

# BMJ Open Urban-rural differences in factors associated with willingness to receive eldercare among the elderly: a cross-sectional survey in China

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## ABSTRACT

**Objective** Willingness to receive eldercare is an important factor affecting the reasonable allocation of resources and appropriate development of eldercare services. This study aimed to investigate the differences in willingness to receive eldercare and the influencing factors in urban and rural areas.

**Design** Cross-sectional survey.

**Setting** Research was conducted in the urban and rural areas of three cities (Harbin, Qiqihar and Jiamusi) in Heilongjiang province, China.

**Participants** A total of 1003 elderly were selected through multistage sampling in Heilongjiang province, including 581 in urban areas and 422 in rural areas.

**Main outcome measures** Descriptive statistics were reported for socioeconomic and demographic status, physical health, life satisfaction and social support in urban and rural areas. Mean differences were examined using t-tests, and categorical variable differences were examined using  $\chi^2$  tests. The factors influencing willingness to receive eldercare in urban and rural areas were analysed using logistic regression.

**Results** The results showed that 51.6% of urban elderly and 59.0% of rural elderly preferred family eldercare. Factors that influenced willingness to receive eldercare for urban elderly were age (OR 2.791, 95% CI 1.644 to 4.737), house property (OR 0.494, 95% CI 0.329 to 0.740) and objective support (OR 0.764, 95% CI 0.681 to 0.858). For rural elderly, the factors were having children (OR 0.368, 95% CI 0.146 to 0.930), house property (OR 0.371, 95% CI 0.231 to 0.596) and living arrangement (OR 3.361, 95% CI 1.436 to 7.866).

**Conclusion** More attention should be paid to improving the functioning of family eldercare and promoting the development of varied eldercare services. Investments and targeted policies should be undertaken for different subgroups of urban and rural elderly.

## INTRODUCTION

The ageing population has become a major social problem worldwide. In China, the world's largest developing country, the trend of population ageing has become a serious issue, raising concerns around the world.<sup>1</sup> At

## Strengths and limitations of this study

- This study is one of the first to examine differences in willingness to receive eldercare between urban and rural areas and to analyse the influencing factors.
- The samples were selected through multistage sampling and were divided into urban and rural samples.
- There could be an inherent bias in self-reporting measures, and the small sample size limits the generalisability of the findings.
- This was a cross-sectional study; no causal relationships can be identified.

the end of 2016, 230 million people in China were aged 60 years or older, comprising 16.7% of the total population.<sup>2</sup> There were 40.63 million disabled elderly in China, accounting for 18.3% of the aged population. Since ageing populations typically experience increasing health issues, the problems associated with eldercare pose challenges for both government and society.

In China, family and institutional eldercare are the primary means of eldercare. In family eldercare, elderly live at home and receive care from their families. In institutional eldercare, elderly live in an institution that provides their care.

The one-child policy has created '4-2-1' families, in which a couple cares for four older people as well as their own child.<sup>3</sup> In recent years, younger people have increasingly moved away from home for work. Thus, the functioning of family eldercare has been weakened, and the availability of eldercare provided by adult children has become uncertain.<sup>4</sup> Meanwhile, traditional institutional eldercare has been unable to meet the high levels and multiple types of elderly needs.

As a result, China's central and local governments have introduced policies aiming to

develop eldercare services. A great deal has been invested in infrastructure construction, intended to improve everyday convenience and enrich spiritual and cultural life for the elderly under family eldercare. The government has also promoted the development of both public and private eldercare institutions by enacting preferential policies for private institutions.

