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Study on the Impact of Health Awareness on Health Status of the Elderly Floating Population

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Abstract

In recent years, the health status of the elderly floating population has attracted more and more attention. Based on the 2018 Chinese elderly Health tracking Survey data (CLHLS), it is found that the self-rated health status of the elderly floating population over 65 years old is generally better, and the living self-care ability is also better. Among them, most of the elderly floating population have positive medical habits, healthy diet, exercise habits and appropriate leisure methods. The ordered Logit regression model was used to analyze the influence of health awareness on the health status of the elderly floating population, and it was concluded that the habits of seeking medical treatment, eating habits, exercise habits and leisure methods had a positive impact on the health status. Through the robustness test, it is found that the model results are still significant. The personal heterogeneity test found that the health status of the elderly floating population with female and married sex was better, and the family heterogeneity test found that the elderly floating population with immediate family care and good family living conditions had better health status. With the expansion of the scale of the elderly floating population, the relevant government departments and medical institutions should further strengthen the education and publicity of health awareness, enhance the health awareness of the elderly floating population, improve the exercise infrastructure of the elderly, develop the related industries of the elderly, and ensure that the health needs of the elderly floating population are met.

Keywords

Elderly floating population; Health awareness; Health status.

1. Research Background

In recent years, the aging degree of China's population has been deepening. According to the data of the Seventh National Census, the population aged 65 and over in China accounts for 13.5% [1]. On November 24, 2021, "opinions of the CPC Central Committee and the State Council on strengthening the work of the elderly in the New era" [2] pointed out that it is necessary to improve the old-age service system, improve the health support system of the elderly and other measures. During the 14th five-year Plan period, China will comprehensively promote the construction of a healthy China, improve the medical insurance system, actively respond to the aging population, improve the service system of medical care and health treatment, and ensure the health needs of the people.

The floating population in China has always been dominated by young and middle-aged people, but according to the 2018 data of the National Health and Health Commission [3], the scale of the elderly floating population in China has increased from 5.03 million in 2000 to 13.04 million in 2015, with an average annual growth rate of 6.6%. The proportion of the overall floating population has also increased from 4.9% in 2000 to 5.3% in 2015, and the scale of the elderly floating population has also been expanding. The academic research on the elderly floating population rose in 2000 and reached the most wonderful part around 2015, but the previous

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research mainly focused on the residence willingness and social integration of the elderly floating population, and there were few studies on the health of the elderly floating population. On October 25, 2016, the CPC Central Committee and the State Council issued the outline of the healthy China 2030 Plan. Only then did the health problems of the elderly floating population gradually attract academic attention. There are many problems in the elderly floating population, such as "urgent medical care", neglect of health examination and so on [4]. Therefore, under the background of actively dealing with the aging era, the study of the health problems of the elderly floating population is conducive to improving the health awareness of the elderly floating population, further improving the health basic medical construction of the elderly floating population, perfecting the old-age services, focusing on building an elderly-friendly society, and promoting the development of a healthy China strategy.

