The Impact of Chronic Diseases on Attitudes towards Aging among the Elderly

ABSTRACT Background: With the acceleration of global aging process, how to actively respond to the problem of population aging has attracted increasing attention from the academic community. Previous studies have shown that chronic diseases and attitudes towards aging are two important factors affecting healthy and positive aging. **Objective:** To understand the prevalence of chronic diseases and attitudes towards aging among the elderly, and to explore the relationship between the two. **Methods:**On the basis of reviewing previous literature, this article clarifies the concepts of aging attitudes and chronic diseases, analyzes the impact of chronic diseases and aging attitudes on the lives and health of the elderly, and based on this, elaborates on the impact of chronic diseases on the aging attitudes of the elderly and its impact pathways. **Results:** Suffering from chronic diseases has a significant negative impact on the aging attitudes of elderly people. Compared with elderly people who do not suffer from chronic diseases, those who suffer from chronic diseases have a more negative tendency towards aging attitudes. The impact of chronic diseases on attitudes towards aging is mainly achieved through frequent physical pain and discomfort, significant decline in daily living abilities, increased treatment burden, and misconceptions about the disease. **Conclusion:** Suffering from chronic diseases is one of the important reasons for elderly people to develop negative attitudes towards aging.

Keywords: Elderly people, Chronic diseases, Aging attitudes, Impact

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1.Introduction

Population aging is a common issue in human society in the 21st century. Compared to developed countries, this problem in developing countries is more serious, and the reality is "aging before wealth" and "aging before preparation". Taking China as an example, as of the end of 2019, the population aged 60 and above in mainland China was about 254 million, and its proportion in the total population had increased from 13.26% in 2010 during the "Sixth National Population Census" to 18.1% [1]. According to the results of the 7th National Population Census in 2020, the population aged 60 and above in China has reached 264 million, accounting for 18.7% of the total population [2]. It can be seen that the aging rate of the population in our country is accelerating. Population forecasts indicate that by 2050, the aging rate of China's population will reach over 30%. The sharp increase in the elderly population and the continuously accelerating aging process are objectively the result of the extension of the average life expectancy of the population. However, some studies have pointed out that the extension of life expectancy has not led to a synchronous increase in healthy life expectancy [3]. In other words, although the elderly have "lived a long time", the "quality of life" has not improved significantly. Chronic diseases such as hypertension, diabetes, cardiovascular and cerebrovascular diseases are still the main factors threatening the quality of life of the elderly in China.

Chronic disease is the abbreviation for chronic non communicable disease, which has the characteristics of complex etiology, difficult to detect onset, long course, and low cure rate, and is prone to multiple comorbidities of chronic diseases [4]. Currently, driven by both demographic

and epidemiological changes, chronic diseases have replaced infectious diseases as an important disease affecting the lives and health of Chinese residents [5]. According to statistics, the number of deaths caused by chronic diseases in China accounts for 86.6% of the total deaths, and the disease burden accounts for about 70% of the total disease burden. Among them, cardiovascular and cerebrovascular diseases, cancer, and chronic respiratory diseases are the main causes of death, accounting for 79.4% of total deaths [6]. The elderly population is the main body of chronic disease patients, and compared to other age groups, they have a higher risk of developing chronic diseases. The prevalence rate of cardiovascular and cerebrovascular diseases, tumors, chronic obstructive pulmonary diseases and diabetes ranked first among all age groups, and ranked top 4 among the chronic diseases of the elderly. Moreover, 75% of the elderly suffered from more than one chronic disease [6-7], and more than 40 million disabled and partially disabled elderly [6]. Chronic diseases reduce the basic (daily) living ability [7] and quality of life [8] of elderly people, increase their risk of disability, dementia, falls, accidental hospitalization [9-10], and death [11], lower their health life expectancy [12], affect their mental health status [13], increase the depletion of medical resources and the economic burden on families and society [14].

With the gradual acceleration of population aging, the development of empty nest households in China is rapid. Experts predict that by 2030, the proportion of empty nest families will reach 90%, and most elderly people in China will become "empty nest elderly" who lack life care and emotional support [15]. ("Empty nest elderly" refers to elderly people who live alone without children or have children but their children are no longer with them [16]). In the context of the "empty nest family" era, the negative impact of chronic diseases on the lifestyle, quality of life, and physical and mental health of the elderly has greatly increased [16].