Willingness to receive eldercare—which has been defined as attitudes towards and selection preferences for certain types of eldercare among the elderly<sup>5</sup>—can influence the final choice for a given type of eldercare. Previous studies have suggested that it is very important for governments to consider elders' willingness to receive eldercare when allocating eldercare sources.<sup>6–8</sup>

An extensive body of literature has focused on the present situation as well as the factors influencing willingness to receive eldercare among the elderly. A study of willingness to use a nursing home among Korean American elderly showed that 45% were willing to use a nursing home.<sup>9</sup> In a study of the elderly in Taiwan, however, it was much lower, at around 16.7%.<sup>10</sup> Another study, from 2009, showed that in urban and rural areas, only 20% and 17%, respectively, of older adults were willing to live in eldercare institutions.<sup>11</sup> Finally, a 2017 study found that 81% of elderly preferred family eldercare.<sup>12</sup>

Regarding the factors influencing willingness to receive eldercare, many studies have found that certain socioeconomic and demographic factors—including age, sex, sociocultural beliefs and self-assessed economic status—are associated with willingness to receive eldercare.<sup>3 13 14</sup> Gruber<sup>15</sup> suggested that reductions in social security benefits could significantly alter the living arrangements of the elderly; specifically, a 10% cut in benefits could cause more than 600 000 independent elderly households to switch to shared living arrangements. Other research has shown that the demand for institutional eldercare increases with declining physical health and self-care ability.<sup>16</sup> Meanwhile, social support, perceived family harmony and perceived filial piety can also affect willingness to receive eldercare. Liu found that the more social support the elderly received, the more likely they were to accept family eldercare.<sup>17</sup> Chou, moreover, found that willingness to receive eldercare was influenced by feelings of loneliness and life satisfaction.<sup>11</sup> When there is lower life satisfaction, the elderly tend to prefer institutional eldercare.<sup>18 19</sup>

However, the effects of these factors on willingness to receive eldercare are not isolated. Previous studies on willingness to receive eldercare have used different theoretical frameworks. Following WHO's definition that health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity,<sup>20</sup> this study established a conceptual framework stemming from four resources: socioeconomic and demographic status, physical health, life satisfaction, and social support.

In China, there are huge differences between urban and rural areas in terms of income and living environments.<sup>21</sup>

A previous study of willingness to receive eldercare between urban and rural areas showed that the urban elderly were less willing to receive family eldercare than the rural elderly (23.4% and 55.8%, respectively).<sup>22</sup> Many other recent studies have examined differences in willingness to receive eldercare between urban and rural areas. However, there has not been an analysis of the different factors influencing willingness to receive eldercare among urban and rural elderly.

This study compared willingness to receive eldercare among urban and rural elderly and analysed the influencing factors. The results are very important for dividing the elderly into different categories, which can contribute to the reasonable allocation of eldercare resources and better meet elders' needs.

The purposes of this study were as follows: (1) To study willingness to receive eldercare in terms of socioeconomic and demographic factors, physical health, life satisfaction, and social support. (2) To compare and analyse urban-rural differences in the factors associated with willingness to receive eldercare.

## METHODS

### Data and sample

Multistage sampling was used to select participants. First, 15 cities in Heilongjiang were divided into three grades according to per capita GDP, and one city was selected at each level. Three cities (Harbin, Qiqihar and Jiamusi) were selected. At the end of 2016, the populations of Harbin, Qiqihar and Jiamusi were 1.066 million, 0.536 million and 0.255 million, respectively. The rates of elderly over 60 years old were 17.3%, 18.5% and 10.8%, respectively. Second, three communities in urban areas and three villages from rural areas were randomly selected in each city. Individuals were included in the study if they met the following criteria: aged 60 years or older, clear consciousness and competent at verbal communication. Additionally, participants were told that participation in the survey was voluntary and that returning the questionnaires represented informed consent.

### Data collection

A cross-sectional survey was conducted from 1 March 2016 to 31 August 2016. Data were collected through face-to-face interviews using a structured questionnaire. The interviews were conducted by nine undergraduate and nine graduate students from Harbin Medical University who had received training. A manual was created to provide suggestions on how to ask each question. Moreover, a preinvestigation was conducted to identify problems and provide further training for the interviewers.

In total, 1200 questionnaires were distributed (600 urban, 600 rural). Participants who did not respond to the survey or did not answer the question about willingness to receive eldercare were excluded. A total of 1003 valid questionnaires were returned (581 urban, 422 rural), for

a response rate of 83.6%. The response rates for urban and rural areas were 96.8% and 70.3%, respectively.

