

Research Article

How Health Consumption Affects the Health Level of the Population: Analysis Based on the Chinese Family Panel Studies

Zheng Zhang 

School of Economics, Renmin University of China, 59 Zhongguancun Street, Haidian District, Beijing, China

Correspondence should be addressed to Zheng Zhang; zzjywb@126.com

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Health is an inevitable requirement for the promotion of overall human development and a basic condition for economic and social development. Each person is the first person responsible for his or her own health, and health has an important significance to the residents themselves. Data from the Chinese Family Panel Studies (CFPS) for 3 years—2014, 2016, and 2018—were selected to study the impact of active health consumption on residents' health using a panel data fixed effects model. It was found that proactive health consumption can significantly improve the health of residents, and the main findings still hold through robustness tests including instrumental variables. The mechanism analysis shows that active health consumption can improve the health level of residents by increasing the frequency of exercise. Therefore, in the context of the “Health China” strategy, active health consumption should be promoted to cultivate the habit of physical exercise so as to continuously improve the health level of the residents.

1. Introduction

People's health is an important symbol of national prosperity and national wealth, and is the basis for people's survival and development. A person's health is not only related to his or her own growth and development, but also to the development of a family, and ultimately affects the development of the country. In addition, the United Nations has set health-related sustainable development goals. In September 2015, on the occasion of the 70th anniversary of the founding of the United Nations, the United Nations General Assembly adopted the 2030 agenda for sustainable development in resolution 70/1. The agenda is an action plan for humanity, the Earth and prosperity, aimed at strengthening world peace and freedom. The agenda announced 17 sustainable development goals (SDGs), which are the blueprint for achieving a better and more sustainable future for all. The goals set out the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity and peace, and justice. Among them, good health and well-being are advocated to ensure a healthy lifestyle and promote the well-being of

people of all ages. It can be seen that health issues are also the focus of the world's attention. It is worth mentioning that the COVID-19 epidemic in 2020 has brought major challenges to the world. In the face of the epidemic, the importance of health has once again been highlighted. Health is a person's greatest competitiveness. Health is 1, and others are 0. Therefore, a healthy lifestyle is very important to us, and we should all pay attention to it.

In recent years, China's health reform has made remarkable achievements, but the health problems people face are still serious. The 2019 release of the Health China Action mentioned that with industrialization, urbanization, population aging development, and changes in the ecological environment and lifestyle behavior, chronic non-communicable diseases have become the main cause of death and disease burden of residents. The burden of chronic diseases such as cardiovascular diseases, cancer, chronic respiratory diseases, diabetes, etc. accounts for more than 70% of the total disease burden and has become an important factor limiting the improvement of healthy life expectancy, and the lack of physical exercise is one of the main causes of chronic diseases. In recent years, the prevalence of depression in

China reached 2.1% and the prevalence of anxiety disorders reached 4.98%, so in addition to physical health problems, the mental health problems of our residents should also be taken seriously. In general, there is a long way to go to deal with health problems. In addition to further increasing the supply of quality medical resources and improving the health insurance system, it is more important to raise people's health awareness "beforehand," to inspire people to love health and pursue health, to cultivate a culture of health, and to encourage them to actively take exercise and other means not to get sick or less sick, so as to the gate is moved forward, prevention is the main focus.

With the continuous improvement of China's economic development level, the living standard of our residents has increased significantly. The residents' consumption has also transitioned from subsistence consumption to well-off consumption, and they have started to pay attention to their quality of life. One of the manifestations of this is that more and more people have started to consume healthily. Healthily consuming refers to consumers' consumption in accordance with the principle of maximizing utility, as long as their consumption ability allows. At present, there are two main types of health consumption, namely active health consumption to enhance their resistance and passive health consumption to improve their coping ability. On the one hand, thanks to China's health insurance system, people now mainly provide protection for themselves through health insurance. The health insurance system in China is getting better and better, and the number of people insured by health insurance is increasing year by year, which enables the sick residents to get the necessary material help from the society, reduce the burden of medical expenses, and prevent the sick residents from "becoming poor due to illness." However, the health insurance system is an *ex post facto* protection system, which is a system to reduce the financial pressure and losses after people get sick, and it is not effective in preventing the occurrence of diseases. Therefore, this study considers health insurance as a type of passive health consumption. On the other hand, in order to keep people from getting sick or less sick, it is necessary to raise people's health consciousness and promote their active health consumption to have a healthy body and prevent the occurrence of diseases fundamentally. Compared with passive health consumption, which is progressive and more sensitive to changes in health conditions, active health consumption can be considered an effective strategy to achieve higher health performance at a lower cost.

