

What Influence the Preference for Professional Care of the Elderly in China —An Empirical Study Based on CLHLS

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Abstract. As China's aging scale continues to expand and the level continues to deepen, the demand for long-term care for the elderly is growing. However, due to changes in the demographic structure of our country, the method of relying on family members to take care of the elderly, which called non-professional care, has not been able to meet the needs of today's care, and professional care needs to be promoted. By using logistic regression model, we analyze the cross-sectional data obtained from the 2014 Chinese Longitudinal Healthy Longevity Survey (CLHLS). We investigate the influence and the degree of significance on the willingness of professional care choice for the elderly in China from six aspects: basic information, health condition, socioeconomic status, public old age insurance, medical services and community service provision. Finally, the influencing factors affecting the willingness of professional care choices for the elderly in China are obtained. And it is proposed that the government and society should promote the development of professional care in China from the aspects of increasing supply, enacting laws and regulations, and improving nursing ability.

1. Introduction

The "Aging of Population and Its Social and Economic Consequences" issued by the United Nations pointed out that, when the number of elderly people aged 65 and over in a country or region accounts for more than 7% of the total population, it means that the country or region is aging. According to this standard, China has entered an aging society since 2002. Until the year of 2017, the number of people aged 65 and older in China was 158.31 million, accounting for 11.4% of the total population. Faced with the increasingly aging population situation, China's pension problem has become more and more serious, and it has brought a series of difficulties and challenges for the care of the elderly.

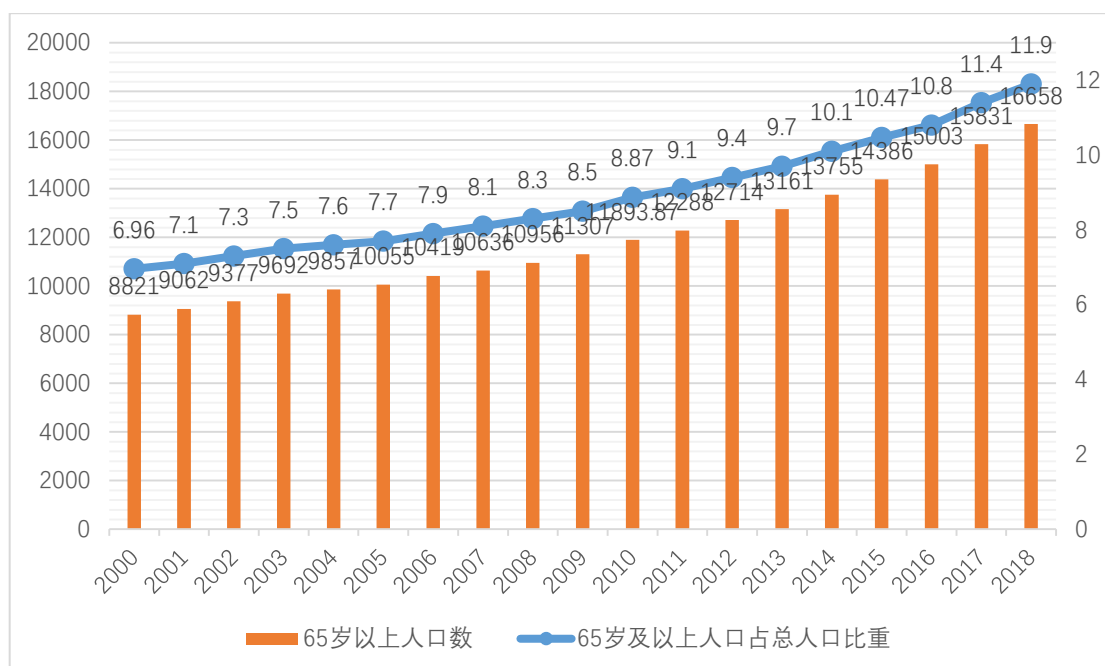


Fig. 1. Number and proportion of China's population over 65 years old from 2000 to 2018

There is no uniform classification of the methods of aged care in China currently. Based on the subject of providing care, some scholars divide the care method into home care and institutional care. Some scholars divide the care methods into family mode, market mode, friendship mode, volunteer mode and welfare mode. The first four modes of care are defined as informal care, and the welfare model is defined as formal care. According to the research topic and the actual situation of our country, we define care provided by relatives, friends, and neighbors as non-professional care, and define care provided by community and institutional as professional care.^[1]