### Assessment tools

The instrument used in this study consisted of a questionnaire composed of five sections. Section 1 focused on the respondents' socioeconomic and demographic characteristics, including sex, age, monthly income, work, education, children, marriage status, living arrangement, house property and chronic disease. WHO defines chronic diseases as those not passed from person to person.<sup>23</sup> They typically have a long duration and generally slow progression. The four main types of chronic diseases are cardiovascular diseases (eg, heart attack, stroke), cancers, chronic respiratory diseases (eg, chronic obstructed pulmonary disease and asthma) and diabetes. For this study, we listed these diseases and set up multiple-choice questions. Respondents were asked, 'Are you suffering from the following chronic diseases?' They were considered to have chronic disease if any of the diseases were selected. A 'yes' answer was coded 0 while 'no' was coded 1.

Section 2 assessed willingness to receive eldercare, based on a single-item measure. Respondents were asked, 'Which are you willing to choose between: family eldercare or institutional eldercare?' Respondents marked 0 for family eldercare and 1 for institutional eldercare.

Section 3 assessed self-rated physical health. Respondents were asked, 'How do you rate your health?' They answered on a 5-point scale, ranging from 1 (worst) to 5 (best).

Section 4 assessed life satisfaction. The 5-item version of Pavot and Diener's Life Satisfaction Scale was used for measurement. Respondents were asked to indicate the strength of their agreement with statements on a 7-point scale, ranging from 1 (highly disagree) to 7 (highly agree).<sup>24</sup> Then, scores were averaged across items to form a scale score. The scale achieved reasonable reliability in our sample, with a Cronbach's  $\alpha$  of 0.96.

Section 5 assessed social support, which referred to the opportunities available for the individual to receive assistance from other groups in the social environment. This social support scale was created by Xiaoshuiyuan in 1986 and publicly introduced in 1994. It comprises a 10-item scale that classifies social support into subjective support, objective support and support utilisation. Subjective support was measured by four items: (1) How many friends you can get support from. (2) The relationship between you and your neighbours. (3) The relationship between you and your colleagues. (4) Support and care from family members. Objective support was measured by three items: (5) Living conditions in the last year. (6) Financial support in case of an emergency. (7) Comfort and care in case of an emergency. Lastly, support utilisation was measured by three items: (8) How do you express feelings when you are in trouble. (9) How do you seek help when you are in trouble. (10) The frequency with which you participate in group activities.<sup>25</sup> Each item was scored on a scale of 1 to 4. Within each subscale, the score for each item was added to form a subscale score. Total social support was the sum of the three

subscale scores. The Cronbach's  $\alpha$  values for the individual scales ranged from 0.89 to 0.94. In the present study, the scale demonstrated appropriate reliability.

### Data analysis

Data were processed using Epidata and were double-entered to ensure quality. Sample characteristics were analysed using SPSS V.19.0. Descriptive statistics were reported for socioeconomic and demographic characteristics, physical health, life satisfaction, and social support in urban and rural areas. Mean differences were examined using t-tests, and categorical variable differences were examined using  $\chi^2$  tests, with the significance set at  $p < 0.05$ . The factors influencing willingness to receive eldercare in urban and rural areas were analysed using logistic regression, set at  $p < 0.05$ . In this study, the outcome variable was willingness to receive eldercare (0 for family eldercare, 1 for institutional eldercare). Based on the literature review and the aims of this study, 15 independent variables were identified as potential factors, including socioeconomic and demographic characteristics, physical health, life satisfaction, and social support.

The normal distributions of the continuous variables were verified using P-P plots and K-S tests. All study variables were tested for multicollinearity.

### Patient and public involvement

This study did not involve patients and the public.

