help to develop a "healthy aging" society (Figure 1).

To sum up, the top three demands of the elderly in the community for medical treatment and health care services are chronic disease medication counseling, dietary guidance, and medical expense guarantee. The underlying reason is the coexistence of multi-disease and debilitation syndrome among the community-dwelling elderly people, which leads to a high demand for drug counseling services for chronic diseases, as well as guidance on dietary, nutrition, and suitable physical exercise; while the need for medical expense guarantee is related to the current situation of medical treatment and economic burden on the elderly.[21] Medical treatment and health care services for the elderly are influenced by many factors, such as the source of income, the harmonious relationship with children, the guarantee of medical expenses, hospice care, and psychological and spiritual needs. Therefore, attention should be paid to the coexistence of multiple diseases and the debilitating state of the elderly, and individualized intervention and diversified support strategies should be provided.[22] Simultaneously, we should also focus on health and pay attention to people's life cycle and health issues at all stages, to assist people with healthy aging.

ETHICAL COMPLIANCE

This study was approved by the ethics committee of Binzhou Medical University. Signed written informed consents were obtained from the patients and/or guardians.

DATA AVAILABILITY

The labeled dataset used to support the findings of this study are available from the corresponding author upon request.

AUTHOR DISCLOSURE STATEMENT

The author declares no competing interests.

ACKNOWLEDGEMENT

XS and QW designed the study and performed the experiments, XS and ML collected the data, QW and ML analyzed the data, and XS and QW prepared the manuscript. All authors have read and approved the final manuscript.

FUNDING

2020 Binzhou Medical University Social Science Development Fund of Medical Treatment and Health Care Industry Research Project (No. 2022ZB408).

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