In summary, China's economy has been developing at a high rate for 20 consecutive years, and the quality of national life has been unprecedentedly improved. People's life has transitioned from subsistence to health, and health consumption has become a social consumption hotspot. At present, in terms of health consumption, domestic research is mainly on medical insurance, including the mechanism of the role of medical insurance, and there is less research on active health consumption. Therefore, this study selects data from the Chinese Family Panel Studies (CFPS) for 3 years—2014, 2016, and 2018—and uses a panel data fixed effects model as well as an instrumental variable model as an

empirical method to study the impact of active health consumption on residents' health, and further analyzes the specific impact mechanisms involved. This can not only enrich the current research perspectives on health consumption and further refine it, but also improve residents' health awareness and motivate them to adopt proactive health consumption to actively prevent, reduce the chance of diseases at the source and improve their health.

The next parts of this study are organized as follows: Section 2 is a literature review, which summarizes the literature related to residents' health and health consumption; Section 3 is a data processing and model construction, which introduces the empirical methods and variable selection used in this study; Section 4 is regression analysis and a discussion of the influence mechanism; Section 5 is a conclusion and policy recommendations, which summarizes the findings of this study and proposes corresponding policy recommendations.

2. Literature Review

2.1. Literature Review of Research on Population Health.

Health is one of the most important conditions of human life and an extremely important component of human capabilities. Health is also an important measure of social equity and justice [1]. The level of health of an individual resident has an extremely significant impact on the individual, on the family, and on the development of the country as a whole. A healthy body helps people work more efficiently; mental health enables people to work and live in a good state of mind, and both physical and mental health can greatly increase residents' happiness. Therefore, health is a prerequisite for all life and work to be carried out in an orderly and efficient manner.

The health level of the population is crucial for individuals and society, and health, as an important human capital, has an important impact on the income of the population. For rural residents, health status has a significant positive effect on personal income [2], and Yang and Wang also concluded that for rural residents, a decline in health status increases the probability of falling into poverty [3], but health has no significant effect on the income of urban residents [4]. In addition, health status has an impact on financial investment preferences, with individuals in better health preferring risky financial assets, and this effect is more pronounced among younger individuals [5].

More extensive in the research on the health of the population is the research on the factors that influence the health of the population. The factors affecting residents' health are very extensive, and from the policy level, Wei and Mao argue that personal health expenditure and government financial expenditure, as two different financing channels, have different effects on residents' personal self-rated health, i.e., an increase in personal health expenditure of residents in rural areas reduces residents' personal self-rated health, and an increase in government financial expenditure, as well as investment in village infrastructure, significantly improves The increase in government expenditure and investment in village infrastructure will significantly improve residents'

self-rated health [6]. Li and Zong argue that the increase in social security spending and economic development is conducive to improving the health of residents and that there are urban-rural and income differences, i.e., the effect is more significant for rural residents and low-income groups [7]. However, in contrast to this view, Yang et al. argue that economic growth reduces social health in general [8].

In addition, urbanization is also an important influence on the health of the population, and the mechanisms of its influence on health are diverse. Intuitively, the increase in urbanization level will improve the health level of residents, and many scholars have verified this view through their studies. Chang and Zhong concluded that urbanization has a significant positive effect on public health, and the positive effect is more significant in the eastern region than in the western region [9]. In addition, although urban green space significantly improves the health of residents, it widens the differences between different income and social status groups, with high income and high social status people obtaining significant health benefits for low income and low social status people [10, 11]. At the same time, the increasing level of urbanization has brought about many problems, such as inequality, environmental pollution, and the spread of diseases due to population mobility [12], which also have a negative impact on the health of the population to some extent [13]. The gradual emergence of the inequality problem of urbanization has a certain impact on the health level of residents. The higher the inequality of urbanization, the lower the overall health and mental health of the population [14]. Chen further investigates the relationship between the urbanization rate and the prevalence of chronic diseases in China. She believes that the increase in urbanization rate increases the likelihood of chronic diseases in China due to environmental pollution and the outbreak of infectious diseases caused by population movement [12]. Similar to Dany Chen's view, Li and Yuan also believe that the ecological environment has a significant impact on the recent health and mental health of residents [15].