2. Related Literature and Review

About the definition of the elderly floating population, some scholars believe that it refers to the population aged 60 and over who have been living outside the registered counties and cities for a long time because of employment, care for their children or grandchildren, pension, and other reasons [5]. Some scholars also think that it refers to the elderly population whose household registration is not in their current place of residence and who has left the place of registration for more than half a year [6]. Combined with the definition of elderly floating population and the data of "China elderly Health tracking Survey", this paper defines the elderly floating population as the floating population who lives and lives in other provinces, cities and counties for more than half a year. Health consciousness refers to the comprehensive evaluation of health from physiological, psychological, social, environmental, and other aspects, to reduce and eliminate the adverse factors affecting health, to achieve physical and mental balance and coordination and unity with the environment [7]. Some scholars also believe that the awakening of health consciousness comes from the influence of residents' consumption of miscellaneous grain [8]. Combined with the definition of health awareness by scholars and the "Chinese elderly health follow-up survey" [9], this paper defines the health consciousness of the elderly floating population as the consciousness of having positive medical habits, healthy eating habits, exercise habits and reasonable leisure activities. According to the definition of the World Health Organization, health status refers to the absence of disease in the body, as well as mental health, good social adaptation, and morality. At present, the indicators of population health measurement in academic circles mainly focus on whether there are three categories of chronic diseases, self-assessment health and ability of daily living (ADL, IADL), and scholars use healthy life expectancy to reflect health status [10]. According to the actual situation of the questionnaire, "self-assessment health" was selected to reflect the overall health status of the elderly floating population. The academic research on the health factors of the elderly floating population is mainly focused on the breadth. In the aspect of the health awareness of the elderly, the main evaluation indicators are health files, whether to learn health knowledge, whether to establish a minimum security, and so on, and from the social and family pressure, the main economic situation of the elderly themselves, the economic situation of the whole family, etc., according to the current research status. In breadth, the research on the health status of the elderly floating population can be said to be more comprehensive, but from the depth of careful study can also be carried out from the health awareness of the elderly in-depth study. According to the current academic research on the health of the elderly, this paper puts forward the health awareness of the elderly and the health status of the elderly floating population. Guo et al. [11] found that the self-assessment health of the elderly floating population was more positive than that of the general elderly population. Health awareness factors (such as exercise time, treatment of minor diseases, etc.) and social support factors (such as the number of friends in the place of migration, etc.) had a significant impact on their

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self-assessment health. In addition, whether it is convenient to see a doctor has a significant impact on the self-assessment of physical and mental health of the floating elderly population. On the one hand, it reflects that the convenient cross-regional use of medical insurance provides a guarantee for the physical health of the elderly, makes the elderly floating population more assured, and promotes their mental perception [12].

In addition, from the current overall level of physical quality of college students, although the current college students pay attention to the combination of physical exercise and nutrition, but still lack some necessary health awareness, the role of promoting their own physical health is not strong [13]. Health awareness has a significant impact on physical health. Because of the particularity of the elderly floating population itself, it often becomes a vulnerable group in the inflow area. With the increase of age, the decline of physical function, there are differences in the life and culture of the inflow area, there are discomfort, and often face psychological stress problems, which may lead to mental health problems. In Li's research, it is found that the longer the flow distance, the worse the physical and mental health. However, the physical and mental health of the elderly floating population with cross-provincial mobility was the worst. The feeling at the spiritual level is greater than that at the physiological level [14].

In recent years, social workers have increased the construction of mental health of the elderly, helped the elderly to improve their awareness of mental health, helped the elderly to establish a positive living state, and enhanced the happiness of the elderly [15]. This reflects the importance of mental health. Song and Zhang [16] found the health status of the elderly floating population was comprehensively reflected in the study, and the health status of the elderly floating population was evaluated from the perspective of breadth. Due to the use of a more comprehensive analysis point of view, the health awareness of the elderly and social and family pressure did not analyze the mechanism and role of the impact on the health of the elderly floating population.

In recent years, there are many studies on the factors affecting the health status of the elderly floating population in China. The health evaluation of the elderly floating population mainly includes five factors: population sociology, mobility, social economy, medical and health services, social communication and so on. Among them, the sociological factors of population mainly include sex, age, marital status, level of education, nature of hukou [16,17]. The flow factors include flow intensity, length of time, frequency, range, cause, type and geographical factors [11,17,18]. Social and economic factors mainly select family income as a representation [19,20]. The factors of medical and health service mainly select the variables such as the state of medical insurance participation, the situation of community physical examination service, the treatment mode of minor illness and so on [16,19]. Social support factors (such as the number of friends in the land, etc.) also have a significant impact on their self-assessment health [21]. In addition, the health status of the elderly floating population is affected by the city itself (such as the size of the city and the density of the road network in the built-up area) [18]. The above studies have laid a good foundation for the study of the influencing factors of the health consciousness of the elderly floating population on the health status. Although the academic circles have paid more and more attention to the elderly group in recent years, they have analyzed their health status from the perspective of income level and chronic life style, and gradually showed the embryonic form of the health consciousness, but the research on the health consciousness is relatively few. The impact of the study on the health status of the elderly floating population was less. At present, there are still shortcomings in the in-depth study of health awareness of the elderly floating population. At present, the main factors that affect the health status of the elderly floating population mainly include their own conditions, social and economic development, national policy support, basic medical services. Mainly aimed at their own poor conditions of the elderly floating population, to give priority to improve the relevant policies to support the inflow, in order to meet the health needs of the floating elderly at