Attitudes towards Aging is an effective indicator reflecting the psychological state of the elderly, which predicts their mental health status through their cognition and evaluation of aging [17]. Specifically, a positive attitude towards aging enables elderly people to have a higher self-evaluation of their health and life satisfaction, helping them successfully adapt to aging. On the other hand, a negative attitude towards aging can lead to adverse psychological reactions such as depression and anxiety, which are not conducive to the healthy life of the elderly and may even endanger their lifespan [18-20].

The World Health Organization (2002) proposed the concept of "active aging", advocating viewing aging as a positive and dynamic process, reducing diseases caused by aging, treating and rehabilitating chronic diseases, thereby increasing the social participation of the elderly and achieving the goal of active aging [21].

The premise of elderly social participation (active aging) is based on the positive aging attitudes of the elderly [22], who should be able to fully recognize and affirm the significance and value of their own aging. However, does the rampant prevalence of chronic diseases have an impact on the aging attitudes of the elderly? If this influence exists, what is its possible mechanism of action? Clarifying the above issues will help to gain a deeper understanding of the lifestyle of the elderly and the influencing factors of healthy living, providing empirical support for promoting active aging.

2. Relevant research progress

2.1 Concept and connotation of aging attitude

Aging attitude refers to an individual's experience and perception of aging, which is a relatively complex social and psychological structure [19]. According to different classification criteria, attitudes towards aging have different levels and dimensions. Scholars mainly explore attitudes towards aging from two perspectives: the nature of content and the perspective of evaluation. In terms of the nature of content, there are positive and negative aging attitudes [23]. Positive aging attitudesare individuals' positive perception and evaluation of old age. Faced with the growth of biological age and the aging of physiological functions, they can adjust their physical and mental state in a timely manner, maintain a positive attitude and values, and experience their own sense of usefulness, existence, and value. On the other hand,negative attitudes towards aging are the opposite, as individuals experience the loss of family status and power resources, age discrimination, and a denial of self-worth with the biological age growing and physiological function losing. From the perspective of evaluation [23], attitudes towards aging include two levels: self-aging and general aging attitudes. As the name suggests, self-aging attitudes refer to individuals' evaluation of their own aging based on their own feelings and life experiences, whilethe general aging attitudes involves the broader elderly population, which refer to individuals' perception of the aging of the general elderly population.

In fact, self-aging and general aging attitudes are inseparable. The cognition and evaluation of the elderly about themselves and aging are to some extent a reflection of the overall societal concept of aging. Although from a conceptual perspective, the general attitudes towards aging do not involve any elderly individuals, the stereotype of age is a product of social construction, and this psychology has universality for both individual elderly individuals and the general elderly population. For example, even if elderly people have good self-awareness, they usually give negative evaluations to most other elderly people.

2.2 The role and pathways of aging attitudes on health

Positive attitudes towards aging are beneficial for the physical and mental health of the elderly, enabling them to successfully adapt to aging, while negative attitudes towards aging are detrimental to their health and may even affect their lifespan. Levy's Stereotype Theory [24] suggests that aging attitudes have an impact on the health of older adults through three pathways: physiological, behavioral, and psychological.

2.2.1 Physiological pathways

At the physiological level, the subconscious negative aging attitudes can cause cardiovascular reactions in elderly people, including an increase in stress response and a decrease in post stress recovery ability. These two reactions lead to the occurrence of cardiovascular diseases through different pathways. The enhancement of stress response leads to increased blood pressure and hemodynamic disorders in elderly people, which, over time, ultimately leads to the occurrence of hypertension. The reduction of recovery ability after stress is related to long-term coagulation and inflammatory reaction, which leads to atherosclerosis and thrombosis [25]. Meanwhile, the stress from societal stereotypes of aging or negative attitudes towards aging can lead to frequent and sustained activation of the hypothalamic pituitary adrenal axis or sympathetic nervous system,

resulting in the occurrence of cardiovascular diseases [26].