From the perspective of families and individuals, the main factors affecting the health status of residents include age, education level, family size, family debt, and family health status. Specifically, household debt has a negative impact on the health status of residents, while social capital has a positive impact on the health status of residents [16]. Socioeconomic status contributes to health inequality to some extent [17], Xu and Wang studied two dimensions, economic status, and subjective social status, and they concluded that socioeconomic status, which represents higher economic income, has a positive effect on residents' self-rated health and subjective social status still has a significant effect on residents' self-rated health [18]. In addition, regarding the relationship between income, education level, and health of the population, the representative view is that income level has an inverted U-shape on the health of the population, and education level and health status in childhood also have a significant effect on the self-rated health of individuals [6].

In summary, there are a variety of factors that influence health, both at the policy level and at the individual household level, and the impact of different factors on the health of the population varies, and there is less research on the impact of consumption on the health of the population.

2.2. Literature Review of Research on Healthy Consumption.

Healthy consumption begins with a correct view of healthy consumption, which is a view of consumption that follows the scientific concept of development, i.e., consumption to satisfy a person's healthy life (including physical health and mental health [19]). Wu and Qin divided health consumption into active health consumption and passive health consumption [20]. Specifically, active health consumption refers to daily consumption of health care products and passive health consumption refers to medical insurance after the illness. The current domestic research on health consumption is mainly on health insurance. The ultimate purpose of health insurance is to maintain and improve health, and most of the literature in the studies on health insurance has studied the impact of health insurance on health status.

Health insurance can promote the health of insured individuals by reducing out-of-pocket medical expenditures [21, 22]. However, the extent to which Medicare promotes health varies across populations with different demographic characteristics, and existing studies in the literature have focused on income differences and urban-rural differences. From the perspective of income differences, Medicare has a significant contribution to health and life satisfaction for older adults [23, 24], but the specific degree of contribution is influenced by other factors. For example, the health promotion effect of Medicare varies across income levels, with relatively poor older adults who have Medicare tending to use more inpatient care and relatively wealthy older adults who have Medicare tending to use more outpatient and inpatient care [25]. The effect of income level on the extent to which health insurance promotes health status is also present among minors, as Peng and Wang found through their study that although the implementation of the New Agricultural Cooperative improved the overall health status of minors in rural areas, the health gap between groups of minors in different income households has been widening, with minors in higher-income households having better health status than those in low-income households [26]. That is, on the whole, China's health insurance system remains pro-rich, with health insurance promoting more medical consumption among wealthy older adults [25, 26].

From the perspective of urban-rural disparity, the urban-rural disparity has always been a problem in China, and the disparity is not only reflected in aspects such as the difference in consumption level, but there is also a clear difference in medical care. Urban basic medical insurance, as a social security mechanism for urban workers and residents to cope with health risks, is able to improve health through consumption, especially through changes in consumption structure [27]. Compared to urban residents, rural residents are at a relative disadvantage in terms of medical care, and

their level of health insurance differs significantly from that of urban residents. In rural areas, relatively poor, less educated rural residents may use more health capital to generate income, leading to a relative deterioration in their health status and increased health care expenditures [28]. Of course, there are different views among them, for example, Chalk believes that the gap between urban and rural areas constitutes the main part of the overall health consumption gap among residents and that the inequality in health consumption among residents within rural areas has gradually decreased in recent years, while the inequality in health consumption among residents within urban areas has gradually increased [29].

In addition, in addition to studies on health insurance, there is also literature in China on other aspects of health consumption through an experimental approach. For example, Kang and Chen tested the effects of two factors, namely, students' level of self-loss and emotional regulation, on health consumption choices (chocolate bars and granola bars) based on online social networks. The results found that self-loss affects healthy consumption choices when there are differences in students' emotion regulation [30]. In addition, in terms of physical activity, Zhu concluded that increasing the investment in sports would significantly improve the health level of the population [31].