## RESULTS

### Socioeconomic and demographic characteristics of respondents

Table 1 shows the socioeconomic and demographic characteristics of the participants. The questionnaire was completed by 581 respondents from urban areas and 422 from rural areas. In urban areas, 41.0% of respondents were male and 59.0% were female; the average age was 74.23 years. In rural areas, the average participant age was 72.39 years, with more men (55.9%) than women (44.1%). The income of the urban elderly was higher than that of the rural elderly. Most participants (91.6% in urban areas, 93.8% in rural areas) did not work. Most had children (97.6% urban, 90.8% rural), while 19.4% of the urban elderly lived alone compared with 18% of the rural elderly. The proportions of urban and rural elderly who had house property were quite similar (62.1% and 60.2%, respectively). In addition, respondents suffering from chronic diseases in urban and rural areas were 76.6% and 72.0%, respectively.

### Physical health, life satisfaction and social support of urban and rural elderly

T-test results are shown in table 2. There were statistically significant differences in life satisfaction ( $t=6.71$ ,  $p < 0.001$ ), support utilisation ( $t=10.706$ ,  $p < 0.001$ ) and overall social support ( $t=3.5$ ,  $p < 0.001$ ) in relation to place

**Table 1** Socioeconomic and demographic characteristics of urban and rural respondents

Variables	Urban 581 (100) N (%)	Rural 422 (100) N (%)	Total 1003 N
Sex			
Male	238 (41.0)	236 (55.9)	474
Female	343 (59.0)	186 (44.1)	529
Age (range ≥ 60 years)			
<70	238 (41.0)	270 (64.0)	508
70–79	171 (29.4)	109 (25.8)	280
≥80	172 (29.6)	43 (10.2)	215
Mean±SD	74.23±25.71	72.39±46.24	73.45±35.80
Monthly income (¥)			
<500	11 (1.9)	209 (49.5)	220
500–999	23 (4.0)	111 (26.3)	134
1000–1999	126 (21.6)	73 (17.4)	199
2000–2999	258 (44.4)	20 (4.7)	278
≥3000	163 (28.1)	9 (2.1)	172
Work			
Yes	49 (8.4)	26 (6.2)	75
No	532 (91.6)	396 (93.8)	928
Education			
Primary school or below	192 (33.1)	330 (78.2)	522
Middle and high school	318 (54.7)	88 (20.9)	406
Junior college or above	71 (12.2)	4 (0.9)	75
Have children			
Yes	567 (97.6)	383 (90.8)	950
No	14 (2.4)	39 (9.2)	53
Marriage status			
Single/widowed/divorced	273 (47.0)	137 (32.5)	410
Married	308 (53.0)	285 (67.5)	593
Living arrangements			
Alone	113 (19.4)	76 (18.0)	189
With children or others	468 (80.6)	346 (82.0)	814
House property			
Yes	361 (62.1)	254 (60.2)	615
No	220 (37.9)	168 (39.8)	388
Chronic diseases			
Yes	445 (76.6)	304 (72.0)	749
No	136 (23.4)	118 (28.0)	254

of residence, with scores being higher for urban respondents than rural respondents.

#### Willingness to receive eldercare

Table 3 shows the results of the  $\chi^2$  tests. The results indicated that 51.6% of the urban elderly and 59.0% of the rural elderly would prefer family eldercare. There were statistically significant differences in willingness to

receive eldercare between the urban and the rural elderly ( $\chi^2=5.359$ ,  $p=0.021$ ).

#### Physical health, life satisfaction and social support among urban and rural elderly in their preferences for family or institutional eldercare

Table 4 shows the mean levels of physical health, life satisfaction and social support of urban and rural elderly and the



**Table 2** Physical health, life satisfaction and social support of urban and rural elderly

	Scale range	Urban Mean±SD	Rural Mean±SD	t	P values
Physical health	1–5	3.26±1.02	3.36±0.91	–1.740	0.088
Life satisfaction	5–35	26.53±5.73	23.80±6.78	6.710	<b>0.000</b>
Objective support	1–20	6.85±2.28	6.33±2.17	–0.395	0.693
Subjective support	8–32	19.34±4.65	19.38±5.09	–0.142	0.885
Support utilisation	3–12	6.67±2.64	4.94±2.42	10.706	<b>0.000</b>
Overall social support	12–64	32.29±7.14	30.66±7.41	3.500	<b>0.000</b>

differences in their willingness to receive family or institutional eldercare.