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different age stages. However, the health problems of the elderly floating population have not been deeply excavated in a certain field for a long time. How the health awareness of the elderly plays an important role in the health of the elderly floating population is an empirical problem. Therefore, based on the data of the 2018 Chinese elderly Health tracking Survey, this paper analyzes the impact of the health awareness of the elderly floating population on the health status. It is of great significance to improve the health awareness and health status of the elderly floating population.

3. Ordered Logit Model

Based on the data of 2018 Chinese elderly health follow-up survey, in the process of questionnaire analysis, SPSS.23 statistical analysis software was used for empirical analysis, and the self-rated health was selected as five-level classified variables. Therefore, ordered Logit regression analysis was used to study the impact of health awareness on health status of elderly floating population. The ordered Logit model expressions are as follows:

$$P(Y = \Theta \mid X) = \frac{e^{(\beta_0 + \sum_{k=1}^{K} \beta_k x_k)}}{1 + e^{(\beta_0 + \sum_{k=1}^{K} \beta_k x_k)}}$$

Among them, Θ= {very good, good, general, bad, very bad}, it is an ordered set of self-rated health, and X is a vector composed of explanatory variables.

4. Data Sources and Basic Status

4.1. Data Sources

According to the data of Chinese Longitudinal Healthy Longevity Survey (2018), the data covered the elderly over 65 years old in more than 500 sample areas of 22 provinces, cities and autonomous regions in China, with a total sample size of 15847 people. The floating population living and living in other provinces, cities and counties for more than half a year was selected as the research object, and 4342 valid samples were selected. Overall, the distribution of age structure was 23.36% for males and 56.4% for females, 23.36% for 65-75 years, 27.25% for 76-85 years, 25.05% for 86-95 years, 22.62% for 90-105 years and 1.73% for 106-117 years old.

4.2. Analysis of the Status of Health

Among the elderly surveyed, it was found that the overall self-assessment health status was 40.1%, the self-assessment health status was 35.4%, the self-assessment health was good 9.9%, and the self-assessment health poor and very bad people accounted for 13.1% and 1.5% respectively. In terms of physical health, it was found that 75.2% of the baths did not need any help, 85.6% could find and put on clothes, 86% could go to the toilet independently and without help, 87.7% had no help in indoor activities, 92.6% could control their own defecation, 91.2% could eat without help, 71.9% could visit their neighbors alone, 62.6% could go out shopping and cook alone. 63.8% could wash clothes alone, 50.6% could walk 2 miles in a row, 51% could lift about 10 catties of things, and 46.8% could travel by bus alone, reflecting the good health condition of the elderly, but with the decline of the physical quality of the elderly, chronic diseases became a problem, so there was a health risk.

4.3. Analysis of the Current Situation of Health Awareness

The definition of health consciousness of the elderly floating population mainly includes positive medical habits, healthy eating habits, exercise habits and reasonable leisure activities to reflect the health awareness of the floating elderly population, such as table 1.

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Table 1. Results of ordered logit regression analysis

Parameter estimation value			
		Estimate	OR
Self-assessment of health	very bad	-3.265	0.038***
	bad	-0.658	0.518*
	general	1.367	3.924***
	good	3.342	28.276***
Basic information	sex	-0.196	0.822***
	marital status	0.068	1.070***
	degree of education	-0.055	0.946***
	place of birth type	0.067	1.069
	home place	0.049	1.05
Habit of seeking medical treatment	serious illness, can be treated in time to the hospital	0.683	1.980***
Eating habits	eat fresh fruit every day	0.61	1.840***
	often eat fresh fruit	0.493	1.637***
	sometimes eat fresh fruit	0.223	1.250***
	eat fresh vegetables every day	0.233	1.262**
	the staple food is mainly rice.	-0.499	0.607**
Exercise habit	now exercise.	0.361	1.435***
Leisure habit	grow flowers and keep pets every day	0.142	1.153**
	read the newspaper at least once a month	-0.42	0.657***
	raise poultry every day	0.107	1.113**
	play cards or mahjong every day	0.426	1.531***
	play cards or mahjong at least once a week	0.167	1.182**
	watch TV and listen to the radio every day	0.155	1.168***
	visit and socialize with friends every day	0.267	1.306***
	visit and socialize with friends at least once a week	0.139	1.149**
	take part in other outdoor activities every day	0.112	1.119**