Foreign research on health consumption has mostly focused on the study of medical expenditures. Unlike in China, foreign research on health care spending is more focused on health care spending itself, i.e., how to effectively reduce health care spending by studying the factors that influence health care spending, rather than studying the impact of health care spending on other factors. This is because the phenomenon of poverty due to illness is not uncommon, and large out-of-pocket medical expenses can lead to very serious consequences [32]. The current health care industry has good prospects for growth, especially for countries with many doctors, aging populations, and wealthy populations [33]. On this basis, in order to control health care spending, emphasis should be placed on factors such as the health status of the population, economic growth and development, new technologies and medical advances, as well as the organization and management of the health care system [34]. For example, the occurrence of diseases directly affects healthcare expenditures, and disease management programs have been developed to reduce these expenditures, but some studies have concluded that disease management programs do not reduce healthcare expenditures [35]. In addition, since tobacco has a negative impact on the health of the population and smoking is harmful to health, reducing the amount of smoking will help to reduce health care expenditures [36]. In addition, air quality has an important impact on the health of the population and is strongly associated with certain diseases. To investigate the effect of ambient air pollution on health care expenditures in China, Yang and Zhang used an instrumental variables approach and found that air pollution also has a significant effect on health care expenditures, with increased air pollution leading to increased health care expenditures, and higher levels of education reducing this effect [37]. Health

consumption directly affects individual health behavior, and health behavior is closely related to individual health status. At the same time, health behavior can also be transmitted from generation to generation. Parents' health behavior has an important impact on children's health behavior [38].

2.3. Innovation of This Study. From the above literature review, it can be seen that in the existing literature, scholars' studies on residents' health are mostly on the influencing factors of residents' health level and the impact of residents' health on other aspects of socio-economic development. Among the consumption-related studies, most of them focus on the perspective of the influence of residents' health on the choice of financial assets and household consumption, while among the studies on the influencing factors of residents' health, those related to consumption are mostly studies on the passive health consumption represented by health insurance. Considering that in Grossman's health demand model, health is treated as a durable capital stock capable of generating healthy time, the model explains the changes in people's health and health care in terms of changes in the supply and demand curves of health capital. In addition, he considers health as both a consumer good and an investment good and examines health as a function of demographic variables such as health care, income, education level, marital status, and health-related behaviors [39]. Therefore, this study examines the impact of active health consumption on the health of the population within the framework of a pure investment model of health demand and explores its impact mechanisms. Finally, based on this model, we will investigate how to play the role of proactive health consumption to improve the health of the population, so as to prevent health problems before they occur rather than to mend them.

3. Data Processing and Model Construction

3.1. Data Sources and Variable Selection. This study uses data from the China Family Panel Studies (CFPS) to conduct this study. The China Family Panel Studies (CFPS) is a survey conducted by the China Social Science Research Center of Peking University, which aims to collect data at the individual, household, and community levels to reflect social, economic, demographic, educational, and health changes in China, and to provide data for academic research and policy decisions. This study specifically selects household and individual-level data from 2014, 2016, and 2018 to study the impact of proactive health consumption on residents' health.

Regarding the choice of independent variables, most of the studies have used health insurance expenditures and out-of-pocket payments for medical care as the measure of health consumption, but these are all passive health consumption. The closest to the concept of active health consumption is the indicator of "health care expenditure," but this indicator does not separate medical expenditure from health care expenditure, so it is not suitable as the independent variable in this study. The question of "active health consumption expenditure" was included in the

questionnaire, and it was interpreted as “fitness and exercise and purchase of related products and equipment, health care products, etc.”, so this study chose the question of “In the past 12 months, what was your household’s active health consumption expenditure? How much did your household spend on active health spending in the past 12 months?” as the key independent variable. as the key independent variable and the proxy variable of active health consumption.

Regarding the selection of the dependent variable, most of the existing literature uses self-rated health in the questionnaire as a measure of health status. Therefore, based on the existing studies, this study establishes a dichotomous variable “whether the health status has changed for the better” based on the question “health change” in the questionnaire as a proxy variable for health status. In this study, the binary variable “whether the health status has changed for the better” is used as a proxy variable for health status.