In urban areas, the elderly who preferred family eldercare reported significantly higher scores for subjective support ( $t=4.788$ ,  $p<0.001$ ), objective support ( $t=7.961$ ,  $p<0.001$ ) and overall social support ( $t=5.667$ ,  $p<0.001$ ).

In addition, in rural areas, the scores for subjective support ( $t=2.969$ ,  $p=0.002$ ), objective support ( $t=4.197$ ,  $p<0.001$ ) and overall social support ( $t=3.459$ ,  $p=0.001$ ) were higher among the elderly who preferred family eldercare.

### Factors influencing willingness to receive eldercare

Table 5 shows the two models used to assess the factors influencing willingness to receive eldercare in urban and rural areas.

Model 1 was used to analyse the factors influencing willingness to receive eldercare in urban areas. The results showed that age, house property and objective support were predictors of willingness to receive institutional eldercare. Compared with those under 70 years, the elderly who were older than 80 years (OR 2.791, 95% CI 1.644 to 4.737,  $p<0.001$ ) were more likely to choose institutional eldercare. Participants with house property (OR 0.494, 95% CI 0.329 to 0.740,  $p=0.001$ ) reported less willingness to receive institutional eldercare. When

**Table 3** Comparison of willingness to receive eldercare between urban and rural areas

	Urban areas N (%)	Rural areas N (%)	$\chi^2$	P value
Willingness to receive institutional eldercare	281 (48.4)	173 (41.0)	5.359	<b>0.021</b>
Willingness to receive family eldercare	300 (51.6)	249 (59.0)		
Total	581 (100)	422 (100)		

Bold value indicates  $<0.05$ .

objective support increased by one grade, willingness to receive institutional eldercare decreased by 0.236 (OR 0.764, 95% CI 0.681 to 0.858,  $p<0.001$ ).

Model 2 was used to assess the predictors of willingness to receive eldercare in rural areas. The results showed that rural elderly who had children (OR 0.368, 95% CI 0.146 to 0.930,  $p=0.035$ ) and had house property (OR 0.371, 95% CI 0.231 to 0.596,  $p<0.001$ ) were less willing to choose institutional eldercare. The elderly who lived alone (OR 3.361, 95% CI 1.436 to 7.866,  $p=0.005$ ) were more willing to choose institutional eldercare.

## DISCUSSION

By examining urban and rural samples, this study provides new insights into urban-rural differences, to compare differences in willingness to receive eldercare between urban and rural areas and to analyse their influencing factors. This study's findings can serve as a practical reference for policy making related to the elderly and for eldercare resource allocation between family and institutional eldercare. Moreover, this research can help guide investors in providing suitable services for different types of elderly people.

First, we examined differences in the physical health, life satisfaction and social support of urban and rural elderly. Researchers and managers have extensively studied the topic of improving life satisfaction for the elderly. The present study found that life satisfaction is higher in urban areas than in rural areas (table 2), which is consistent with previous studies.<sup>26</sup> Several factors might have contributed to these findings. First is the influence of income. One study noted that higher economic levels provide more protection, thus maintaining and improving life satisfaction.<sup>27</sup> In the present study, the urban elderly had higher incomes than the rural elderly. Another reason concerns the impact of physical health. Being ill affects daily life and causes pain, which reduces life satisfaction.<sup>28</sup> China's two-dimensional urban-rural structure has resulted in great differences in living standards and convenience, which most certainly influence differences in life satisfaction.<sup>29–31</sup>

Regarding social support, the subscale of support utilisation and overall social support were higher for the urban elderly than for the rural elderly (table 2). These results are consistent with previous research.<sup>32–33</sup> Social support was the main source of relationships and social networks, and it created a sense of happiness for members.<sup>34</sup> In Taiwan, higher cognitive functioning among community-living elderly was associated with increased social support.<sup>35</sup> Another study found that social relations played an important role in elderly health.<sup>36</sup> Therefore, it is important to take measures to ensure social support for the elderly. First, communities should build activity centres based on the actual situation of the elderly. In addition, participatory programmes should be improved.<sup>37</sup> Many participatory programmes for older people, such as village services in England and formal social activity