The nursing methods of the elderly in China have always been based on non-professional care, which is mainly relying on sons and daughters, daughter-in-law, brothers and sisters and other relatives to take care of the elderly in the family. In the 1960s and 1970s, due to the improvement of living conditions, the population increased rapidly, and there were often multiple children in a family, which provided conditions for non-professional care. In the 1980s, the policy of controlling population was implemented. One urban family can only have one or two children. The family structure of "4+2+1" and "4+2+2" has gradually formed in the society, that is, a family consists of four elderly people, two middle-aged people and one or two children. This has brought difficulties to the implementation of non-professional care. Because in terms of both economics and energy, it is difficult for the only young people in the family to take care of the six elderly people at the same time. In October 2016, the "4th sample survey of the living conditions of urban and rural elderly in China" showed that the overall health status of the elderly was poor, and the number of disabled and semi-disabled elderly populations was large, which was about 40.63 million people, accounting for the elderly population. As China's

population continues to grow and the scale of aging continues to expand, the number of people with disability and partial disability and other dementia and mental disabled will further increase. The increase in the number of empty nesters and the changes in family structure have made the function of providing family care for the elderly continue to be weakened. The problem of long-term care and protection for the elderly has changed from a family problem to a serious social problem. The “care crisis” that China faces is imminent.

In order to improve the situation of aged care and timely respond to the nursing needs brought about by changes in social structure, the long-term care insurance system came into being in China. In 2016, the General Office of the Ministry of Human Resources and Social Security issued the “Guiding Opinions on Piloting the Long-Term Nursing Insurance System”, and launched a pilot program of long-term care insurance system in 15 cities and two key provinces across the country. Trying to explore the establishment of a social insurance system, which can provide financial or service protection for the basic life care of long-term disabled persons and medical care closely related to basic life. On February 28, 2017, the State Council promulgated the “13th Five-Year Plan for the Development of Old Ageing and the Construction of the Aged System”. The plan clearly points out that it is necessary to explore the establishment of a long-term care insurance system. The main function of the long-term care insurance system is to provide the insured with funds or services when the insured person of the insurance contract receives the nursing service of the professional nursing staff in a specialized nursing institution. The establishment of the system can alleviate the care pressure of elderly family members, especially children. However, the implementation of the long-term care insurance system requires certain preconditions. The first is the supply of professional nursing institutions and professional nursing staff. The promotion of this system must be based on the provision of adequate care institutions and personnel. Second is the elderly's willingness to choose professional care. If compared with professional care, the elderly who are disabled and demented are more inclined to choose to be taken care of by their family members, the long-term care insurance system is difficult to implement nationwide. In response to the issue of willingness to choose, we hope to find out the influencing factors affecting the willingness of professional care choices for the elderly in China through empirical analysis, thereby finding the development direction of professional nursing, and helping the implementation of the long-term care insurance system in China.

2. Literature review

The factors affecting the willingness of the elderly to care for the elderly have been studied at home and abroad. The influencing factors studied are mostly coincident, but the conclusions are not completely consistent.

From the perspective of age, Zhang Wenjuan and Wei Meng compared and analyzed the willingness and influencing factors of the elderly to the formal nursing institutions by using the Anderson model as the analytical framework and introducing the variable of community. They conclude that older people who are younger and provide convenient health care in their communities are more inclined to professional care.^[2] Han Li used the national health survey of the elderly population to study the cross-sectional data of 2008, and found that older people are more inclined to professional care; the impact of the provision of services such as home visits, medications, and health care provided by the community on the choice of pension options is not significant.^[1] The Health Insurance Association of American (HIAA) and Stum's studies both showed that the average age of individuals in the long-term care insurance market is 67 years old, with a median of 49 years, which reflected that the older people had the higher the demand for professional care and tended to purchase long-term care insurance.^[3, 4] When gender was used as a comparison, Jiang Xiangqun, Ding Zhihong and Qin Yanyan used the data from the China Aging Science Research Center's 2006 urban and rural elderly population tracking survey to conduct relevant analysis. They found that men are more inclined to professional care than women, and older people with spouses are more willing to stay in the old-age care institutions than widowed elderly people.^[5] In the results of Jiang Xiangqun and Liu Nina, the influence of gender and marital status on the choice of nursing methods was not significant.^[6] In the Stum, Stucki and HIAA

studies, the ratio of female to male buyers in the long-term care insurance system was 58% and 42%, respectively.^[3,4,7] According to Jecker and Waidmann, part of the reason for gender becoming a factor in long-term care insurance is that women have a longer life expectancy and are more in need of professional care than men.^[8,9]