Note: *, **, *** indicate that the effect of independent variables on dependent variables is significant at the levels of 10%, 5% and 1%, respectively.

In the habit of seeking medical treatment, it is found that 96.8% of the elderly can go to the hospital in time for treatment when they are seriously ill, reflecting the importance they attach to their own health.

In terms of diet, it was found that the elderly mainly ate rice and flour as their staple food, accounting for 85.3% of the total vegetable oil, while the proportion of lard and animal oil was 13.3% and 0.8%, respectively. In addition, most of the elderly did not like fruit, but they loved fresh vegetables very much, and the proportion of eating fresh vegetables every day was as high as 60.4%. The idea of eating more vegetables for good health is deeply rooted in the hearts of the people. The study found that among the investigated elderly who ate fruit frequently, their physical condition was generally better, while the physical condition of the elderly who did not eat fruit was worse and the proportion was higher than that of the elderly who ate fruit

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frequently. The elderly who often eat vegetables, vegetable oil, rice, miscellaneous grains and flour are in better health.

In terms of exercise, it was found that the proportion of exercise now was 26.8%, which was higher than that of 25.6% in the past, but the increase was not significant. The study found that the physical health of the elderly who exercise now is not much different from that of the elderly who do not exercise, but the elderly who exercise now are still in better health than those who do not exercise. In the past, the elderly who used to exercise were in better health than those who did not exercise in the past. It shows that proper exercise can promote physical health.

In terms of leisure activities, the proportion of elderly people who like to watch TV and listen to the radio is high, and the proportion of growing flowers, pets, reading newspapers, raising livestock and playing cards is not high. Most of the elderly are willing to visit friends, but rarely participate in other outdoor activities, especially organized activities. The study found that in the leisure activities of the elderly, the elderly who grow flowers and keep pets, read newspapers, raise livestock, play cards or play mahjong, watch TV, listen to radio, visit doors, socialize with friends and take part in other outdoor activities are better at self-assessment, indicating that the elderly who take part in appropriate leisure activities are helpful to their own health.

In terms of their own conditions, gender also has an impact on physical health, women's physical health is relatively better than men, and in terms of educational level, the higher the educational level, the better the self-assessment of physical health.

5. Empirical Analysis

5.1. Research Assumptions

Based on the literature combing and the above descriptive analysis, the following research assumptions are put forward:

Hypothesis 1: active medical treatment habits can promote the health status of the elderly floating population.

Hypothesis 2: healthy eating habits have a positive impact on the health status of the elderly floating population.

Hypothesis 3: appropriate exercise has a positive impact on the health status of the elderly floating population.

Hypothesis 4: appropriate leisure activities have a positive impact on the health status of the elderly floating population.

5.2. Variable Setting

5.2.1. Explained Variables

The explained variables were self-rated health, indicating the health status of the elderly floating population, using the questionnaire to personally answer their own health status, the answer options are very good, good, general, bad, very bad. In order to study, reassign variables to 1= very bad, 2= bad, 3= fair, 4= good, and 5= very good.

5.2.2. Explanatory Variables

The explanatory variables are medical habits, staple food types, cooking oil, fresh fruits, fresh vegetables, exercise in the past, exercise now, playing cards and playing mahjong, reading newspapers, growing flowers and pets, raising poultry, watching TV, listening to radio, socializing with friends and participating in social activities.

5.2.3. Control Variables

The control variables are sex, educational level, marital status, place of residence, place of birth.