Regarding the selection of other control variables, the type of participation in health insurance and various types of household income are selected as control variables in this study. This is because the panel data fixed effects model used in this study already controls for variables that do not vary at the individual, time, and province levels, so the choice of other control variables is more limited.

It should be noted that the explanatory variable “active health consumption expenditure” refers to active health consumption expenditure in the past 12 months, and the control variable covers the time period before the survey moment, while the explanatory variable “whether health status has become better” refers to the current health status. is the health status at the current point in time. The independent variables and the dependent variables have a clear sequence in time, so it can be considered that this study has a reasonable choice of causality, which alleviates the endogeneity problem to a certain extent.

3.2. Descriptive Statistics of Data

3.2.1. Resident Health Consumption. By screening and merging the data from 2014, 2016, and 2018, a total of 66,306 pieces of data were finally obtained and formed a balanced panel. In order to observe the characteristics of residents’ active health consumption more intuitively, this study conducts descriptive statistics from two perspectives of the number of individuals with active health consumption and the amount of residents’ active health consumption, respectively, and also conducts cross-sectional descriptive statistics of active health consumption expenditure and the three dimensions of residents’ health level. According to the descriptive statistics of the data (Table 1), the number of residents with zero active health consumption is high, but the number of residents with active health consumption is increasing year by year, and the amount of active health consumption is also increasing year by year. To a certain extent, this indicates that residents’ health awareness is gradually increasing and they are starting to make health-related consumption proactively.

3.2.2. Health Status of Residents. The descriptive statistics of the self-rated health status of the residents revealed (Table 2) that although the self-rated health level of our residents has been decreasing year by year, the proportion of health status getting better basically adjusted to the previous level in 2018, and the proportion of health status getting better has increased compared to 2016.

3.2.3. Model Construction. In order to investigate the relationship between active health consumption and the health of the population, this study uses a panel data fixed effects model for analysis, with the following econometric model.

$$Y_{itp} = \alpha + \beta_1 \ln \text{healthcare}_{itp} + \beta_2 X_{itp} + \mu_i + \eta_t + \theta_p + \varepsilon_{itp}. \quad (1)$$

Among them, Y_{itp} is whether the health status of the population has become better, the $\ln \text{healthcare}_{itp}$ is the logarithmic form of the resident’s active health consumption, and X_{itp} is the control variables, and μ_i, η_t, θ_p are the individual, year, and province dummy variables, respectively.

Considering that the model used above may have problems such as omitted variables and two-way causality, it will lead to model endogeneity problems. For example, residents’ health level and residents’ active health consumption expenditure may be influenced by the same factor; furthermore, although active health consumption expenditure refers to active health consumption expenditure in the past 12 months, while residents’ health level is the level at the time of the survey, which mitigates the two-way causality problem to a certain extent, there is still the possibility that residents’ health level influences residents’ active health consumption expenditure, i.e., there is reverse causality. In view of the above data, this study uses the instrumental variable approach to further mitigate the endogeneity problem.

In this study, the per capita health care expenditure of urban and rural residents at the provincial level is selected as an instrumental variable for further empirical analysis. On the one hand, the instrumental variables selected in this study are macro data at the provincial level, which are obtained from statistical institutions and have certain exogeneity; on the other hand, health care expenditures at the provincial level will affect residents’ personal health care expenditures to a certain extent, and therefore will have a certain impact on residents’ health consumption. The results of the one-stage regression of instrumental variables (Table 3) also indicate that the instrumental variables selected in this study are correlated with the key independent variables of this study.

4. Analysis of Regression Results

4.1. Main Regression Results. This section uses a panel data fixed effects model for the regressions, and the regression results are shown in Table 4. Columns (1) and (2) are the regression results without controlling for fixed effects, and columns (3) and (4) are the regression results with

TABLE 1: Active health consumption expenditure of residents and the number of people.

Year	Number of samples	Average value	People with active health consumption expenditure	People without active health consumption expenditure	Proactive health spending percentage
2014	21958	243.725	2558	19544	0.116
2016	21892	363.134	2879	19223	0.130
2018	21908	468.031	3363	18739	0.152

TABLE 2: Health of the population.