2.2.2 Behavioral pathways

Healthy behavior refers to the positive actions taken by individuals to prevent diseases and maintain physical and mental health, including regular physical exercise, good mood, healthy diet, medical advice seeking and compliance [27]. Health behavior is an important way in which attitudes towards aging affect the health of the elderly. For example, the longitudinal study by Beyer et al. [28] suggests that physical activity plays a mediating role in the impact of aging attitudes on health. The more positive the attitudes towards aging, the higher the level of participation of elderly people in physical activities such as household chores and exercise, thereby improve their physical health. Compared with elderly people who hold a positive attitude towards aging, those who hold a negative attitude tend to delay seeking preventive and therapeutic health services, which can affect the treatment and prognosis of diseases [27]. Meanwhile, a negative attitude towards aging can reduce the treatment compliance of elderly patients with chronic diseases [28].

2.2.3 Psychological pathways

Aging attitudes have an impact on health through various psychological factors, including self-efficacy and self-regulation. Self-efficacy refers to the belief that individuals are able to achieve predetermined goals through organizing and executing actions [29]. Tovel et al. [30] found during a two-year follow-up that self-efficacy is a mediating factor in the impact of aging attitudes on physical function. That is to say, higher self-efficacy motivates old people to take more effective measures to maintain their physical health. Self-regulation refers to the process in which an individual systematically guides their thinking, emotions, and behaviors towards achieving their goals. When the health condition declines, people often use self-regulation strategies to make adaptive responses such as lifestyle improvements. When serious illnesses occur, the negative self-regulation ability of elderly people decreases, which in turn hinders the recovery of their physical health.

2.3 Impact ofchronic diseases on the health of elderly

Seventy-five percent of elderly people in our country suffer from chronic diseases. The proportion of elderly people with diseases in the elderly groups (78.36%) is nearly 10 percentage points higher than that in the younger group (68.94%). The incidence of diseases among elderly women (76.96%) is about 7 percentage points higher than that among elderly men (69.60%). Compared to urban elderly, the prevalence of chronic diseases among rural elderly is more severe, ranging from 77.28% to 70.61%.

Chronic diseases widely affect the lives and health of elderly people. For example, Meng et al. [32] found that in 2020, the standardized mortality rate of all chronic diseases among people aged 60 and above in China was 3612.82/100000. The years of life loss (YLL) caused by premature death were 148.0262 million person years, and the YLL rate (YLL/population) was 58249.32/100000; the direct economic burden on elderly patients with chronic diseases continues to increase over the long term [33]. Yu [34] pointed out that chronic diseases increase the probability of poverty among elderly people in rural areas, and chronic diseases can explain 7.9% of the variation in elderly poverty. Liu [35] found that the probability of elderly chronic disease

patients in urban areas experiencing poverty due to illness expenses is 17.44%, while in rural areas it is 59.63%. Wang et al. [36] found that chronic diseases are an important factor affecting the physical health of elderly people in urban and rural areas in China:the more types of chronic diseases they suffer from, the poorer their daily living activities, self-rated health, and higher levels of depression. That is to say, chronic diseases not only have adverse effects on the physical health of the elderly, but also damage their mental health. The subjective well-being of elderly people is significantly affected by chronic diseases, and the subjective well-being level of elderly people with chronic diseases is significantly lower than that of elderly people without diseases [37]. Chronic diseases are the primary cause of disability of the elderly, especially chronic diseases such as dementia, stroke, diabetes and heart disease [38]. The increase in the incidence of disability and semi disability in the elderly is closely related to the two-way increase in the incidence rate and prevalence of chronic diseases [39].

2.5 The impact of chronic diseases on attitudes towards aging among the elderly

The prevalence of chronic diseases is closely related to the aging attitudes of the elderly. Firstly, in terms of self-aging attitudes. Compared to elderly people without chronic diseases, those with chronic diseases tend to have a more negative attitude towards self-aging, and they have a more pronounced sense of psychological loss and frustration. Secondly, in terms of general attitudes towards aging, elderly people with chronic diseases are more likely to disagree with positive experiences during the aging process compared to those without chronic diseases. THORPE et al. [40] found that when individuals are diagnosed with chronic diseases (especially multiple chronic diseases), it is difficult for them to have positive and optimistic attitudes towards aging, and they are more likely to view their own aging negatively. At the same time, due to the fact that elderly people with a variety of chronic diseases need to master more disease-related knowledge, their self-management difficulty will be greater [41]. The lower their level of self-awareness [42], the more negative their attitudes towards aging.

