International Journal of Social Science and Education Research Volume 8 Issue 2, 2025
ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

The Impact of Health Education on The Health Status of Our Migrant Population

Yichen Li[1,*]

[1]School of Economics, Nanjing Audit University, Nanjing, China

[*]Corresponding author: albuq10191224chen@163.com

Abstract

At present, China is entering the "era of migration", and the mobile population is the main driving force of China's economic growth miracle, and the health status of the mobile population is the focus of extensive attention from all walks of life. This paper is based on the data of China's mobile population dynamic monitoring survey in 2018, and uses logit model to explore the impact of health education on the health status of China's mobile population and the mechanism of action. The results of the study prove that receiving health education has a significant improvement effect on the health status of the migrant population; the stepwise regression method proves that health records and family doctors play a mechanism role in improving the health status of the migrant population by receiving health education; this paper adopts the Ologit and Oprobit methods to carry out the robustness test, which proves that the empirical results are robust; and the heterogeneity analysis proves that health education can Significantly improve the health status of middle-aged and old-aged, female, and mobile population without higher education. Health education services should be focused on the migrant population; the establishment of health records and family doctor contracting services for the migrant population should be promoted and improved; and personalized and differentiated health education services for the migrant population should be insisted on.

Keywords

Health education; mobile population; health status; logit.

1. Introduction

In the context of the era of urbanization, the scale and flow rate of China's floating population is growing, gradually becoming the backbone of China's industrialization, modernization and urbanization, and is an important source of China's high-quality development. According to the data of the seventh national population census in 2020, the size of the mobile population was 375.8 million people, compared with the size of the mobile population of 221.4 million people in the sixth national population census in 2010, rose about 69.73%, and large-scale population mobility will be the basic feature of China's population and socio-economic development in the present as well as in the future, and the basic pattern of big migration and big mobility marks that China is entering the The basic pattern of big migration and big flow signifies that China is entering the “era of migration”. With the transformation of China from a “rural China” to an “urban China”, China is now facing an aging population and a decline in the incremental growth of the labor force, and the migrant population is an important part of China's labor force. As the main driving force of China's economic growth miracle, the role of the mobile population in China's economic and social transformation is increasing, and paying attention to the health of the mobile population is not only conducive to alleviating the negative impacts of population aging and labor shortage on the economy and optimizing the allocation of labor resources, but

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

also helps to reduce the incidence of physiological and psychological illnesses, improve the quality of China's human capital, and promote sound economic growth. growth. Therefore, the health of the migrant population is a top priority and a key indicator for safeguarding and realizing the health of our people. Health is one of the most important public health challenges that need to be faced all over the world, as well as one of the main focuses that need to be attended to in order to solve the main social contradictions in our country, and it is crucial to improve the sense of access and well-being of the people as their level of need continues to rise. The health of the population has long been key to the quality of our workforce and the optimal allocation of human resources. From the perspective of the individual, the health of the population is an important prerequisite for realizing the accumulation of personal capital; from the perspective of the family, it is the key to maintaining harmony and a necessary condition for future development; and from the perspective of society, it is the basis for realizing high-quality social development and social progress.

The household registration system is a fundamental social system in China, and influenced by the household registration system, the floating population is a concept and group with Chinese characteristics. However, compared with the household registration population, the urban-rural dichotomy and social structural inequalities created by the household registration system have led to the marginalization of the floating population. On the one hand, there are differences in treatment between the migrant population and the household registration population in terms of cultural environment, basic education, medical and health services, social security and so on; on the other hand, according to Maslow's theory of the hierarchy of needs, the migrant population is faced with greater family and social pressure, and has a higher rate of physiological and psychological illnesses, which makes it even more important for society to pay attention to the emotional needs of the migrant population.

The health condition of the migrant population is currently the focus of all sectors of society in China, and the Baidu Information Index reflects the degree of national attention to a certain topic. The daily average value of the search index for mobile population is 284, and the daily average value of the information index is 3220, reflecting that the national concern for the mobile population and its health condition is only increasing. The health condition of the mobile population is not only a hot issue of concern to all sectors of society, but also a key area of national policy. The Outline of the “Healthy China 2030” Plan puts forward “building and sharing health for all” as the strategic theme for building a healthy China, with the fundamental aim of realizing health for all, and highlighting the health problems of the migrant population. The report of the 19th CPC National Congress emphasized the breaking down of institutional and institutional barriers to population mobility, providing more equitable opportunities for the mobile population. The Twentieth Congress explicitly put forward the need to make people's health issues a top strategic priority. In addition to this, the Measures for the Administration of Marriage and Childbirth Certificates for the Floating Population, the Regulations on the Work of Family Planning for the Floating Population, the Measures for the Administration of Family Planning for the Floating Population, and the Interim Measures for the Administration of Malaria for the Floating Population all reflect the high level of attention paid to the health of the floating population in State policy.

2. Literature Review

The concept of the floating population has its origins in the household registration system and the current economic policy, which is a fundamental system for the management of other social affairs in China. The first time the concept of “floating population” was applied to the management of social affairs was in 1958, when the Regulations of the People's Republic of China on Registration of Households were introduced, from which the concept of “floating

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

population" was derived. In the unique context of China's household registration system, the floating population is a special population group in China, so the international equivalent of the concept of "floating population" is the concept of "population transfer". However, "floating population" is not exactly the same as "population migration", and the concept of "floating population" has been given a unique connotation under China's household registration system, which is not entirely based on the spatial movement of the population. The concept of "floating population" has been given a unique connotation under China's household registration system, and is not based solely on spatial mobility. The China Mobile Population Health and Family Planning Dynamic Monitoring Survey defines the mobile population as those aged 15 years and older who live in a district other than their hukou and have lived there for 30 days or more. Scholars in China have explored the meaning of "floating population" from the macro and micro perspectives respectively. From the macro perspective, the floating population can be defined as a population that has realized a change in the scope of its geographical boundaries without changing its permanent hukou; from the micro perspective, the floating population refers to the population that does not have a local permanent hukou but lives permanently in the local area, and the population that has a local permanent hukou but does not reside in the local area. From a micro perspective, the floating population refers to those who do not have local permanent residence but live there, and those who have local permanent residence but do not live there. However, some scholars have argued that, with the development of the times, the concept of "floating population" and the data based on it have gradually failed to truly and accurately reflect the size and number of China's floating population.