**Table 4** Physical health, life satisfaction and social support of urban and rural elderly in relation to preference for family or institutional eldercare

	Urban areas				Rural areas			
	Family eldercare	Institutional eldercare	t	P values	Family eldercare	Institutional eldercare	t	P values
	Mean±SD	Mean±SD			Mean±SD	Mean±SD		
Physical health	3.21±1.04	3.31±0.99	-1.252	0.211	3.37±0.95	3.36±0.84	0.126	0.902
Life satisfaction	26.53±5.76	26.53±5.70	-0.008	0.994	23.52±6.77	24.20±6.81	-1.022	0.307
Subjective support	20.21±4.55	18.40±4.57	4.788	<b>0.000</b>	20.01±4.64	18.48±5.55	2.969	<b>0.002</b>
Objective support	6.97±2.10	5.54±2.24	7.961	<b>0.000</b>	6.70±2.09	5.81±2.20	4.197	<b>0.000</b>
Support utilisation	6.67±2.59	6.65±2.71	0.110	0.913	4.97±2.44	4.89±2.39	0.363	0.717
Overall social support	33.87±7.02	30.59±6.89	5.667	<b>0.000</b>	31.69±6.97	29.19±7.77	3.459	<b>0.001</b>

Bold values indicate <0.05.

support networks in the Philippines,<sup>38</sup> have shown that the elderly who participate in social activities have a corresponding increase in their level of support utilisation.

Next, we examined differences in willingness to receive eldercare among urban and rural elderly. The proportion of urban elderly who chose institutional eldercare was higher than that of rural elderly. This result is consistent with other findings showing that rural elderly have less favourable opinions of institutional eldercare and prefer home care.<sup>5,39</sup> This phenomenon can be attributed to rural elderly holding strong traditional views about eldercare.<sup>11</sup>

We also found that in both urban and rural areas, willingness to receive family eldercare was higher than the willingness to receive institutional eldercare (table 3). This suggests that family eldercare is still the primary choice among China's elderly. Nevertheless, the proportion willing to receive institutional eldercare was very high in both urban and rural areas (more than 40%). At the end of 2016, 230 million people in China were over 60 years, with 7.302 million available beds,<sup>2,40</sup> which could meet the needs of only 3.2% of the elderly. As such, there is a shortfall in available eldercare beds. Interestingly, while many elderly said they preferred institutional eldercare, many did not actually seek services at such institutions. One reason could be that the facilities, fees and nursing at eldercare institutions do not meet the needs of the elderly. Thus, to develop better eldercare services, more research is needed on preferences among the elderly.

Lastly, we compared willingness to receive eldercare and its influencing factors among urban and rural elderly. The results can help to divide the elderly into different categories, which, in turn, can support the reasonable allocation of eldercare resources to better meet elderly needs.

The results showed that both urban and rural elderly who had a house property were more inclined to choose family eldercare (table 5). We also found different factors influencing willingness to receive eldercare among urban and rural elderly.

The elderly in urban areas who were over 80 years old and received lower objective support preferred institutional eldercare (table 5). This could be because the self-care ability of the elderly declines with age. When family provided care is inadequate, the elderly require more professional care.<sup>41</sup>

In the single-factor analysis, objective support and subjective support influenced willingness to receive eldercare (table 4). Liu noted that the elderly tend to stay in their existing living environment to maintain their established social support.<sup>17</sup> This means that when objective and subjective support meet elders' needs within the family and community, the elderly are more inclined to choose family eldercare. However, when logistic regression analysis was performed on demographic and economic factors, physical health and life satisfaction, only objective support affected willingness to receive eldercare (table 5). Objective support includes individual social networks as well as financial and emotional support from others. The elderly have a fundamental need for emotional and informational communication with families and society, which gives them spiritual consolation. Therefore, when objective support meets the needs of the elderly, they prefer to receive home care.<sup>42</sup>

The rural elderly who had children and lived with family preferred family eldercare (table 5). Other studies have obtained similar results.<sup>43–46</sup> The elderly who have children tend to choose family eldercare regardless of whether they have social support. There is a traditional concept that raising children ensures warmth in old age, which is part of the culture and a kind of eldercare strategy for rural residents.<sup>47</sup> According to some elderly, if they live in an eldercare institution, their children might be considered unfilial and could be ridiculed.<sup>48</sup>

## CONCLUSION

This study investigated differences in willingness to receive eldercare and the influencing factors among urban and rural elderly.