So,through what mechanisms do chronic diseases affect the aging attitudes of the elderly? Previous literature has preliminarily explored this issue, suggesting that the impact of chronic diseases on attitudes towards aging is mainly achieved through frequent physical pain and discomfort, significant decline in daily living abilities, increased medical burden, and misconceptions about the disease.

Hu et al. [43] pointed out that pain or discomfort are the most common physical responses in elderly patients with chronic diseases, and the result of pain is usually impairment of the patients' activities of daily living (ADL) and decreased quality of life.

Wang et al. [36] pointed out that DLA partially mediates the relationship between chronic diseases and anxiety and depression. That is to say, the impact of chronic diseases on the mental health of the elderly is partly due to the characteristics of chronic diseases (such as physical discomfort, prolonged illness, and gradual aggravation) that directly trigger anxiety and depression, and partly through the decline in the DLA.

Gao et al. [44] found that medical burden negatively predicts perceived social support and empowerment in the elderly with chronic diseases, and perceived social support positively predicts empowerment. Perceived social support partially mediates the relationship between treatment burden and empowerment. That is to say, chronic diseases can strengthen the treatment burden of elderly, making them more inclined to believe that their healthcare behaviors occupy too

many social resources, resulting in a heavy caregiving burden and reducing social support. This understanding ultimately weakens the positive attitudes towards life, self-efficacy, and management ability, leading to the deterioration of the disease.

Self-care behavior explains 60% of variabilityof health [45]. According to the theory of "Knowledge, Belief, and Action (KAP)" [46], self-care behavior is based on health cognition. Many elderly people believe that suffering from chronic diseases is an inevitable result of old age, holding negative aging attitudes of self-neglect, such as "old age is useless" and "life is meaningless" [46, 47]. Thus, they passively observe or resist treatment and neglect self-care. In response to this situation, chronic disease health education guided by Social Learning Theory,KAP, and Empowerment Theory [48] can enable the elderly to have a more comprehensive understanding of chronic diseases, establish healthy values and correct attitudes towards aging, develop healthier habits, and build a more favorable social support system.

3.Conclusion

Previous studies have covered a wide range of aspects, including the prevalence of chronic diseases in the elderly and the impact on lives and health, the concept, role, and influencing factors of aging attitudes, as well as the impact and mechanisms of chronic diseases on aging attitudes, contributing to a correct understanding of the impact of chronic diseases and aging attitudes on the elderly. However, there exists the following shortcoming.First, the data in the previous studies are sourced from population censuses or self-reports of respondents, and reporting bias is difficult to avoid.Second, the use of correlation analysis to study the relationship between aging attitudes and chronic diseases can only indicate a certain covariate relationship between the two, but cannot explain the causal relationship.

References

[1] Zhai ZW, Chen JJ, Li L. Trends in population and aging in China from 2015 to 2100 [J]. Population Research, 2017, (4): 60-71.

[2] National Bureau of Statistics. Main Data of the Seventh National Population Census [EB/OL]. (2021-05-11)[2021-11-20]. http://www.stats.gov.cn/tjsj/zxfb/202105/t20210510_1817176.html

[3] Wang LM, Chen ZH, Zhang M, et al. Research on the status and burden of chronic diseases in the Elderly Population of China [J]. Chinese Journal of Epidemiology, 2019, 40(3): 277-283.

[4] Yan ZY, Chen DF. Research progress on comorbidity patterns of chronic diseases [J]. Chinese Journal of Disease Control and Prevention, 2023, 27(4): 471-475.

[5] Li JX, Xia CC. Disease transformation in China's elderly population: Traditional and modern [J]. Population and Development, 2019, (4): 94-105.

[6] National Health Commission. The National Health Commission held a special press conference on November 1, 2019 [EB/OL]. http://wsjkw.gxzf. gov.cn/ hdjl_49617/zxft_49622/zxft_49714/t2455954.shtml.

[7] Zhang YY, Zhang XY, Chen CX. Impact of different chronic diseases on the basic living abilities of elderly people in the community [J]. Journal of North China University of Science and Technology (Health Sciences Edition), 2021, 23(1): 23-26.

[8] Zhang JC, Xiao SJ, Xue YQ, et al. Impact of chronic diseases on the quality of life of elderly people: The mediating role of sleep quality and the moderating role of social participation [J].Chin PrevMed, 2023, 24(11): 1145-1150.