When analyzing the influencing factors affecting the health status of the migrant population, most scholars in China believe that the influencing factors affecting the health of the migrant population mainly focus on the individual level, family level, social level and mobility characteristics and so on [1].

At the individual level, most scholars tend to start from demographic factors, such as gender, age, education level and other demographic factors have an important influence on the study of the health status of the migrant population [2]. In terms of gender, men tend to have better health status than women [3]. In terms of age, age tends to be negatively correlated with the health status of the mobile population. Education brings a "health dividend" to people's health that lasts a lifetime [4]. In the analysis of family factors, marriage, monthly household income and the number of family members living with the household all have different degrees of influence on the health of the migrant population. Marital status can have a significant impact on the health status of the mobile population [5]. However, some scholars have found that marital status does not significantly affect the health of the mobile population [6]. Family income tends to be positively correlated with the health of the mobile population [7]. Family members living with migrants form family bonds that affect the mental health of migrants [8]. The greater the number of accompanying persons, the stronger the family bonds, and the better the self-assessed health status of the migrant population [9]. In the social level, many scholars have mainly studied factors such as community, health insurance and basic medical public services, all of which play a certain positive role in the health status of the migrant population. Community factors have a "cross-level" effect on individual factors, and the community plays an important role in regulating the health of the mobile population [10]. Part of the health insurance has a negative effect on the health status of the migrant population [11]. Basic medical public services mainly include health records, health education and whether to sign up for a family doctor. Compared with the household population, it is more difficult for the migrant population to obtain equal basic public health services, and whether or not the migrant population can obtain basic public health services is an extremely critical and important factor affecting the health status of the migrant population [12]. The impact of health education on the mobile population is significant [13], but the mobile population is mainly passive in receiving

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

health education [14], and the content of the health education received is not comprehensive [15], which to a certain extent also leads to a low level of health literacy among the mobile population, which in turn leads to unhealthy and unscientific life, resulting in the overall health literacy of the mobile population is low [16]. Mobility characteristics mainly include mobility time, mobility distance and mobility reasons. When choosing the scope of mobility, mobile populations tend to actively consider their own health status and physical fitness tolerance range. Some scholars believe that healthy people are more inclined to migrate long distances, which is similar to the "healthy migrant effect" [17], and the farther the distance of mobility, the better the health status of the mobile population [18].

3. Research Design

3.1. Data sources

The data in this paper is mainly derived from the "2018 China Migrants Dynamic Survey (CMDS)", which adopts the PPS method for sampling, and is conducted in 31 provinces (autonomous regions and municipalities) and the Xinjiang Production and Construction Corps across the country. The survey was conducted in 31 provinces (autonomous regions and municipalities) and the Xinjiang Production and Construction Corps (XPC) across the country, targeting migrants aged 15 years or older who have lived in the place of inflow for one month or more and who do not have a household registration in the place of inflow. The main purpose of the survey is to explore the survival and development status, mobility trends and utilization of basic public health services of the floating population in the new period, to realize the goal of a healthy China, to carry out testing in the place of inflow and tracking of the floating population for special surveys, with a wide range of testing, a large total sample size, and a scientific and reasonable monitoring method, and it is the representative and scientific data for dynamic monitoring of the floating population in our country. The 2018 National The sample of the 2018 National Mobile Population Dynamic Monitoring Survey has a total of 66 strata, with a total sample size of 152,000.

3.2. Variable selection and description

3.2.1. Self-assessed health

In this paper, self-assessed health of the mobile population is selected as an explanatory variable. A person's health status can be measured from various aspects such as physical level, psychological level and social level. Self-assessed health is the individual's subjective assessment of his/her own health, and it is one of the scientific and representative indicators of population health widely used in major social science surveys. According to the personal questionnaire "How is your health?" , this paper constructs the four options as dichotomous variables, categorizing "1 Healthy" and "2 Basically Healthy" as "Healthy" and assigning a value of 1, and categorizing " 3 unhealthy, but can take care of themselves" and '4 can not take care of themselves' are categorized as 'unhealthy' and assigned a value of zero.

3.2.2. Physical health

In order to ensure the robustness of the model, this paper selects "whether there is any illness (injury) or physical discomfort in the recent year?" as the physiological health variables of the migrant population, assigning "1 Yes, the last time occurred within two weeks" and "2 Yes, the last time occurred two weeks ago" as 0, and "3 No" as 1.

3.2.3. Health Education

In this paper, health education is selected as the core explanatory variable of the model. According to the individual questionnaire, "In the past year, have you received health education in the following areas in your current community/unit?", health education is mainly categorized into occupational disease prevention and treatment. According to the

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

questionnaire, health education is mainly divided into occupational disease prevention and control, infectious disease prevention and control, reproductive health and maternal and child health, chronic disease prevention and control, mental health, public health emergencies, self-help, and others, if the migrant population has participated in at least one of these seven health education, it is considered to have received health education and assigned the value of 1, if none of them have participated in it, it is considered that they have not received health education and assigned the value of 0.

3.2.4. Control Variables

In order to further control other factors affecting the health status of the migrant population, this paper refers to the relevant literature and divides the control variables into four main levels, which are personal characteristics, family characteristics, social characteristics and mobility characteristics.

