Questionnaire survey of elderly people's willingness to combine medical and health care and related factors

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Background: The problem of global aging was becoming increasingly prominent. At present, the empty nest and miniaturization of family structure reduce the function of home-based elderly care.**Methods**: A questionnaire survey was conducted on 347 elderly people in multiple communities and nursing homes in eastern coastal cities of China, and 13 institutional staff members of 8 nursing institutions that carried out the medical-nursing integration model were interviewed as the research objects. The survey mainly focuses on the basic characteristics of the elderly, the family support system, and the acceptance of medical care and health care. The influencing factors were screened by t test, univariate analysis and multivariate logistic regression analysis. SPSS software was used to test the reliability and validity of the questionnaire, and the Crobach's was 0.792, which can be considered that the questionnaire had good internal reliability. The classification of the questionnaire was reasonable, the reliability of the questionnaire was high, and the internal consistency of the scale was high. According to KMO and Bartlett test, KMO=0.826, χ2=853.731, the degree of freedom was 36, and the p value was 0.000.**Results**: The proportion of male and female respondents was 48.1% and 51.9% respectively. Multivariate logistic regression analysis results showed that gender had no statistical significances on the degree of support for combine medical and health care in the elderly (P>0.05). The results showed that gender, age, marital status, medical insurance type and old-age insurance type had little effect on the support of the combination of medical care and health care for the elderly (P>0.05). Compared with the control group with education below primary school, the elderly with bachelor's degree or above are more willing to support the combination of medical care and health (P<0.05). The registered residence type is more obvious than that of the urban residents (P<0.05).

Compared with the enterprise employees in the control group, the elderly who were employed as migrant workers before retirement were more willing to support the combination of medical care and health (P<0.05). From the perspective of family monthly income, the elderly with family income ≥ 10000 RMB have more obvious support for the combination of medical care and health than the elderly with family monthly income < 3000 RMB in the control group (P<0.05). In terms of the degree of understanding, the degree of understanding and support in different degrees are significantly higher than that in the control group (P<0.05).**Conclusion**: Through multivariate logistic regression analysis, education level, registered residence, pre-retirement occupation and family income are more obvious for the elderly to support medical care and health. it is necessary to increase investment in elderly activity centers, actively carry out activities.

1 **Investigation and research on elderly people's willingness to combine medical and health**

2 **care and related factors in coastal cities in eastern China**

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30 **Abstract**

31 **Background**: The problem of global aging was becoming increasingly prominent. At present, the

32 empty nest and miniaturization of family structure reduce the function of home-based elderly care.

33 **Methods**: A questionnaire survey was conducted on 347 elderly people in multiple communities

34   and nursing homes in eastern coastal cities of China, and 13 institutional staff members of 8

35   nursing institutions that carried out the medical-nursing integration model were interviewed as the

36   research objects. The survey mainly focuses on the basic characteristics of the elderly, the family

37   support system, and the acceptance of medical care and health care. The influencing factors were

38   screened by t test, univariate analysis and multivariate logistic regression analysis. SPSS software

39   was used to test the reliability and validity of the questionnaire, and the Crobach's was 0.792,

40   which can be considered that the questionnaire had good internal reliability. The classification of

41   the questionnaire was reasonable, the reliability of the questionnaire was high, and the internal

42   consistency of the scale was high. According to KMO and Bartlett test, KMO=0.826, $\chi2$=853.731,

43   the degree of freedom was 36, and the p value was 0.000.

44   **Results**: The proportion of male and female respondents was 48.1% and 51.9% respectively.

45   Multivariate logistic regression analysis results showed that gender had no statistical significances

46   on the degree of support for combine medical and health care in the elderly (P>0.05). The results

47   showed that gender, age, marital status, medical insurance type and old-age insurance type had

48   little effect on the support of the combination of medical care and health care for the elderly

49   (P>0.05). Compared with the control group with education below primary school, the elderly with

50   bachelor's degree or above are more willing to support the combination of medical care and health

51   (P<0.05). The registered residence type is more obvious than that of the urban residents (P<0.05).

52   Compared with the enterprise employees in the control group, the elderly who were employed as

53   migrant workers before retirement were more willing to support the combination of medical care

54   and health (P<0.05). From the perspective   of family monthly income, the elderly with family

55   income ≥ 10000 RMB have more obvious support for the combination of medical care and health

56   than the elderly with family monthly income < 3000 RMB in the control group (P<0.05). In terms

57   of the degree of understanding, the degree of understanding and support in different degrees are

58   significantly higher than that in the control group (P<0.05).

59   **Conclusion**: Through multivariate logistic regression analysis, education level, registered

60   residence, pre-retirement occupation and family income are more obvious for the elderly to support

61   medical care and health.it is necessary to increase investment in elderly activity centers, actively

62   carry out activities.

63   **Key words**: Medical and health care; willingness; family support; elderly people; related factors.