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Table 2. Variable calculation method and descriptive Statistics

Variable name	Variable assignment	Average	Standard Deviation
Self-assessment of health	1 = very bad; 2 = bad; 3 = general; 4 = good 5 = good	3.43	0.90
Sex	1 = male; 2 = female	1.56	0.50
Place of birth type	1 = towns; 2 = rural areas	1.84	0.37
home place		1.45	0.50
Degree of education	1 = illiterate; 2 = primary school; 3 = junior high school; 4 = high school; 5 = university and above	1.98	1.25
Marital Status	1 = married and living with a spouse; 2 = married but not with a spouse; 3 = divorced; 4 = widowed; 5 never married	2.79	1.47
Habit of seeking medical treatment	1 = Yes; 2 = No	1.03	0.18
Staple food	1 = rice; 2 = miscellaneous grain; 3 = flour; 4 = half rice and half flour; 5 = other	2.00	1.26
Edible oil	1 = other vegetable oil; 2 = sesame oil; 3 = lard; 4 = other animal oil	1.22	0.63
Fresh fruit	1 = eat every day / almost every day; 2 = eat regularly; 3 = sometimes eat; 4 = eat little or never eat	2.58	1.08
Fresh Vegetables		1.53	0.8
Now exercise.	1 = Yes; 2 = No	1.7	0.46
Exercise in the past		1.69	0.46
Grow flowers and keep pets	1 = almost every day; 2 = not daily, but at least once a week; 3 = not weekly, but at least once a month; 4 = not monthly, but sometimes; 5 = not participating	4.41	1.36
Read and read the newspaper		4.35	1.36
Raise poultry		4.26	1.51
Play cards and play mahjong		4.54	1.14
Watch TV and listen to the radio		2.47	1.8
Hang out with friends		3.3	1.72
Participate in other outdoor activities		4.03	1.57
Participate in social activities		4.72	0.85

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5.3. Conclusions of the Study

The influence of health awareness on self-rated health of elderly floating population was investigated by using the data of Chinese Longitudinal Healthy Longevity Survey (2018). The self-rated health of the explained variables is 1-5 virtual variables, and the results estimated by the ordered Logit estimation method are shown in Table 3. The logarithmic likelihood value of model-2 is 26917.428 and the Pearson square value is 39138.180, which indicates that the goodness of fit of the model is good.

From the regression analysis results, significant < 0.05, indicating that there is a significant difference in health awareness among the elderly floating population. Among them, gender, marital status, educational level, medical habits, fresh fruit, fresh vegetables, rice as the staple food, now exercise, growing flowers and pets every day, monthly or sometimes reading newspapers, playing cards and playing mahjong at least once a day or once a week, raising poultry every day, watching TV and listening to the radio every day, visiting friends every day, participating in other outdoor activities every day, there are significant differences in health awareness.

There are statistically significant differences in the habit of seeking medical treatment. The regression coefficient of active medical treatment is positive, and the expected value of OR=1.980 indicates that active medical treatment is 198% of that of not actively seeking medical treatment. This may be due to the improvement of basic medical care level and the effective coverage of medical insurance in our country, which greatly reduces the cost of seeking medical treatment for the elderly, and the consciousness of the elderly seeking medical treatment in time is gradually strengthened. At the same time, community health care institutions effective health publicity and education, health knowledge has been effectively disseminated, to help the elderly floating population to establish a correct health awareness. Hypothesis 1 is verified.

There are statistically significant differences in healthy eating habits. The regression coefficient of eating fresh fruit and eating fresh vegetables every day was positive, and the expected OR was 1.250 and 1.262, respectively, indicating that healthy eating habits were 125% and 126.2% of unhealthy eating habits, respectively. This may be due to the decline in the physical condition of the elderly, pay more attention to diet, at the same time, doctors also advocate eating more fruits and vegetables, which is conducive to good health. As a result, hypothesis 2 is verified.

There are statistically significant differences in appropriate exercise habits. At present, the regression coefficient of exercise variables is positive, and the expected value of OR=1.435 is 143.5% of that of non-exercise, which may be due to the popularization of fitness equipment for the elderly, such as community and square, and the use of equipment to exercise in their spare time. At the same time, community medical and health care vigorously publicizes health knowledge, guides the elderly floating population to exercise actively, and trains the elderly floating population to have a better mental health status. Promote the health of the elderly floating population. As a result, hypothesis 3 is verified.