Personal characteristics mainly include gender, age, education level, nature of household, occupation and willingness to stay. Gender, age, education and occupation are common individual-level control variables. Given the existence of China's special household registration system, the nature of the hukou of the floating population is also included in the individual-level control variables, but some scholars believe that the hukou is an important basis for determining the distribution of resources, so the nature of the hukou as a symbol of socio-economic status should be included in the social characteristics, in the question about the nature of the hukou in the personal questionnaire of the National Dynamic Monitoring of the Floating Population Data in 2018, the options include “1 Agricultural”, ‘2 Non-agricultural’, ‘3 Now uniformly registered as a resident, previously agricultural’, ”4 Now uniformly registered as a resident, previously non Resident”, ‘5 Resident’ and ‘6 Other’. Option “6 Others” includes migrants whose hukou is not yet determined and those with foreign nationality, which are removed due to the special characteristics of this group and the small sample size. In this paper, “2 non-agricultural”, “4 now registered as residents, previously non-residents” and “5 residents” are regarded as “non-agricultural hukou” and assigned a value of zero. “ and assigned a value of 0, option “1 Agriculture” is considered as “Agricultural Hukou” and assigned a value of 1, and option “3 Now uniformly registered as a resident and before that as agricultural” is considered as “Agricultural Hukou” and assigned a value of 1. “Occupation is mainly based on the questionnaire “Did you do paid work for more than one hour during the week before May Day this year? (including household or self-employment)”, if the answer is ‘No’, it is regarded as ‘no work’ and assigned a value of 0. For ”What is your current main occupation? ” If the answer is “10 Heads of state organs, enterprises and public institutions” and “30 Civil servants and related personnel”, they are regarded as “civil servants” and assigned the value of 1, and “20 Professional and technical personnel” is regarded as “civil servants” and assigned the value of 1, and the value of 1 is assigned to “civil servants”. “20 Professionals and technicians” are regarded as ‘professional and technicians’ and assigned a value of 2, and ‘41 Doing business’, ”42 Vendors ”, “43 Catering”, “44 Housekeeping”, “45 Janitorial”, “46 Security ”, “48 Courier”, “49 Other business, service industry personnel” and “62 Transportation” are considered as “Modern service industry personnel”. Modern service industry personnel” and assigned a value of 3, ‘50 Agriculture, forestry, animal husbandry, fishery, water conservancy production personnel’ as ‘Agriculture, forestry, animal husbandry and fishery personnel’ and assigned a value of 4, ”47 Renovation ”, “61 Production”, “63 Construction” and “64 Operation of other equipment” as “Production workers” and assigned a value of 4, and “47 Renovation”, “61 Production”, “63 Construction” and “64 Operation of other equipment” as “Production workers” and assigned a value of 5. “ and assigned a value of 5, and “70 No fixed occupation” and “80 Other” are considered as “Other occupation” and assigned a value of 6.

In household characteristics, the main control variables are household equivalent income, marital status and mobile household size. Among them, family equivalent income is calculated

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

according to the equivalent size of the family, which is more scientific and reasonable than the per capita income of the family. Family equivalent income fully takes into account the heterogeneity and economy of scale of the consumption of adults and children in a family, and makes the welfare level of the family more comparable by assigning different weights to adults and children. The formula for calculating family equivalent income in this paper is total family income/(number of adults + number of children*0.5)^0.9, which is calculated according to the personal questionnaire "What was the average monthly total income of your family in the past year?" to make the calculation. Marital status was calculated based on the individual questionnaire by considering "1 Unmarried" and "6 Cohabiting" as "Unmarried" and assigning a value of 0 to them, and "2 First marriage" and "3 First marriage" as "Unmarried" and assigning a value of 1 to "Unmarried" and "6 Cohabiting" as "Unmarried". "2 First marriage" and '3 Remarriage' are considered as 'Married' and assigned a value of 1, '4 Divorced' and '5 Widowed' are considered as 'Divorced' and '5 Widowed' are considered as 'Divorced' and '5 Widowed' are considered as 'Widowed' and assigned a value of 1. The "4 Divorced" and "5 Widowed" are regarded as "Divorced or Widowed" and assigned a value of 2.

Social characteristics are mainly selected from the type of community in which the migrant population lives and health insurance participation. Among them, the community type is mainly judged according to the type of sample points in the survey data, and "neighborhood committee" is assigned as 0 and "village committee" is assigned as 1. The health insurance participation status is based on whether or not the migrant population participates in the five types of social health insurance, and the migrant population is considered to participate in health insurance if they participate in at least one of them. If the migrant population participates in at least one of the five types of social health insurance, it can be regarded as participating in health insurance and assigned a value of 1. If none of the five types of social health insurance has been participated, it can be regarded as non-participating and assigned a value of 0.

The characteristics of mobility include mobility time, mobility scope inflow area and reason for mobility. Mobility time is calculated by subtracting 2018 from the year in which mobility began. Reasons for mobility include "1 Labor/work" and "2 Business" as "work reasons" and assigned a value of 0, "3 Relocation of family members" and "4 Family members" as "work reasons", and "3 Family members" as "work reasons". ", "4 Marriage and Marriage", "6 Reliance on Friends and Relatives", "9 Birth" and "10 Retirement in a Different Place" are categorized as "Work Reasons" and assigned a value of 0. " are categorized as "friends and relatives" and assigned a value of 1, "5 demolition and relocation" is assigned a value of 2, and "11 other" is assigned a value of 3.

3.2.5. Mediating Variables

With reference to the related literature, this paper selects whether to establish health records and whether to sign up for family doctors as mediating variables. The establishment of health records and signing up for family doctors by the migrant population can reflect the health consciousness of the migrant population to a certain extent, so that the migrant population can lead a healthier life. Among them, according to the personal questionnaire "Have you established a resident health record in your local area?" The variable of residents' health record was set up, and "2 have not established, have not heard of it", "3 have not established, but have heard of it" and "4 do not know" were categorized as " "1Yes, already established" is regarded as 'Establishment of resident health record' and assigned a value of 1. The questionnaire was used as 'At present, have you signed a contract with your local family doctor?'. Have you signed a contract with a local family doctor?" To measure whether the migrant population has signed up with a family doctor or not, the answers of "2 have not signed up, have not heard of it", "3 have not signed up, but have heard of it" and "4 don't know" are classified as "not signed up with a family doctor" and "have not signed up with a family doctor". The responses "2 Have not signed up for a family doctor, have not heard of it", "3 Have not signed up, but have heard of it"

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

and “4 Don't know” were categorized as “Have not signed up for a family doctor” and assigned a value of 0, while “1 Have signed up for it” was assigned a value of 1.