	Year	Number of samples	Average value	Standard deviation	Minimum value	Maximum value
Self-assessment of health	2014	22098	2.95	1.234	1	5
	2016	22099	3.079	1.219	1	5
	2018	22100	3.104	1.222	1	5
Better health	2014	21252	0.106	0.309	0	1
	2016	21388	0.103	0.303	0	1
	2018	22100	0.107	0.309	0	1

Note. Higher values of self-assessed health indicate poorer levels of self-assessed health.

TABLE 3: One-stage regression results for instrumental variables.

	Healthy consumption
Tool variables	0.438***
Other control variables	0.071
	Control

Note. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

TABLE 4: Main regression results.

Whether the health condition becomes better	(1)	(2)	(3)	(4)	(5)
Healthy consumption	0.0130* (0.007)	0.0119* (0.007)	0.0135* (0.007)	0.0130* (0.007)	0.0808* (0.047)
Participation in insurance	0.00582 (0.017)	0.00387 (0.017)	0.0138 (0.017)	0.0120 (0.017)	0.00202 (0.017)
Total household income	-0.00173 (0.011)		-0.00699 (0.011)		
Household wage income		-0.00243 (0.003)		-0.00235 (0.003)	-0.00283 (0.003)
Household business income		-0.00129 (0.002)		-0.00122 (0.002)	-0.00231 (0.002)
Household property income		0.00300 (0.003)		0.00262 (0.003)	0.00343 (0.003)
Household transfer income		-0.000835 (0.002)		-0.000792 (0.003)	-0.00215 (0.003)
Constant term	0.0279 (0.135)	0.0457 (0.068)	0.0661 (0.146)	0.0191 (0.072)	-0.412 (0.313)
Individual fixed effects	No	No	Yes	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Provincial fixed effects	No	No	Yes	Yes	Yes
Number of observations	7371	7277	7277	7371	7195

Note. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

controlling for fixed effects. From the results, it can be seen that proactive health consumption can significantly improve people's health with or without controlling for fixed effects, resulting in a significantly higher proportion of better health.

Due to endogeneity problems such as omitted variables and reverse causality, this study uses provincial per capita health expenditure as an instrumental variable and regresses using a two-stage instrumental variable model, and the results are shown in column (5) of Table 4. The regression

results in column (5) show that after mitigating endogeneity through instrumental variables, proactive health consumption can still significantly improve the health of residents and to a greater extent than the fixed effects model.

4.2. Robustness Test. Considering that the results of the main regression part may be specific due to the choice of variables as well as the choice of methods, this study will conduct

robustness tests by using different key independent and dependent variables as well as different methods. Table 5 shows the relevant empirical results.

First, according to the healthy consumption of residents, a binary variable “whether or not to consume healthily” was set for regression analysis. Where 0 represents no healthy consumption and 1 represents healthy consumption. Columns (1) and (2) are the corresponding regression results, and the results show that the use of binary variables can still significantly improve the health status of the residents.

Second, a new binary variable “healthy or unhealthy” was created based on the self-rated health status of individuals in the questionnaire as a proxy variable for health status. Where 0 indicates unhealthy and 1 indicates other conditions. Columns (3) and (4) show the regression results. The results after replacing the dependent variable indicate that health consumption still significantly improves the health of the population. In addition, since the previous section has a loose classification of health status change, this section has a stricter classification of health status change, and defines it as “better health,” where better health is defined as 1 and no change is defined as 0. Columns (5) and (6) are the regression results. The results show that after more rigorous identification of health status changes, residents can still significantly improve their health status by engaging in healthy consumption.

Third, considering that the dependent variables used in this study are binary variables, regression analysis was also conducted using panel logit estimation methods, and the results are shown in Table 6. Columns (1) and (2) are the effects of health consumption on whether they are healthy or not, and columns (3) and (4) are the effects of health consumption on the change in health status. The results show that healthy consumption can still significantly improve the health status of the population and make them healthier.