There are statistically significant differences in appropriate leisure activities. There are statistically significant differences in playing mahjong, watching TV and listening to radio, socializing with friends and raising pets. Among them, the regression coefficient of playing cards every day, watching TV and listening to radio, socializing with friends, raising pets, raising poultry and participating in outdoor activities is positive. The expected value of playing cards OR=1.531 means that playing cards every day is 153.1% of that of non-playing cards. This because the elderly floating population is outside the country. Easy to be lonely, in order to seek their own health, coupled with the community has an activity center for the elderly, combined with their own conditions, often with relatives and friends as well as community neighbors to

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communicate, in order to relieve loneliness and promote their own health. Hypothesis 4 is verified.

Table 3. Results of ordered Logit regression analysis

Parameter estimation value			
		Estimate	OR
Self-assessment of health	Very bad	-3.265	0.038 ***
	Bad	-0.658	0.518 *
	General	1.367	3.924 ***
	Good	3.342	28.276 ***
Basic information	Sex	-0.196	0.822 ***
	Marital Status	0.068	1.070 ***
	Degree of education	-0.055	0.946 ***
	Place of birth type	0.067	1.069
	Home place	0.049	1.05
Habit of seeking medical treatment	Serious illness, can be treated in time to the hospital	0.683	1.980 ***
Eating habits	Eat fresh fruit every day	0.61	1.840 ***
	Often eat fresh fruit	0.493	1.637 ***
	Sometimes eat fresh fruit	0.223	1.250 ***
	Eat fresh vegetables every day	0.233	1.262 **
	The staple food is mainly rice.	-0.499	0.607 **
Exercise habit	Now exercise.	0.361	1.435 ***
Leisure habit	Grow flowers and keep pets every day	0.142	1.153 **
	Read the newspaper at least once a month	-0.42	0.657 ***
	Raise poultry every day	0.107	1.113 **
	Play cards or mahjong every day	0.426	1.531 ***
	Play cards or mahjong at least once a week	0.167	1.182 **
	Watch TV and listen to the radio every day	0.155	1.168 ***
	Visit and socialize with friends every day	0.267	1.306 ***
	Visit and socialize with friends at least once a week	0.139	1.149 **
	Take part in other outdoor activities every day	0.112	1.119 **

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6. Robustness Test and Heterogeneity Test

6.1. Robustness Test

6.1.1. Core Explanatory Variables

The core explanatory variable is health awareness. There may be some errors in using medical habits, eating habits, exercise habits and appropriate leisure methods in basic regression. This paper further uses whether to smoke or drink in the past, whether to smoke or drink now as a measure of health awareness, and carries on the conservatism test. Column 4 (1) of table 4 is whether to drink now, column (2) is whether to drink in the past, column (3) whether to smoke now and column (4) whether to smoke in the past. From the regression results, the coefficient of health awareness is still significantly positive.

Table 4. Robustness Test of replacing Core explanatory variables

Variable	Health			
	(1)	(2)	(3)	(4)
Health consciousness	0.642***	-0.224***	0.193***	-0.107*
Control variable	control	control	control	control
Observed value	11190	11190	11190	11190
-2 logarithmic similarity value	26609.442	26609.442	26609.442	26609.442
Pearson square value	39393.528	39393.528	39393.528	39393.528

6.1.2. Explained Variables

In order to solve the internal problems, this paper uses whether the elderly is restricted in daily life to replace the explained variables because of health problems in the last 6 months. In Logit regression, self-assessment health is used as the explained variable to measure the health status of the elderly. There may be errors, and further use of whether they are limited in life as a measure index to carry on the robustness test. Whether the restriction is divided into a large limited assignment 1, to a certain extent, the restricted assignment 2, the regression results as shown in Table 5, the coefficient of health awareness is still significantly positive.