Table 1. Descriptive Statistics Results for Variables

Variable category	variable name	Description of variables	average value	(statistics) standard deviation
explanatory variable	Self-assessment of health	Dummy variable: unhealthy = 0 healthy = 1	0.979	0.144
Core explanatory variables	health education	Dummy variable: not accepted = 0 at least one = 1	0.811	0.392
personal characteristic	distinguishing between the sexes	Dummy variable: female = 0 male = 1	0.513	0.500
	(a person's) age	2018 - Year of birth	37.082	11.220
	educational attainment	Categorical variables: Elementary school and below = 0 Junior high school = 1 High school = 2 College and above = 3	10.319	3.447
	Nature of account	Categorical variables: non-agricultural = 0 agricultural = 1 agricultural to residential = 2	0.954	0.558
	careers	Categorical variables: Not working = 0 Civil servants = 1 Professionals and technicians = 2 Modern service workers = 3 Agriculture, forestry, animal husbandry, fisheries and water production workers = 4 Production workers = 5 Other = 6	2.859	1.629
	propensity to remain in the country	Categorical variables: willing = 0 unwilling = 1 not thinking = 2	0.271	0.670
Family characteristics	Household equivalent income	Gross household income / (number of adults+ number of children*0.5)^0.9	2.960	1.389
	marital status	Categorical variables: Unmarried = 0 Married = 1 Divorced or widowed = 2	0.866	0.414
	Size of mobile households	Number of family members living with the mobile population	3.147	1.207
social characteristic	Community Type	Dummy variable: neighborhood council = 0 village council = 1	0.259	0.438
	Status of participation in health insurance	Dummy variable: not enrolled = 0 enrolled in at least one health insurance policy = 1	0.933	0.249
Flow characteristics	movement time	2018 -- flow year	6.251	6.079
	range of mobility	Categorical variables: Inter-provincial mobility = 0 Inter-provincial cross-city = 1 Inter-city cross-county = 2	0.660	0.748
	inflow area	Categorical variables: Eastern region = 0 Central region = 1 Western region = 2 Northeastern region = 3	0.958	1.011
	Reasons for mobility	Categorical variables: Work = 0 Family and friends = 1 Demolition = 2 Other = 3	0.175	0.449
intermediary variable	Resident Health Record	Dummy variable: not established = 0 established = 1	2.156	0.971
	family doctor	Dummy variable: not signed = 0 signed = 1	2.345	0.831

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

3.3. Research methodology

3.3.1. Base model

This paper uses Stata17 software for statistical analysis and logit regression modeling to explore the study of the impact of health education on the health status of mobile populations under the perspective of mobility in time and space. The following model is constructed:

$$ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 health\_edu_i + \beta_2 control_i$$

Among them,p represents the probability of self-assessed health of mobile individuals$i$,$1-p$ represents the probability of self-assessed unhealthiness of mobile individuals$i$;$health\_edu_i$ is a dichotomous variable of whether mobile individuals i receive health education; $control_i$ represents other control variables that may affect the health status of mobile individuals$i$.

3.3.2. Models of mediating effects

In this paper, we refer to the mediation effect model of Wen Zhonglin (2004), and use the two variables of whether or not to establish residents' health records and whether or not to sign up for a family doctor as the mediation variables, to establish a mediation effect model to test whether or not health education improves the health of the migrant population through the establishment of residents' health records and signing up for a family doctor.[19] The model is set up as follows:

$$health_i = \beta_0 + \beta_1 health\_edu_i + \beta_2 control_i + \mu_i$$
$$M_i = \gamma_0 + \gamma_1 health\_edu_i + \gamma_2 control_i + \varepsilon_i$$
$$health_i = \varphi_0 + \varphi_1 health\_edu_i + \varphi_2 M_i + \varphi_3 control_i + \epsilon_i$$

3.3.3. Empirical results and analysis

Table 2 demonstrates the results of the baseline regression of community health education received by the mobile population on their health status. Health education was first added as a single variable in the model (Model 1), and based on this, control variables for individual characteristics (Model 2), family characteristics (Model 3), social characteristics (Model 4), and mobility characteristics (Model 5) were included in the layer-by-layer analysis.

Model 1 represents the effect of health education on the health status of the migrant population, and when only the single variable of health education is included, the regression results show that the regression coefficient of the independent variable is 0.803, health education is positively correlated with the self-assessed health status of the migrant population at the 1% level of significance, and the probability of the migrant population's self-assessed health to be healthy increases by 1.66% for those who receive health education.

Model 5 incorporates time of mobility, scope of mobility, region of mobility and reason for mobility. Health education is positively associated with the health of the mobile population at the 1% level of significance, with a marginal effect of 0.0031, which means that receiving health education leads to a 0.31% improvement in health status compared to the mobile population that has not received health education. In terms of gender, the regression coefficient for gender is -0.066, but this is not statistically significant, which indicates that the health status of the male mobile population is not significantly different from that of the female. The regression coefficient for age is -0.056, which is negative at the 1% level of significance, which means that the probability of self-assessed health being healthy decreases by 0.08% for each additional year of age of the mobile population. In terms of education, education is significantly and positively correlated with the self-assessed health of the mobile population at the 1% level, and each additional year of education of the mobile population can increase the probability of self-assessed health by 0.15%. In terms of the nature of hukou, compared with agricultural hukou, the probability of self-assessed health being healthy increases by 0.22% and 0.32% for those whose hukou nature is non-agricultural and those who have switched from farming to living