[9] Agrawal Y, Merfeld DM, Horak FB, et al. Aging, vestibularfunction, and balance: proceedings of a national institute onaging /National Institute on Deafness and Other CommunicationDisorders Workshop [J]. J Gerontol A Biol Sci Med Sci, 2020, 75(12): 2471-2480.

[10] Lin JL, Wei Y, Chen G, et al. Study on the association between the risk of falls of different severity and Cchronicdiseases and sleep in Chinese elderly people [J]. Chinese Journal of Disease Control and Prevention, 2021, 25(1): 25-31.

[11] Fan J, Sun Z,Yu C,et al.Multimorbidity patterns and association with mortality in 0.5 million Chinese adults[J]. Chinese Medical Journal,2022,135(6):648-657.

[12] Xie XF, Deng Z, Li MS, et al. Play the triumphant song of "quality of life" for the elderly [J]. Progress in Psychological Science, 2019, 27(11): 1793-1801.

[13] Xiao SJ, Shi L, Dong F, et al. The impact of chronic diseases on loneliness in the elderly: The mediating role of cognitive function and the moderating role of perceived social support [J]. Modern Preventive Medicine, 2021, 48 (15): 2777-2880, 2807.

[14] Lu YQ, Deng J. The current status of multiple chronic diseases in the elderly and the impact on medical expenses [J]. Research on Health Economics. 2024, 41(1): 81-85.

[15] Gu HX. Quality of life and psychological and social support for empty nest elderly [J]. China Journal of Health Psychology, 2015, 23(8): 1218-1222.

[16] Yang ZR. Analysis of the current status and influencing factors of chronic diseases among empty nest elderly in Jinzhou City [J]. Modern Preventive Medicine, 2016, 43(5): 852-856.

[17] Levy BR, Slade MD, Kunkel SR, et al. Longevity increased by positive self-perceptions of aging [J]. Journal of Personality and Social Psychology, 2002, 83(2): 261-270.

[18] Chen YT, Gao XT, Chen ZL, et al. Sense of meaning in life and mental health of elderly people based on the Two Factor Model: The Mediating Role of Aging Attitudes [J]. Studies of Psychology and Behavior, 2022, 20(1): 88-95. (in Chinese)

[19]Chu L,Lay JC, Tsang VHL, et al. Attitudes towardaging: Aglancebackatresearchdevelopments over the past 75 years[J].The Journals of Gerontology: Series B, 2020, 75(6), 1125–1129.

[20] Chen ZB, Li M, Wu YL, et al. The impact of aging attitudes on life satisfaction among 2167 elderly people in Guangdong Province [J].Occupation and Health, 2022, 38(13): 1797-1801.

[21] Wu CP, Peng QY. Reinterpreting the scientific connotation of "active aging" [J]. Chinese Social Work, 2018, (17): 28-29.

[22] Top M, Eriş H, Kabalcıoğlu F. Quality of life (QOL) and attitudes toward aging in older adults in Şanlıurfa, Turkey [J]. Research on Aging, 2013, 35(5): 533-562.

[23] ZHU H, MA JJ. The definition, measuring methods and intervention mechanisms ofattitudes towards aging[J]. Scientific Research on Aging, 2022, 10(8): 28-41.

[24] Levy B. Stereotype embodiment: a psychosocial approach to aging [J]. Curr Dir Psychol Sci, 2009, 18(6): 332.

[25] Chida Y, Steptoe A. Greater cardiovascular responses to laboratorymental stress are associated with poor subsequent cardiovascular riskstatus: a meta-analysis of prospective