When analyzing the health status, Lu Jiehua and Zhang Li used the data of the China Longitudinal Aging Social Survey(CLASS) 2014 to do analysis and found that those who subjectively considered their health status to be general or bad were more likely to choose professional care.^[10] Stucki and Stum also confirmed this through the proportion of health status of long-term care insurance users, and the results indicate that people with poorer health tend to prefer professional care.^[4,7] Research by Patricia and Marlene supports that people with long-term care needs and those who are at high risk of poverty due to long-term care will be more likely to receive long-term care insurance.^[11] Zuo Dongmei, Li Shuzhen and Song Yu used the sample survey data of “Elderly living conditions in Anhui Province” conducted in 2006 in Chaohu District, Anhui Province, and found that the increase in chronic diseases rather than dysfunction would raise the elderly’s willingness to stay in nursing homes; the higher the degree of depression, the greater the likelihood that older people will be willing to stay in a nursing home.^[12]

For some influencing factors, the research conclusions of scholars are relatively consistent. In terms of the number of children, Lu Jiehua and Zhang Li that older people with fewer children tend to prefer professional care.^[10] Yu Lingyun and Liao Chuhui also found that the more children in the family, the lower the willingness of the institution to support the elderly.^[13] In terms of place of residence, Zhang Na’s conclusion is that the current rural elderly still rely mainly on family care.^[14] Jiang Xiangqun, Ding Zhihong and Qin Yanyan also believe that compared with rural areas, urban elderly are more inclined to choose professional care.^[5] In terms of economic status, Zhang Wenjuan and Wei Meng believe that older people with higher incomes are more inclined to professional care.^[2] Jiang Xiangqun and Liu Nina also believe that the better the economic situation, the higher the possibility of choosing institutional care.^[6]

Due to the differentiation in data selection and the research methods, different scholars have different research conclusions on the influencing factors of the elderly’s willingness to accept elderly care in China. Based on the synthesis of previous literature, this paper uses new data to comprehensively and systematically study the influencing factors of the elderly’s willingness to choose professional care in China.

3. Data and model

3.1 Data Sources

The data in this paper is from the cross-sectional data obtained from the 2014 Chinese Longitudinal Healthy Longevity Survey. The project was launched in 1998 and was followed up in 2000, 2002, 2005, 2008 and 2011. The project data covers 22 provinces or cities such as Beijing, Tianjin and Hebei, which comprehensively reflects the socio-economic and health status of the elderly in China and is widely used in various research fields.

In order to systematically study the influencing factors of the willingness of professional care choice for the elderly in China, we divide the independent variables into six categories: basic information, health condition, socioeconomic status, old age insurance, medical services, and community service provision. From these six aspects, the magnitude and significance of various factors are examined. After removing the missing data and the sample of the elderly under the age of 65, a total of 5832 valid sample data remained.

3.2 Data choice and definition

3.2.1 Dependent variables

The dependent variable is the willingness of the elderly in China to choose professional care, which is divided into choosing professional care and not choosing professional care. Among them, professional care mainly includes social services and babysitters. Non-professional care mainly includes nine methods: spouse, son, daughter-in-law, daughter, son-in-law, unmarried son and daughter, grandchildren, other relatives and friends. We considers the choice of care as a categorical variable, with a professional care assignment of 1 and a non-professional care assignment of 0. The following table shows descriptive statistics for dependent variables.

Table 1. Descriptive statistics for dependent variables

Dependent variables	Variable assignment	Frequency	Effective percentage (%)	Cumulative percentage (%)
Professional care	1	1849	31.70	31.70
Non-professional care	0	3983	68.30	100.00
Total		5832	100.00	

Through the descriptive statistics of the dependent variable, we can see that as of 2014, the choice of care methods for the elderly in China is still dominated by non-professional care, accounting for more than 60%. More than 30% of the elderly choose professional care. This shows that professional care still has a lot of room for development in China. For the purposes of this study, data on unattended care services have been removed.