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

Table 2. Impact of health education on the health status of the mobile population

variant	Model 1	Model 2	Model 3	Model 4	Model 5
Access to health education	0.803 ***	0.217 ***	0.231 ***	0.220 ***	0.216 ***
	(0.039)	(0.048)	(0.048)	(0.048)	(0.049)
distinguishing between the sexes		-0.150 ***	-0.108**	-0.103**	-0.066
		(0.048)	(0.049)	(0.049)	(0.050)
(a person's) age		-0.061***	-0.058 ***	-0.059 ***	-0.056 ***
		(0.002)	(0.002)	(0.002)	(0.002)
educational attainment		0.134 ***	0.109 ***	0.108 ***	0.109 ***
		(0.007)	(0.007)	(0.007)	(0.007)
Nature of account					
non-agricultural		0.377 ***	0.159**	0.149 **	0.158 **
		(0.066)	(0.066)	(0.067)	(0.067)
conversion from agriculture to residence		0.371 ***	0.285 ***	0.276 ***	0.224 ***
		(0.075)	(0.076)	(0.076)	(0.077)
careers					
No work.		-1.459 ***	-1.302 ***	-1.294 ***	-1.319 ***
		(0.341)	(0.343)	(0.343)	(0.345)
Professional and technical staff		0.608	0.566	0.574	0.491
		(0.396)	(0.398)	(0.398)	(0.399)
Modern services personnel		0.072	0.144	0.143	0.094
		(0.342)	(0.344)	(0.344)	(0.346)
Agricultural, forestry, animal husbandry, fishery and water production personnel		-0.419	-0.200	-0.153	-0.018
		(0.367)	(0.369)	(0.370)	(0.372)
production staff		0.584*	0.532	0.559	0.415
		(0.350)	(0.352)	(0.352)	(0.354)
Other occupations		-0.702**	-0.455	-0.441	-0.445
		(0.355)	(0.358)	(0.358)	(0.359)
propensity to remain in the country					
unwilling		0.060	0.058	0.061	-0.071
		(0.139)	(0.139)	(0.139)	(0.139)
Haven't thought about it.		-0.066	-0.028	-0.024	-0.100
		(0.064)	(0.064)	(0.064)	(0.065)
condition		2.748 ***	2.733 ***	2.733 ***	2.725 ***
		(0.046)	(0.046)	(0.046)	(0.046)
Household equivalent income			0.383 ***	0.380 ***	0.304***
			(0.020)	(0.020)	(0.021)
marital status					
married			0.282 ***	0.273**	0.324 ***
			(0.108)	(0.109)	(0.110)
Divorced or widowed			0.299**	0.291**	0.323**
			(0.137)	(0.137)	(0.138)
Size of mobile households			0.124 ***	0.123 ***	0.079 ***
			(0.019)	(0.019)	(0.019)
Community Type				-0.102 **	-0.145 ***
				(0.051)	(0.052)
Status of participation in health insurance				0.069	0.060
				(0.082)	(0.084)
movement time					-0.022***
					(0.003)
range of mobility					
Provincial cross-city					0.015
					(0.055)
Cross-county within the city					-0.118*
					(0.063)
inflow area					
eastern part					0.408 ***
					(0.062)
Central Region					0.111
					(0.069)
northeastern part of China					-0.338 ***
					(0.067)
Reasons for mobility					
Reasons for work					0.442 ***
					(0.154)
Reasons of family and friends					0.485 ***
					(0.153)
Reasons for demolition					0.405*
					(0.229)
constant term (math.)	3.239 ***	3.965 ***	2.422 ***	2.438 ***	2.296 ***
	(0.032)	(0.360)	(0.375)	(0.383)	(0.415)
sample size	142770	142770	142770	142770	142770
Quasi-R2	0.013	0.427	0.442	0.442	0.448
likelihood ratio test	381.482	12476.526	12914.883	12919.560	13108.969

Standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

than those who have agricultural hukou, respectively. In terms of occupation, the self-assessed health of the population without a job decreases by 1.87% respectively compared to the mobile population with the occupation of civil servant, which may be caused by the fact that the mobile population without a job does not have a stable source of income and lives in a more difficult environment. The regression coefficient of household equivalent income is 0.304, which is positive at 1% level of significance, corresponding to a marginal effect of 0.0043, i.e., for every unit increase in household equivalent income, the probability that the self-assessed health of the mobile population is healthy will increase by 0.43%. The effect of mobile family size on the self-assessed health of the mobile population is significantly positive, with each additional family member increasing the odds of the mobile population being healthy by 0.11%. The health of the mobile population whose community type is neighborhood council is healthier than that of village council, which may reflect the influence of geographic location on the health of the residents. Since neighborhood councils are the grassroots units in urban areas while village councils are the grassroots units in rural areas, urban neighborhood councils can provide a better community environment compared to village councils, which in turn can improve the mental health of the mobile population. The regression coefficient of medical insurance is 0.060, but the effect of medical insurance on the health status of the mobile population is not significant. In mobility time, the regression coefficient is -0.022, which is negatively correlated at the 1% level of significance, corresponding to a marginal effect of -0.0003, i.e., for every one-year increase in mobility time, the chances of the migrant population's health being favorable decrease by 0.03%. This is consistent with the idea of health migration effect and health depletion effect. Compared to inter-provincial mobility, the probability of self-assessed health improvement increases by 0.02% for intra-provincial inter-municipal mobility and by 0.17% for intra-municipal inter-county mobility. Among the inflow regions, compared with the inflow to the western region, the probability of the inflow to the eastern and central regions to have good self-assessed health increased by 0.58% and 0.16%, respectively, and the probability of the inflow to the northeastern region to have poor self-assessed health increased by 0.48%. This may be due to the better health status of the mobile population in the eastern and central regions, which are more economically developed, have more convenient transportation, and have more sound medical and health services and basic public services. Compared with other reasons for mobility, the probability of self-rated health increased by 0.63%, 0.69% and 0.57% for mobile populations whose mobility was due to work, family and friends, and demolition, respectively. In the theory of healthy migration effect, active mobility avoids stress and therefore better health.