**Table 5** Logistic regression analysis on the factors influencing willingness to receive eldercare among urban and rural elderly

Variables	Model 1: urban areas			Model 2: rural areas		
	OR	95% CI	P values	OR	95% CI	P values
Sex (ref = male)						
Female	1.086	0.732 to 1.612	0.682	0.857	0.536 to 1.372	0.521
Age (ref =< 70 years)						
70–79	1.309	0.836 to 2.050	0.239	0.750	0.438 to 1.286	0.296
≥80	2.791	1.644 to 4.737	<b>0.000</b>	1.831	0.826 to 4.060	0.137
Monthly income (¥) (ref =< 500)						
500–999	0.161	0.029 to 0.891	<b>0.036</b>	1.625	0.939 to 2.811	0.083
1000–1999	0.394	0.088 to 1.760	0.222	1.611	0.847 to 3.067	0.146
2000–2999	0.349	0.079 to 1.548	0.166	1.717	0.580 to 5.077	0.329
≥3000	0.316	0.069 to 1.443	0.137	1.002	0.178 to 5.645	0.998
Work (ref = no)						
yes	1.077	0.553 to 2.099	0.827	2.163	0.854 to 5.477	0.104
Education (ref = primary school and below)						
Junior college and above	1.506	0.775 to 3.003	0.245	0.484	0.040 to 5.848	0.568
Middle school and high school	1.484	0.930 to 2.367	0.098	1.609	0.913 to 2.834	0.100
Have children (ref = no)						
Yes	0.611	0.161 to 2.314	0.468	0.368	0.146 to 0.930	<b>0.035</b>
Marriage status (ref = married)						
Single/widowed/divorced	0.697	0.401 to 1.213	0.202	0.622	0.307 to 1.259	0.187
Living arrangement (ref = with children and others)						
Alone	0.982	0.563 to 1.713	0.949	3.361	1.436 to 7.866	<b>0.005</b>
House property (ref = no)						
Yes	0.494	0.329 to 0.740	<b>0.001</b>	0.371	0.231 to 0.596	<b>0.000</b>
Chronic disease (ref = no)						
Yes	1.254	0.794 to 1.982	0.332	1.451	0.861 to 2.448	0.162
Physical health	1.140	0.927 to 1.403	0.216	0.979	0.742 to 1.292	0.882
Life satisfaction	1.009	0.972 to 1.049	0.630	1.020	0.980 to 1.061	0.340
Subjective support	0.962	0.916 to 1.011	0.126	0.963	0.908 to 1.020	0.200
Objective support	0.764	0.681 to 0.858	<b>0.000</b>	0.959	0.835 to 1.102	0.557
Support utilisation	1.017	0.943 to 1.097	0.666	1.039	0.942 to 1.147	0.446

Bold value indicates <0.05.

CI, CI code; family eldercare=0; institutional eldercare=1; ref, reference categories.

This study provides valuable findings. We found that 51.6% of urban elderly and 59% of rural elderly would prefer family eldercare. Although both urban and rural elderly preferred family eldercare, the proportion of those willing to receive institutional eldercare was high. In the future, we should focus on improving the functioning of family eldercare and promote the development of varied eldercare services.

We also found that the factors influencing willingness to receive eldercare among urban elderly were age, house property and objective support. Among rural elderly, the factors were having children, house property and living arrangement. Investments and targeted policies should be conducted for different subgroups of urban and rural

elderly. In addition, governments should improve medical and endowment insurance, and optimise the disposition of resources for the elderly according to the demand for eldercare.<sup>49</sup>

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**Data sharing statement** Data will not be shared because, when we sought informed consent from the participants, we promised them that we would not disclose their information.

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