3.2.2 Independent variables

In view of past literature, we investigate the influence and the degree of significance of 19 factors on the willingness of professional care choice for the elderly in China from six aspects: basic information, health condition, socioeconomic status, old age insurance, medical services and community service provision. The variable definitions and research hypotheses are shown in the table below.

Table 2. Variable definitions and research hypotheses

Independent variable	Variable definitions			Research hypothesis
	Variable name	Variable type	Explanation	
Basic information	Age	Discontinuous numerical variable	Samples of elderly people under the age of 65 have been excluded.	Assume that older people with different basic information have different willingness to choose professional care.
	Sex	Categorical variables	0=female 1=male	
	Current marital status	Categorical variables	0=married but not living with spouse & divorced & widowed & never married 1=married and living with spouse	
	Residence	Categorical variables	0= Rural 1= City and town	
	Co-residence	Categorical variables	0=alone 1=not alone, with household member(s) or in a nursing home	
	Number of sons	Discontinuous numerical variable		
Health condition	Self-rated health	Numerical continuous variable	1 very good 2 good 3 so so 4 bad 5 very bad Select "Unable to	Assume that older people with different health conditions have different willingness to choose professional care.

		answer" has been removed.		
Socioeconomic status	Income	Numerical variable	1 very rich 2 rich 3 so so 4 poor 5 very poor Unanswered samples have been removed.	Assume that older people with different socioeconomic status have different willingness to choose professional care.
	Occupation	Categorical variables	0=professional or technical personnel/doctors/teachers 1=governmental, institutional or managerial personnel 2=staff/service worker/industrial worker 3=self-employer 4=agriculture, forestry, animal husbandry, fishery 5=housewife 6=military personnel 7=unemployed Other sample data or missing values have been removed.	
	Pension	Categorical variables	0=no 1=yes	
Old age insurance	Do you participated in public old age insurance?	Categorical variables	0=no 1=yes	Assume whether there is old age insurance affecting the elderly's willingness to choose professional care.
Medical service	Can you get adequate medical service	Categorical variables	0=no 1=yes	Assume that adequate medical services can affect the elderly's willingness to choose professional care.
Social services provided by communities	Personal daily care services	Categorical variables	0=no 1=yes	Assume that community service provision can influence the elderly's willingness to choose professional care.
	Home visits	Categorical variables	0=no 1=yes	
	Psychological consulting	Categorical variables	0=no 1=yes	
	Daily shopping	Categorical variables	0=no 1=yes	
	Social and recreation activities	Categorical variables ,	0=no 1=yes	
	Health education	Categorical variables	0=no 1=yes	
	Neighboring relations	Categorical variables	0=no 1=yes	

Table 3. Descriptive statistics of independent variables

Independent variables		Minimum	Maximum	Mean	Standard deviation
Basic information	Age	65	117	85.55	10.355
	Sex	0	1	0.455	0.498

	Marital status	0	1	0.382	0.486
	Residence	0	1	0.152	0.359
	Co-residence	0	1	0.821	0.384
	Number of sons	-1	10	2.265	1.389
Health condition	Self-rated health	1	5	2.665	0.864
Socioeconomic status	Income	1	5	2.95	0.616
	Occupation	0	7	3.588	1.194
	Pension	0	1	0.217	0.412
Old age insurance	Public old age insurance	0	1	0.273	0.446
Medical service	Adequate medical service	0	1	0.957	0.202
Social services provided by communities	Personal daily care services	0	1	0.072	0.259
	Home visits	0	1	0.361	0.48
	Psychological consulting	0	1	0.109	0.312
	Daily shopping	0	1	0.125	0.331
	Social and recreation activities	0	1	0.205	0.404
	Health education	0	1	0.419	0.493
	Neighboring relations	0	1	0.282	0.45

According to the descriptive statistics of the independent variables, we can see that in the 2014 Chinese Longitudinal Healthy Longevity Survey, the average age of the respondents was 85.55 years old, and the female proportion was 55.5%. 38.2% of the elderly lived with their spouse. The elderly who had spouse but lived without a spouse, divorced, widowed and never married account for 61.8%. 15.2% of the elderly live in cities and towns, and 84.8% of the elderly live in rural areas. 82.1% of the elderly live with their families or live in nursing homes, and only 17.9% of the elderly live alone. About half of the elderly's self-assessment is between so-so and very bad. Among the elderly people interviewed, only 21.7% have pension after retirement. The proportion of older people who participated in the old age insurance was 27.3%. More than 90% of the elderly can get enough medical care. Only 10% to 40% of the community provides community services for the elderly, such as home visits, psychological consulting, shopping, social and recreation activities, health education, and less than 10% of the communities provide daily care.