Finally, considering that all the above are residents’ self-assessed health, in order to further explore the more direct effects of health consumption on residents’ health, this study continues to discuss the effects of health consumption on residents’ physical health and mental health as supplementary explanations. First, in terms of physiological health, residents’ BMI index (body mass index) was calculated based on their height and weight data, and subsequently identified whether residents were overweight or not based on the body mass index standard [Note: Chinese experts believe that the optimal value of the body mass index for Chinese people should be 20–22, with a BMI greater than 23.9 being overweight and a BMI greater than 30 being obese], and regression analysis was conducted on this basis. Secondly, in terms of mental health, the depression scale in the CFPS questionnaire draws on the Center for Streaming Depression Scale (CES-D scale [The CES-D scale was developed by Radloff and is one of the most widely used scales in the world to measure depressive symptoms. The complete publication details are provided in reference [40]]), which is one of the most widely used scales for measuring depressive symptoms, and therefore this study

identifies measures of mental health levels on this basis. In the CFPS questionnaire, the scale was covered in both the adult and child questionnaires, and since the 2014 questionnaire did not cover questions that were consistent with those in the 2016 and 2018 questionnaires, only data from the two years of 2016 and 2018 were selected for the follow-up study in terms of having questions about mental health.

Specifically, in this study, eight questions from the 2016 and 2018 questionnaires, which are the corresponding eight-question versions of the CES-D scale [The original version of the CES-D scale consists of 20 questions, but shorter versions are also available, one of which is an 11-question version that HRS abridged from the original version as well as an 8-question version. 20-question versions were used in 2016 and 8-question versions were used in 2018.], were selected based on the CES-D scale and the questions related to the questionnaire. The eight questions in the questionnaire were ① “I feel depressed,” ② “I find it hard to do anything,” ③ “I do not sleep well,” ④ “I feel happy,” ⑤ “I feel lonely,” ⑥ “I live happily,” ⑦ “I feel sad and upset,” ⑧ “I feel that life cannot continue,” by calculating the scores of these eight questions (the specific calculation method is ① + ② + ③ − ④ + ⑤ − ⑥ + ⑦ + ⑧), the resulting value will be used as a measure of residents’ personal mental health (the higher the value, the worse the level of mental health). The regression results of the effects of health consumption on physiological health and psychological health are shown in Table 7. The results indicate that health consumption can still significantly improve residents’ overweight situation, which is conducive to promoting their physiological health, and can also significantly improve their psychological health.

4.3. Discussion of Impact Mechanics. According to the previous empirical results, active health consumption can significantly improve residents’ self-rated health, physical health, and mental health. In order to further discuss the mechanisms involved, this study constructs a mediating effect model as follows:

$$\begin{aligned} Y_{itp} &= a + \beta_1 \ln \text{healthcare}_{itp} + \beta_2 X_{itp} + \mu_i + \eta_t + \theta_p + \varepsilon_{itp}, \\ M_{it} &= b + \gamma_1 \ln \text{healthcare}_{itp} + \gamma_2 X_{itp} + \tau_i + \varphi_t + \vartheta_p + \varepsilon_{itp}, \\ Y_{it} &= a' + \beta_1' \ln \text{healthcare}_{itp} + \delta M_{itp} + \beta_2' X_{itp} + \mu_i' \\ &\quad + \eta_t' + \theta_p' + \varepsilon_{it}'. \end{aligned} \quad (2)$$

The results of the intermediate effect test are shown in Table 8, and the results indicate that conducting health consumption can significantly increase the frequency of residents’ exercise, and the increase in the frequency of exercise can significantly improve the health level of residents. This is also understandable from a practical point of view, through health consumption such as fitness exercise and purchase of related products and equipment, residents can be motivated to engage in physical exercise, and physical exercise is conducive to improving people’s immunity and physical quality, which is conducive to improving residents’ health level.

TABLE 5: Regression results under different variables.

	Whether the health condition becomes better		Is it healthy		Health becomes better	
	(1)	(2)	(3)	(4)	(5)	(6)
Whether to consume healthily	0.00912* (0.005)	0.00882* (0.005)	0.00954** (0.005)	0.00801* (0.005)	0.0176** (0.008)	0.0182** (0.008)
Other control variables	Control	Control	Control	Control	Control	Control
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Provincial fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	55551	55993	56861	57299	37111	37382

Note. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

TABLE 6: Panel data logit regression results.