Table 3. Mechanism analysis of the impact of health education on the health status of the mobile population

variant	Model 1 Self-assessment of health	Model 2 health file	Model 3 family doctor	Model 4 Self-assessed health	Model 5 Self-assessment of health
health education	0.398 *** (0.046)	1.275 *** (0.022)	1.669 *** (0.039)	0.370 *** (0.047)	0.376 *** (0.047)
health file				0.132 *** (0.048)	
family doctor					0.145 ** (0.061)
control variable	containment	containment	containment	containment	containment
location	containment	containment	containment	containment	containment
sample size	130,623	130,623	130,623	130,623	130,623
LR chi2	8770.62 ***	9679.55 ***	7364.04 ***	8778.13 ***	8776.36 ***
Pseudo R2	0.3137	0.0621	0.0749	0.3139	0.3139

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

Table 3 reports the analysis of the mechanism of the impact of receiving health education on the health status of the floating population. Model 1 represents the regression results between receiving health education and the self-assessed health of the floating population, with a regression coefficient of 0.398, and the probability that receiving health education can significantly improve the health status of the floating population is 0.71%. Model 2 and Model 3 represent the separate regression results between receiving health education and establishing health records and contracting family doctors, with regression coefficients of 1.275 and 1.669, respectively, and receiving health education is significantly and positively correlated with the two mechanism variables, establishing health records and contracting family doctors, at the 1% level. Models 4 and 5 represent the role of establishing health records and contracting family doctors in the total regression, and the regression results show that after adding the mechanism variables, receiving health education increases the probability of the mobile population's self-assessed health being healthy by 0.27% and 0.26%, respectively, and the regression coefficients between receiving health education and the mobile population's self-assessed health are significantly positive, and the mechanism variables health records and family doctors significantly improve the health status of the mobile population. The marginal effect of receiving health education on improving the health status of the migrant population in models 4 and 5 is significantly lower than that in model 1. The direct effect of receiving health education on improving the health status of the migrant population is smaller than the total effect, which proves that the two mechanism variables play a mediating role in improving the health status of the migrant population by receiving health education

4. Heterogeneity Test

According to the previous study, receiving health education can significantly improve the self-assessed health of China's migrant population, but due to the large size of China's migrant population group, the wide range of mobility distribution, and the influence of the differences in economic development and cultural background between regions, the health level of China's migrant population group in terms of age, gender, education and household registration, and so on, there are large differences. It is valuable to explore the heterogeneity of China's mobile population in terms of age, gender, education level, household registration, mobility range and mobility time.

4.1. Age

Currently, population aging in China has entered a rapid development stage, and healthy aging is an important health development strategy in China. Referring to the relevant studies of the World Health Organization and other scholars, this paper divides the age of the mobile population into three groups, which are the youth group of 44 and below, the middle-aged group of 45-59 years old, and the old-aged group of 60 years old and above [21].

Table 4. Differences in the impact of health education on the health status of the mobile population in different age groups

	Model 1 Youth: <45	Model 2 Middle age: 45-59	Model 3 Old age: >59
health education	0.485 ***	0.339 ***	0.394 ***
	(0.092)	(0.065)	(0.082)
marginal effect	0.27%	1.29%	4.72%
control variable	containment	containment	containment
location	containment	containment	containment
sample size	106,830	29,986	5,954

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

Table 4 reports the differences in the impact of health education on the health status of the migrant population in different age groups, and the regression results show that health education has a significant positive impact on the health status of the migrant population in different age groups, and in terms of the marginal effect, receiving health education is effective in improving the health of the migrant population in the youth group by 0.27%, in the middle-aged group by 1.29%, and in the elderly group by 4.72%. It can be seen that receiving health education has the most significant improvement on the health status of the migrant population over 60 years old, which is significantly better than the youth group and middle-aged group. Therefore, it is very important to carry out health education for the elderly migrant population, which can effectively improve the health status of the elderly migrant population and promote the realization of "healthy aging" in China.

4.2. Gender

Table 5. Differences in the impact of health education on the health status of migrant populations by gender

	Model 4 male	Model 5 daughter
health education	0.392 *** (0.069)	0.425 *** (0.060)
marginal effect	0.57%	0.83%
control variable	containment	containment
location	containment	containment
sample size	73,207	69,563

The gender difference perspective is an important dimension in studying the health status of China's mobile population [22]. The gender difference in self-assessed health of China's mobile population is very significant, and influenced by physiological structure and social expectations, gender difference affects the mobile population to make different evaluations of self-health [23]. Table 5 reports the differences in the impact of health education on the health status of different genders of the migrant population, and the regression results show that receiving health education is positively associated with the health of different genders of the migrant population at the 1% level of significance. For male migrant population, receiving health education can effectively improve their health status by 0.57% and for female migrant population, receiving health education can effectively improve their health status by 0.83%. The effect of health education on improving the health status of female migrants is better than that of males, and females are more willing to take the initiative to receive health education, and the compliance of females with health education is higher [24].

4.3. Educational level

Table 6. Differences in the impact of health education on the health status of the mobile population with different levels of education

	Model 6 High school and below	Model 7 Specialist and above
health education	0.400 *** (0.046)	0.797 *** (0.257)
marginal effect	0.82%	0.23%
control variable	containment	containment
location	containment	containment
sample size	114,839	27,823

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

The health literacy of the mobile population can be improved not only through health education, but also whether or not they have received higher education is an important way to develop health literacy among the mobile population [25]. Table 6 reports the differences in the impact of receiving health education on the health status of mobile populations with different levels of education. The overall sample was divided into two groups, high school and below and specialized and above, and the division was based on whether or not they had received higher education. The education level of China's mobile population group is generally low, and the education level is mainly concentrated in primary, middle and high school education. According to the regression results, receiving health has a significant positive effect on the health status of the mobile population with different education levels, and the regression coefficients are all significantly positive at the 1% level. Compared with the mobile population with higher education, the marginal effect of health education on the health status of the mobile population without higher education is larger.