Table 5. Robustness Test of replacing explained variables

Variable	Health
Health consciousness	2.719***
Control variable	control
Observed value	4634
-2 logarithmic similarity value	4430.773
Pearson square value	3791.433

6.2. Heterogeneity Test

6.2.1. Individual Heterogeneity Test

First, to investigate whether there are gender differences in the impact of health awareness on health status of the elderly floating population. Assign a male value of 1 and a female assignment of 2. The regression results, as shown in column (1) of table 6, showed that the interaction coefficient was significantly positive, indicating that the gender of the elderly floating population had a greater impact on the health status of the elderly floating population. The health status of women is 1.217 times that of men. Secondly, to investigate whether the health awareness of the elderly floating population has a heterogeneous impact on the health status of the elderly floating population with different marital status. In this paper, the marital

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status is 0 and the married assignment is 1. The regression results are as shown in Table 6 (2). The interaction coefficient is positive, indicating that the marital status has a positive impact on the health status of the elderly floating population. The married elderly floating population is 1.231 times as much as the unmarried elderly floating population, indicating that the married elderly floating population has better health status. Finally, the effects of health awareness on the health status of the elderly floating population with sufficient sources of livelihood were tested. The regression results show that the interaction coefficient is significantly positive, indicating that the elderly floating population with insufficient sources of livelihood pays more attention to their own physical health and stronger health awareness, while the elderly floating population with relatively sufficient sources of livelihood has a relatively weak consciousness, which may be due to the fact that the elderly floating population with sufficient sources of livelihood can pay medical expenses. However, the elderly floating population with insufficient sources of livelihood is under pressure to pay medical expenses, and special attention is paid to the prevention of diseases in peacetime.

Table 6. Individual heterogeneity test

Variable	Health		
	(1)	(2)	(3)
Health awareness * gender	0.196 ***		
Health awareness * marital status		0.208 ***	
Health awareness * source of livelihood			0.951 ***
Control variable	control	control	control
Observed value	11405	11507	11345
-2 logarithmic similarity value	26917.428	27103.346	26791.482
Pearson square value	39138.180	39284.431	38910.435

6.2.2. Family Heterogeneity Test

Based on the data of 2018 Chinese elderly health follow-up survey, the family conditions of the floating elderly population are quite different, and the heterogeneity of the health awareness of the elderly floating population with different family housing types on their health status is further investigated. According to the form of stair building, housing types are divided into single-door single-house houses, bungalow with two, three or more households connected, apartments on the first to third floors, apartments on the fourth floor or above (without elevators), apartments on the fourth floor or above (with elevators), movable homes (including those on RV and fishing boats). The regression results are shown in Table 7. Overall, with the improvement of housing conditions, the positive effect of health awareness on the health status of the elderly floating population is gradually increasing. Specifically, for every 1% increase in health awareness, the health status of the elderly floating population living in single-door single-house houses increased by 155.1%, the health status of the elderly floating population in apartments on the first to third floors increased by 174.0%, the health status of the elderly floating population in apartments on the fourth floor or above (without elevators) increased by 190.0%, and the health status of the elderly floating population in apartments on the fourth floor or above (with elevators) increased by 192.5%.

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Table 7. Family heterogeneity test 1

	Health		
Variable	(1) A single house.	(2) A bungalow with two, three or more households connected together.	(3) An apartment on the first-third floor
Health consciousness	0.439 ***	0.145 ***	0.554 ***
Variable	(4) Apartments on the fourth floor or above (no elevators)	(5) Apartments on the fourth floor or above (with elevators)	(6) A movable home (including a RV and a fishing boat)
Health consciousness	0.642 ***	0.655 ***	1.396
Control variable	control	control	control
Observed value	11011	11011	11011
-2 logarithmic similarity value	26526.391	26526.391	26526.391
Pearson square value	39348.371	39348.371	39348.371

The family conditions are further subdivided into spouse, son, daughter-in-law, daughter, son-in-law, son and daughter, grandson, other relatives, friends and neighbors, social service and nanny who mainly take care of the elderly floating population when they are unwell or sick. Regression results are shown in table 8, the table shows that the spouse, son, daughter-in-law, and daughter-in-law and grandchildren health consciousness of elderly health status of floating population has a remarkable positive influence, the spouse, son, daughter-in-law, daughter and son-in-law, grandchildren and other immediate family health consciousness directly impact on the elderly health status of floating population, among them, Spouse, son, daughter, daughter-in-law and grandchildren is most significant, and our traditional concept and current advocate socialist core values, in addition, social services for the elderly health status of floating population has significant positive influence, that basic pension in China, such as health care, social service industry is developing fast, adapt to the development of aging population.