3.3 Model setting

The dependent variable in this regression is the willingness of the elderly in China to choose professional care. It is a dichotomous variable, including the choice of professional care or non-professional care. For such variables, we choose the logistic model as a tool for regression analysis, which can well fit and explain the individual decision results.

The form of the Logistic probability function is:

$$P = \frac{\text{Exp}(Z)}{1 + \text{Exp}(Z)}$$

In the above formula, Z is a linear combination of the independent variables $X_1, X_2, X_3, \dots, X_n$:

$$Z = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + \dots + a_nX_n = a_0 + \sum_{i=1}^n a_iX_i$$

In this model, the probability of choosing professional care for the elderly is $P(Y = 1)$ and the probability of non-professional care is $1 - P(Y = 1)$. In Logistic regression analysis, the Logit transformation of P is:

$$\text{Logit}P = \ln\left(\frac{P}{1-P}\right) = a_0 + \sum_{i=1}^n a_i X_i$$

We can get the functional relationship between the probability function and the independent variable. When the elderly are more willing to choose professional care, the dependent variable is assigned a value of 1; When they are more willing to choose non-professional care, the dependent variable is assigned a value of 0. The 19 explanatory variables from six aspects form a linear combination Z.

4. Regression results and analysis

In this paper, we construct a Logistic regression model with the willingness of the elderly to choose professional care as the dependent variable, and use Stata12.0 for regression analysis. The results are as follows:

Table 4. Logistic regression of the elderly's willingness to choose professional care in China

Regression coefficients		Regression coefficients	Standard error	P value
Basic information	Age	0.0199	-0.00339	0.000***
	Sex	0.0476	-0.0673	0.479
	Marital status	-0.0541	-0.08	0.499
	Residence	-1.519	-0.125	0.000***
	Co-residence	-0.242	-0.0832	0.004***
	Number of sons	-0.154	-0.0226	0.000***
Health condition	Self-rated health	-0.12	-0.0371	0.001***
Socioeconomic status	Income	-0.141	-0.0537	0.009***
	Occupation	0.0384	-0.0355	0.280
	Pension	-0.206	-0.103	0.045**
Old age insurance	Public old age insurance	-1.228	-0.0786	0.000***
Medical service	Adequate medical service	0.184	-0.156	0.239
Social services provided by communities	Personal daily care services	0.0775	-0.151	0.607
	Home visits	0.544	-0.0722	0.000***
	Psychological consulting	-0.148	-0.129	0.250
	Daily shopping	1.041	-0.104	0.000***
	Social and recreation activities	-0.456	-0.101	0.000***
	Health education	-0.382	-0.0763	0.000***
	Neighboring relations	-0.305	-0.0846	0.000***

Note: ** indicates significant at the 5% level and *** indicates significant at the 1% level.

According to the regression results, overall, age, residence, co-residence, number of sons, health condition, income, pension, old age insurance, home visits, daily shopping, social and recreation activities, health education and neighboring relations significantly affects whether “elderly chooses professional care” at the 0.01 level. Pension significantly affects whether “elderly chooses professional care” at the 0.05 level.

4.1 Impact of individual characteristics

In the basic information, the age, current place of residence, co-residence and the number of sons have a significant impact on the willingness of the elderly to choose professional care. People who have older age are more likely to choose non-professional care. This may be because these people are more conservative and have poorer acceptance of old-age services. They tend to choose their own trustworthy caregivers to take care of their daily lives. Compared with rural areas, older people in urban areas are more inclined to choose professional care. This result is consistent with previous studies. First of all, there are more old-age care institutions in cities, which provide opportunities for the elderly to choose professional care; second, compared with rural areas, older people in urban areas have higher income levels and are more able to afford the costs of professional care. Older people who do not live alone are more likely to choose professional care than older people living alone. This may be because older people who do not live alone are in poor health and need care, while professional care can provide higher quality care. The more sons born and grown, the more likely they are to choose professional care, which is contrary to the traditional concept of “nurturing children and preventing old age”. A possible explanation is that the elderly who have more adult sons could get more alimony after retirement so they are more affordable to pay for the nursing expenses for professional care. At the same time, the sons lack patience and experience in the daily care of their parents, which also affects the willingness of the elderly to choose professional care. Gender and marital status have little effect on the willingness to choose professional care for the elderly.