	Is it healthy		Health becomes better	
	(1)	(2)	(3)	(4)
Whether to consume healthily	0.0752 (0.070)	0.0929 (0.071)	0.196** (0.077)	0.187** (0.078)
Other control variables	Control	Control	Control	Control
Number of observations	12278	12026	8409	8301

Note. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

TABLE 7: Physiological health and mental health regression results.

	(1)	(2)
	Whether overweight	Mental health
Healthy consumption	-0.0192** (0.009)	-0.0782* (0.041)
Other control variables	Control	Control
Individual fixed effects	Yes	Yes
Time fixed effects	Yes	Yes
Provincial fixed effects	Yes	Yes
Number of observations	6541	5253

Note. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

TABLE 8: Results of intermediate effect test.

	(1)	(2)
	Exercise frequency	Health becomes better
Whether to consume healthily	0.113** (0.051)	0.0170** (0.008)
Exercise frequency		0.00370*** (0.001)
Other control variables	Control	Control
Individual fixed effects	Yes	Yes
Time fixed effects	Yes	Yes
Provincial fixed effects	Yes	Yes
Number of observations	55531	37099

Note. * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

5. Conclusion and Policy Recommendations

In this study, the empirical analysis by panel data fixed effects model and instrumental variables model found that health consumption can significantly improve the self-rated health of residents, and the conclusions still hold by using different independent and dependent variables for robustness testing. In addition, considering that the dependent

variable used in this study is a binary variable, the main findings still hold when the paper is tested using panel data logit regression. To further enhance the persuasiveness of the article's findings, this study also analyzes the physical health and mental health of the residents, and the results show that health consumption has a significant effect on the physical health and mental health of the residents as well. The mechanism analysis shows that active health consumption

can improve the health status of residents by increasing their exercise frequency, so active health consumption is effective in promoting residents' health.

With the gradual and in-depth development of the Health China Initiative, people's health awareness has gradually increased and the health strategy based on prevention is gradually accepted by people. Active health consumption can not only improve the health condition of residents, but also boost consumption growth, optimize consumption structure and promote consumption upgrading. In order to further give full play to the role of active health consumption in promoting residents' health, improving their health status, and ensuring their health from the "source," this study proposes the following recommendations.

First, the government should increase its policy efforts to guide the general direction of a healthy China by continuing to develop relevant policy documents. In addition to developing directional documents, more specific policies on how to improve health status and regulate the active health consumption industry should be developed in order to increase consumer confidence and motivate them to engage in active health consumption.

Second, the government should step up publicity efforts. Under the guidance of relevant policy documents, on the one hand, through various types of publicity methods, the health awareness of residents should be further strengthened, especially to make them realize the importance of active health consumption based on "prevention," so that they can be more proactive in active health consumption; on the other hand, in addition to raising residents' awareness of active health consumption through publicity, the process of publicity should also focus on providing residents with a variety of forms and options of active health consumption. On the other hand, in addition to raising residents' awareness of active health consumption through publicity, the process of publicity should also focus on providing residents with a variety of forms of active health consumption to choose from, so that each resident can choose the most suitable method for him or her. On the other hand, in addition to raising residents' awareness of healthy consumption through various means of propaganda, we should also make efforts to enhance residents' ability to self-monitor and avoid the phenomenon of negative results caused by the formalization of healthy consumption, so that healthy consumption can be truly "used to the fullest" instead of being a formality.

Finally, the government should guide industries related to proactive health consumption to take effective measures to motivate consumers to fully play their role in proactive health consumption. According to the aforementioned, the health industry is the largest sunrise industry in China, which is showing unlimited allure. Therefore, it is crucial to have a clear understanding of the current development status of the health industry and to fully exploit the potential of health consumption so that the health industry can balance supply and demand, thus promoting people to engage in health consumption and improve their health. In order to give full play to the potential of the health industry,

in addition to the self-monitoring of consumers, external incentives are also essential. By guiding the health industry to adopt incentive mechanisms for consumers, we can motivate consumers to make full use of active health consumption from a third-party perspective, and improve their own resistance and active prevention, so as to improve their own health.

Data Availability

The data can be found on the following website: <https://www.issp.pku.edu.cn/cfps/>

Conflicts of Interest

The author declares no conflicts of interest.

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