Table 8. Family heterogeneity test 2

Variable	Health					
	Spouse	Son	Daughter-in-law	Daughter.	Son-in-law	Son and daughter
Health consciousness	0.638 ***	0.591 ***	0.565 ***	0.436 ***	0.778 **	0.532 ***
Variable	Grandchildren	Other relatives	Friends Neighborhood	Social Service	Nanny	
Health consciousness	0.791 ***	-0.105	0.335	0.570 ***	0.252	
Control variable	control	control	control	control	control	control
Observed value	11249	11249	11249	11249	11249	11249
-2 logarithmic similarity value	27505.361	27505.361	27505.361	27505.361	27505.361	27505.361
Pearson square value	41275.937	41275.937	41275.937	41275.937	41275.937	41275.937

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7. Conclusions and Suggestions

The influence of health awareness on the health status of the elderly floating population was studied. The study found that active medical habits, healthy eating habits, appropriate leisure activities and exercise habits have a positive impact on the health status of the elderly floating population. Among them, the elderly floating population in the case of illness, timely medical treatment, showing a good habit of medical treatment; in eating habits, often eat fresh fruit and fresh vegetables of the elderly floating population health status is better; in exercise habits, appropriate exercise can further promote the health of the elderly floating population. In leisure activities, the elderly floating population often participates in activities of a collective nature, such as playing cards, visiting doors, outdoor activities, in addition, personal leisure activities, such as planting flowers and pets, keeping poultry, reading books, watching newspapers, watching TV and listening to the radio, etc., also promote the physical health of the elderly floating population. In addition, through robustness test and heterogeneity test, it is found that the regression results of the constructed health awareness system are stable, and health awareness has a positive impact on the health status of the elderly floating population living in different housing types. When the elderly floating population is uncomfortable or needs to be taken care of, the immediate family members have the most significant impact on their health status, followed by the public services provided by the society. The effect is also positive, indicating that the social and elderly economy has been effectively developed.

Good health awareness plays a positive role in the health status of the elderly floating population. According to the conclusion of this paper and the current situation of the elderly floating population in China, the following suggestions are put forward.

(1). We will strengthen the construction of the basic medical system, speed up the improvement of the urban and rural medical insurance system, give full play to community health centers, clinics, hospitals, and other medical institutions to carry out health education for the elderly floating population, gather in the community for the elderly, set up propaganda columns, further publicize health knowledge, and help the elderly floating population to develop good health awareness.

(2). We will speed up the improvement of the community living environment for the elderly, reform the housing environment, and strive to build a good living environment for the elderly. At the same time, we should improve community convenience services, develop community freshness, provide fresh ingredients for the elderly, and provide nutrition counseling services to promote the cultivation of their healthy eating habits.

(3). We will strengthen the standardized development of service institutions for the elderly in urban and rural areas, through the transformation, construction and rental of existing community facilities, and at the same time strengthen the construction of places needed for exercise and leisure activities for the elderly population, such as activity centers for the elderly, teahouses, parks and other places, so that the elderly floating population can carry out leisure activities and improve their health standards.

(4). We should pay more attention to the elderly floating population, give full play to the role of community grass-roots organizations, establish health files in the community, inquire regularly every month, pay attention to the elderly floating population group, and at the same time, in the way of "community + community clinic", further facilitate the elderly population to seek medical treatment in time.

(5). Strengthen the education of the elderly, bring the education for the elderly into the lifelong education system, combine the resources of colleges and universities in the region, explore the development of the education system suitable for the elderly population, further improve the cultural literacy of the elderly population, and further improve their own health awareness. At present, the modern medical level has been greatly improved, and many new medical concepts

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and recuperation knowledge need a certain cultural basis to understand. In this regard, strengthening the continuing education of the elderly floating population and improving their cultural level can promote the cultivation of their health awareness.

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