evidence [J]. Hypertension, 2010, 55(4): 1026-1032.
[26] Sun JK, Kim ES, Smith J. Positive self-perceptions of aging and lowerrate of overnight hospitalization in the US population over age 50 [J].Psychosom Med, 2017, 79(1): 81-90.
[27] Sun JK, Smith J. Self-perceptions of aging and perceived barriers tocare: reasons for health care delay [J]. Gerontologist, 2017, 57(suppl2): S216-26.
[28] Wang Y, Yu L, Geng YB. Research on the influence of aging attitudes of the elderly on the COVID-19protection willingness and behavior in the post-pandemic era [J]. Psychological Monthly, 2023, 18(23): 1-6.
[29] Gu H, He H, Du SS, et al. Effect of social participation on theattitudes towardsaging of rural elderly: Mediating effects of self-efficacy and loneliness [J]. Chinese Journal of Psychological Science, 2022, 45(5): 863-870.
[30] Tovel H, Carmel S, Raveis VH. Relationships among self-perceptionof aging, physical functioning, and self-efficacy in late life [J]. J Gerontol B Psychol Sci Soc Sci, 2019, 74(2): 212-21.
[31] Abrams D, Travaglino GA, Grant PR, et al. Mobilizing IDEAS in the Scottish Referendum: Predicting voting intention and well-being with the subjective well-being model of Identity-Deprivation–Efficacy–Action [J]. British Journal of Social Psychology, 2020, 59(2), 425-446.
[32] Meng SD, Wang W, Yin P, et al. Analysis on the burden of four major chronic diseases among the elderly (≥60 years old)in China in 2005 and 2020[J]. Chin J Prev Contr Chron Dis, 2022, 30(5):321-326.
[33] Yang J, Li YQ, Chen XY, et al. Research on the direct economic burden of chronic diseases in middle aged and elderly patients in China [J]. China Health Economy, 2019, 38(5): 71-73.
[34] Yu CY. Research on the impact of chronic diseases on rural elderly poverty: A case study of survey data from 31 counties in 11 prefectures and cities in Xinjiang [J]. Journal of Southwest University for Nationalities (Humanities and Social Sciences Edition), 2018, (3): 1-8.
[35] Liu L, Deng J, Yu X, et al. Analysis of urban-rural differences in the impact of chronic diseases on elderly people's disease-related poverty [J]. Medicine and Society 2022, 35(5): 65-70.
[36] Wang HZ, Qiao TT, Fan YC. Study on the effects of daily living activity ability and self-rated health status of elderly people on the impact of chronic diseases on depressive symptoms [J]. Preventive medicine. 2023, 5(7): 574-577.
[37] Sun ZQ. The moderating effect of retirement pension on the relationship between chronic disease incidence and psychological well-being of the elderly: Based on the interaction effect model [J]. Research on Industrial Innovation. 2020, (12): 87-88+114.
[38] Song XM, Zhou YY, Guo PP. Analysis of the disabling effect of chronic diseases on elderly people in China [J]. Population and Development, 2016, (3): 79-83.
[39] Gao Y, Yuan X. Characteristics and coping strategies of health transition patterns among middle-aged and elderly populations under the background of aging [J]. Hebei Journal, 2018 (3): 170-175.
[40] Thorpe AM,Pearson JF,Schluter PJ,et al. Attitudes to aging in midlife are related to health conditions and mood[J].International Psychogeriatrics,2014,26(12):2061-2071.

[41] Wang B, Chi LH, Zhang DC. Health literacy and influencing factors of elderly chronic disease patients in rural areas of Weifang City [J]. Chinese Journal of Gerontology, 2018, 38(6): 1511-1513.

[42] Wang DH, Luo Y, Zhou T, et al. Research on the aging attitudes, autonomy perception status and influencing factors of elderly chronic disease patients in rural areas [J]. CHINESE NURSING RESEARCH, 2020, 34(14): 2563-2566.

[43] Hu J, Yang M, Yu J, et al. Research on the quality of life and its influencing factors of elderly patients with chronic diseases [J]. Practical Geriatric Medicine, 2019, (3): 234-236.

[44] Gao YF, Sun SW, Zhao L, et al. The mediating role of perceived social support in the treatment burden and empowerment of elderly patients with chronic diseases [J]. Chinese Nursing Management, 2023, 23(2); 161-165.

[45] Wang DJ. The institutional function and fundamental role of universal medical insurance in the Healthy China Strategy (Part 2) [J]. China Medical Insurance, 2016, (12): 9-11.

[46] Abada S, Clark LE, Sinha AK, et al. Medication regimen complexity and low adherence in older community-dwelling adults with substantiated self-neglect [J]. Journal of Applied Gerontology: The Official Journal of the Southern Gerontological Society, 2019, 38(6): 866-883.

[47] Yi ZH, Hou MJ, Li Q, et al. Research on the correlation between self-neglect and health promoting lifestyle among elderly people with chronic diseases in rural areas [J]. Modern Preventive Medicine, 2020, 47(23): 4299-4302.

[48] Wu P. Practical research on chronic disease health education for rural elderly: A case study of G Village [D]. Heilongjiang University. 2023.