4.4. Robustness Tests

Table 7. Robustness test regression results

variant	Model 1 Ologit	Model 2 Oprobit
Access to public health education	0.243 *** (0.021)	0.132 *** (0.011)
Other control variables	containment	containment
location	containment	containment
sample size	142,770	142,770
LR chi2	25487.30 ***	25972.28 ***
Pseudo R2	0.1976	0.2014

In order to further test the robustness of the above regression results, this paper adopts two kinds of methods for the robustness test, and Table 7 shows the regression results of the robustness test. The regression coefficient of receiving health education on improving the health status stratum of the floating population in Model 1 is 0.243, which is significantly positive at the 1% level. Oprobit regression model was used in Model 2, and the regression results showed that the regression coefficient of receiving public health education on improving the self-assessed health tier of the migrant population was 0.132, which was significantly positive at the 1% level. The regression results of the two models show that the sign of the regression coefficient is consistent with the base regression and both are significant at the 1% level, proving that health education is indeed effective in improving the health status of the migrant population and has a significant promotional effect, which proves that the model has a certain degree of robustness.

5. Summary

First, receiving health education can significantly improve the health status of the mobile population.

After empirical analysis, health education has a significant positive effect on the health of the mobile population. When only the single independent variable of health education is included in the regression, receiving health education can increase the probability that the self-assessed health of the mobile population is healthy by 1.66%. When a series of control variables are included, receiving health education can increase the probability that the self-assessed health of the mobile population is healthy by 0.31%.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

Secondly, health records and family doctors play a role as mechanisms for health education and the health status of the mobile population.

Health records and family doctors play a partial mediating role in the process of health education's improvement of migrant population's health status. When the mechanism variables health records and family doctors are added to the regression model, the regression coefficients and marginal effects of health education and migrant population's health status are significantly reduced, and the direct effect of receiving health education to improve the migrant population's health status is smaller than the total effect, which proves that the two mechanism variables play a mechanism role in the It proves that the two mechanism variables play a mechanism role between the migrant population receiving health education to improve their health status.

Third, there is multiple heterogeneity in the impact of health education on the health status of mobile populations.

China's mobile population has a large base, high mobility and wide distribution, and affected by the differences in economic development and cultural background between regions, the health level of China's mobile population groups has greater differences in age, gender, education level and household registration. From the results of the heterogeneity test, health education improves the health status of middle-aged and old-aged, female, and mobile population without higher education to a greater extent.

6. Recommendations

First, health education services focusing on the mobile population.

Increasing health education services for the floating population, and emphasizing efforts to publicize and popularize health education for the floating population. Receiving health education has a significant effect on improving the health status of the migrant population, but at present 18.93% of the migrant population have not received any health education, 29.93% have received only one health education, and only 1.68% have received meteorological health education, so there is still plenty of room for improving the popularization rate of health education for the migrant population.

Adhere to the diversification of the content of health education, and pay more attention to the mental health education of the floating population. The mobile population is characterized by great mobility, and the mobile population not only faces the pressure of competition at work, but also the pressure of social integration brought about by spatial mobility, so health education needs to pay more attention to the mental health education of the mobile population. There are seven main types of health education for the migrant population, of which only one type of mental health education focuses on the mental health of the migrant population, making health education for the migrant population relatively unitary in its focus.

Second, promoting and improving the establishment of health records and family doctor contracting services for the migrant population.

At present, only 28.35% of the mobile population has established health records, and there are still about two-thirds of the mobile population without health records. The establishment of health records is an important prerequisite for the community to carry out basic health and wellness services, as well as an important guarantee to meet the health service needs of the migrant population (Jing Ye, 2020). Communities should widely publicize the importance and necessity of establishing health records, improve the rate of community health records, and can arrange for commissioners to visit the floating population to help them implement health records; the government should increase financial allocation and investment, make full use of big data and Internet platforms to establish a health record information sharing platform for the floating population, so as to realize that the records move with the people, and to establish and improve the health record management system.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

At present, only 12.47% of the migrant population have signed up for family doctors, and 87.53% of the migrant population have not signed up for or heard of a family doctor. We should carry out door-to-door publicity and contracted family doctor services, establish a long-term cooperation mechanism for family doctors, realize the deep bonding between family doctors and mobile families, and increase the coverage rate of family doctors among the mobile population; regularly provide training for family doctors, invite experts to give lectures to contracted family doctors, and improve the qualities of family doctors; vigorously develop the health industry, cultivate health management professionals, and learn from the policies and systems of other countries, such as health managers in Europe and America, to integrate the cultivation of family doctors into the industry and to develop the health industry into the health industry. Vigorously develop the health industry, cultivate health management professionals, and learn from the policies of other countries, such as the health managers in Europe and the United States, so as to integrate the cultivation of family doctors into the development of the industry and the formulation of policies.

Thirdly, it insists on providing personalized and differentiated health education services for the migrant population.

Differentiated health education is provided according to the characteristics of the mobile population, with an emphasis on in-depth health education services for the senior, low-education, non-agricultural hukou, intra-provincial migrant and long-term migrant populations. Big data and the Internet are used to collect data, analyze the heterogeneous needs of the mobile population for health education, and carry out personalized, differentiated and precise health education services according to the characteristics of the mobile population. Different health education contents are disseminated for different age groups and education levels of the mobile population. For example, the young and strong mobile population is in the golden age of labor, so it is more necessary to pay attention to the prevention and treatment of occupational diseases, the prevention and treatment of infectious diseases, and mental health; the middle-aged mobile population is facing pressures from their families and livelihoods, so it should pay attention to the prevention and treatment of mental health and chronic diseases; due to the effect of health loss, the health condition of the elderly mobile population is poorer, and the vast majority of them are in poorer condition than the elderly mobile population. Due to the health depletion effect, the health status of the elderly migrant population is poorer, and most of the elderly migrant population has a low level of education, so we should popularize basic health knowledge among the elderly migrant population, improve their health literacy, develop good health habits, and carry out health education lectures on the prevention and treatment of chronic diseases and infectious diseases according to the health needs of the elderly. With regard to gender differences in the migrant population, female migrants should be reminded to pay attention to reproductive, maternal and child health, and male migrants should be given more publicity for health education services, in an effort to increase the rate of male migrants' knowledge of health education. Regular health education activities can be organized for migrants moving across provincial boundaries, and the role of the community can be actively brought into play to help migrants integrate into the local social and cultural environment as quickly as possible.