The health condition has a significant impact on the willingness of the elderly to choose professional care. Older people with poorer self-evaluation of physical health tend to choose professional care. A reasonable explanation is that the worse the health status of the elderly, the more serious the decline in their own functions, the more need for professional nursing staff with high levels of care to take care of daily life. In the socioeconomic status, income and whether receive pension have a significant impact on the willingness of the elderly to choose professional care. Older people with high income levels before retirement and who are able to receive a pension are more likely to choose professional care. This may be because these older people are living in more affluent conditions and are more able to afford the cost of professional care. The influence of occupation on the choice of professional care for the elderly is not significant.

4.2 Impact of society

Whether or not to participate in the public old age insurance has a significant impact on the willingness of professional care choices for the elderly. Older people who have participated in old age insurance are more likely to choose professional care. A possible explanation is that pension insurance provides a guarantee for the lives of the elderly, reducing the burden on the elderly and enabling them to afford the cost of professional care.

The impact of medical services on the willingness to choose professional care for the elderly is not significant.

In terms of community service provision, whether the community offers home visits service and health education service, whether to help with shopping, whether to hold entertainment activities and neighborhood activities has a significant impact on the willingness of professional care choices for the elderly. Older people living in communities which offer health education service, hold entertainment and neighborhood activities are more likely to choose professional care. This may be because these services in the community meet the needs of the elderly and enhance their acceptance of professional care. In contrast, older people who live in communities which offer home visits service and help shopping are more likely to choose non-professional care. This may be because such services do not meet the needs of older people. Whether the community provides personal daily care services and psychological consulting services has little effect on the willingness of the elderly to choose professional care.

5. Conclusion and suggestion

The conclusions drawn from this empirical analysis differ from the previous research conclusions using CLHLS data in some respects. The possible reason is that this empirical analysis uses data from 2014. Compared with the results of many years ago, many data have been updated, and the results of the survey have changed, so that there will be differences in conclusions.

The conclusion of this study is that older people with the following characteristics are more willing to choose professional care: living in urban and not alone, having more sons, poor self-evaluation of their health condition, high income level, enjoying pension benefits, participating in public old age insurance, community where they are living offers the health education service and holds the entertainment activities and the neighborhood activities. The people who are older and live in the community which offer homevisit service and help the elders go shopping are more likely to choose non-professional care.

By summarizing the above conclusions, we can find the factors affecting the willingness of professional care choice for the elderly can be divided into two categories: external factors and internal factors. External factors include the supply of aged care services (residence) and whether professional care can meet the needs of the elderly (community service provision); internal factors include the economic situation of the elderly after retirement (number of sons, income, pension, public old age insurance participation), the health status of the elderly (self-rated of health status, co-residence), and the acceptance of older people's professional care (age).

In view of the conclusions, we put forward the following recommendations to help the implementation of China's long-term care insurance system.

The government should further expand the coverage of basic old-age insurance, increase subsidies and lower the threshold for basic old-age insurance, striving to provide a practical guarantee for the basic life of the elderly. The government should also implement preferential policies for social pension service institutions, encourage more enterprises to join the pension service industry to increase the supply of old-age services. Laws and regulations related to long-term care should be introduced as soon as possible to protect the legitimate rights and interests of all relevant subjects in the aged care market.

Existing old age service agencies should pay attention to the health situation of the elderly, provide regular physical examinations for the elderly and hold lectures on health knowledge. Regularly training the professional nursing staff to focus on improving the professional care ability for the elderly. While improving the care ability, the agencies should organize a variety of activities that are conducive to physical and mental health to meet the diverse needs of the contemporary elderly. At the same time, the existing old age service agencies should respect the personal privacy of the elderly and make room for the personal life of the elderly in the institution. Social organizations should increase the propaganda of professional care, and strive to eliminate the stereotypes of the elderly to the pension service agencies, and accelerate the transformation of the elderly's awareness of professional care.

6. References

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