References

[1] Lei, Yang-Yang. Analysis of health status and influencing factors of mobile population[J]. Research World. 2015, (12):18-21.

[2] Zeng Wen, Wang Cui, Chen Hongbo, Tong Beibei, Li Dan, Zou Ziqiu, Liu Peiyuan, Yao Yuanrong, Shang Shaomei. Health status and public health education for Health status and public health

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

education for internal older migrants in China: Evidence from a nationally representative survey [J]. Frontiers in Public Health. Volume 10, Issue. 2022. pp 937361-937361.

[3] Zhou Zhanqiang, Han Dongya. Out-group discrimination and household income of migrant population [J]. Urban Development Research. 2017, 24 (06):90-98.

[4] CHENG Lingguo, ZHANG Ye, SHEN Ke. How does education affect people's health? --Evidence from Chinese older adults[J]. Economics (Quarterly), 2015(1):305-330.

[5] Dong Enhong, Xu Ting, Shi Jiahua, Ba Dongjiao, Zhou Haiwang, Li Zhijian, Huang Cheng. Healthy immigration effect among internal migrants in megacities. Healthy immigration effect among internal migrants in megacities: a cross-sectional study in Shanghai, China[J]. Frontiers in public health. Volume 11, Issue. 2023.PP1167697-1167697.

[6] Xie Jin, Zhu Qing, Wang Xiaokun. Research on health influencing factors of China's elderly migrant population[J]. Urban Development Research. 2020,27(11):30-35.

[7] Ye Ziyan. Promoting double improvement of economic income and health level of mobile population[N]. China Population News.2018-01-01(3)

[8] Liu Yue, Lin Chaozheng, Huang Huijuan. Analysis of the mental health status of migrant women[J]. Journal of Population. 2010, (06):48-54.

[9] Ren Guoqiang, Hu Mengxue. Analysis of health self-assessment status of cross-provincial migrant population and its influencing factors--Based on the data of 2014 National Migrant Population Dynamic Monitoring Survey[J]. China Health Care Management.2021,38(08):587-593+625.

[10] Yue Hanxue. Study on Mobility Scope and Migrant Workers' Participation in Urban Basic Medical Insurance[M]. Guangdong University of Finance and Economics

[11] Song Quancheng, Zhang Qian. Study on the Health Status and Influencing Factors of China's Elderly Migrant Population[J]. China Population Science. 2018, (04):81-92+127-128.

[12] Li Chen, Li Xiaosong. Current situation of health service utilization and influencing factors of China's migrant population[J]. China Health Care Management.2010(6):422-424.

[13] Kim Minji, Gu Hai. Relationships between Health Education, Health Behaviors, and Health Status among Migrants in China: A Cross-Sectional Study Based Relationships between Health Education, Health Behaviors, and Health Status among Migrants in China: A Cross-Sectional Study Based on the China Migrant Dynamic Survey[J].Healthcare (Basel, Switzerland). Healthcare (Basel, Switzerland). Volume 11, Issue 12. 2023.

[14] Li Hongjuan, Xu Shuiyuan. Analysis of Health Literacy and Health Knowledge Acquisition among Migrant Population[J]. Health Economics Research. 2017, (10):37-42.

[15] XUE Liping, FAN Hui, GUO Jing. Analysis of the current situation of health education of mobile population and its influencing factors[J]. China Health Education, 2017(9):771-774+796.

[16] YAN Yueping, ZHENG Still. Research on health management problems and countermeasures of mobile population in the context of healthy China [J]. Dongyue Discussion Series. 2019, 40 (06):52-65.

[17] Li Jianmin, Wang Ting, Sun Zhishuai. From health advantage to health disadvantage: the “epidemiological paradox” in the rural-urban migrant population[J]. Population Research. 2018, 42 (06): 46-60.

[18] LI Jianmin, WANG Ting, SUN Zhishuai. From health advantage to health disadvantage: The “epidemiological paradox” in the rural-urban migrant population[J]. Population Research. 2018, 42(06): 46-60.

ISSN: 2637-6067 DOI: 10.6918/IJOSSER.202502_8(2).0028

[19] Wen Zhonglin, Zhang Lei, Hou Jietai, Liu Hongyun, "Mediation effect test procedure and its application", Journal of Psychology, No. 5, 2004;

[20] Mu Yingtan, Long Fei, Yuan Xin. Rural-urban differences in healthy aging and its changing trends among Chinese older adults-an analysis based on life course and health equity perspectives[J]. Population Research. 2023,47(04): 82-97.

[21] ZHAO Yifan, WANG Xiaohui. Research on the impact of public health education on the health status of migrant population--an empirical analysis based on the data of the 2018 National Migrant Population Dynamic Monitoring Survey[J]. Journal of Hunan Agricultural University. 2020, 21(05): 61-67+94.

[22] ZHANG Pei, GAO Shan, WANG Hongjiang, SU Minyan. A study of gender differences in self-assessed health and its decomposition among the elderly in China[J]. Modern Preventive Medicine. 2023, 50 (10): 1848-1852+1902.

[23] LOCK Zhonghua, SHAO Lina, SUN Xiaotong, LANG Ying. A study of gender differences in self-assessed health status among the mobile elderly population based on the Fairlie decomposition method[J]. Modern Preventive Medicine. 2023,50(19): 3464-3469.

[24] YANG Huiting, MA Hongjun, CHEN Xiangyu, YU Xin. Survey and analysis on the current status of health education knowledge, belief and behavior of elderly hypertensive patients of different genders[J]. Clinical Medicine Research and Practice. 2022,7(22): 12-14.

[25] Li Rui, Deng Zhaolong. Research on the influence of employment quality on the health status of China's migrant population[J]. Popular Science and Technology,2023,25(04):163-166+121.