64   **Introduction**

65   At present, the problem of global aging was becoming more and more prominent, and our country

66   was also in a period of rapid development of population aging. Up to November 2020, there were

67   approximately 264 million people over 60 years old in my country, accounting for 18.7% of the

68   total population. It is estimated that by 2025, the number of elderly people aged 65 and above in

69   China will reach 200 million, and the aging of China's population is deepening, and the trend will

70   be irreversible (J. Han, 2022; None, 2021). At present, indicators such as average life expectancy

71   and mortality are still an important basis for measuring health status in China (Kang et al., 2021;

72   Si et al., 2021). With the aging and disability of the population becoming more and more

73   prominent, it is still extremely challenging to meet the needs of elderly care services and medical

74   care, increase the life expectancy of the population, reduce the mortality rate, and promote national

75   health. The traditional community-based home-based elderly care and most elderly care

76   institutions are mainly based on life care, lack of one-stop medical care and health care services,

77   and cannot fully meet the medical service needs of the elderly. Under this premise, the elderly

78   have increased demand for medical care and health care, and the governments of coastal cities in

79   eastern China are also demand-oriented, and actively promote the construction of integrated

80   medical care and health care projects such as home care, community care, and day care.

81   "Medical" includes outpatient services and rehabilitation physiotherapy, "Health care" includes

82   daily care and emotional support (Zhang, Wang, Jin, & Jiang, 2017). Combine medical and health

83   care advocates the early intervention and integration of medical resources into elderly care

84   services, so as to meet the needs of elderly care services and medical services for the elderly, while

85   promoting national health. However, the implementation of the integration project of medical care

86   and health is affected by the government level and the personal will of the elderly (B. Wang, Liu,

87   Zheng, Wang, & Zhang, 2021; C. Wang et al., 2022). At the government level, the smooth

88   connection between medical and health care and elderly care services is insufficient, the quality of

89   medical care and elderly care services needs to be improved, and relevant economic and technical

90   policy support needs to be improved, which affect the construction of combine medical and health

91   care projects. In terms of personal wishes, the elderly are more likely to choose home care.

92   However, the empty nest and miniaturization of the current family structure reduces the function

93 of home care; at the same time, the increase in the family structure of "4-2-1", "4-2-2" and even

94 "4-2-3" caused by the birth policy has caused certain obstacles to the advancement of combine

95 medical and health care (L. Liu, Chen, Ying, & Leng, 2019). Therefore, we aimed to study elderly

96 people's willingness to combine medical and health care and related factors in coastal cities in

97 eastern China and to analyze the relevant factors, in order to build a local integrated service

98 innovation model of combine medical and health care, which are suitable for the social conditions

99 and strategic and institutional background of coastal cities in eastern China.

100 **Objects and Methods**

101 **Research object**

102 This research was based on 2 typical communities and 8 nursing homes in eastern coastal cities in

103 China, one of the first batch of 50 "national pilot units for the combination of medical care and

104 maintenance" were used as research carriers. A total of 354 questionnaires were distributed, and

105 347 were actually recovered, with a recovery rate of 98.0%. Inclusion criteria: ① age $\geq$ 60 years;

106 ② Be aware and able to complete the questionnaire independently or with the assistance of others;

107 ③ Residence in eastern coastal cities in China $\geq$ 1 year.

108 **Ethical statement**

109 This study was approved by the Ethics Committee of Zhejiang Hospital (2020, No. 115 and 2021,

110 No 75k), and all elderly people had signed informed consent forms.

111 **Research methods**

112   In June 2021, through a large number of literature review, a questionnaire was formulated for the

113   medical care of the willingness and influencing factors of the elderly in Eastern coastal cities in

114   China. With the strong support of the school of Humanities and management of Zhejiang Chinese

115   Medical University a college student practice group was established to investigate this theme.

116   Before this investigation, the members of the research group shall conduct unified training for the

117   members of the practice group to ensure that the members of the practice group use unified

118   guidelines. The survey was conducted in some communities and nursing homes in Eastern coastal

119   cities in China by convenient sampling. The survey was conducted by questionnaire and written

120   questionnaire. For the elderly who can independently operate the mobile phone questionnaire star,

121   the questionnaire star method was adopted for the survey. For the elderly who cannot use the

122   mobile phone to answer, the members of the practice group conducted the survey in the form of

123   question and answer.

124   **Research tools**

125   This study followed the relevant spirit of the State Council's "guiding opinions on promoting the

126   combination of medical and health care and elderly care services" (Y. Han & Li, 2018) and

127   "Hangzhou measures for promoting the integration of medical and health care and intelligent

128   medical services" (None, 2015). Referring to the ADL self-care theory, the members of the

129   research group compiled a questionnaire on the willingness of the elderly in Eastern coastal cities

130   in China to combine medical care and health and related factors. The questionnaire survey included

131   general information, mental health, physical status, family support system, acceptance of the

132   integration of medical care and health, etc. The preparation process of the questionnaire was as

133   follows: Through a large number of literature review, the interview outline of the influencing

134   factors of medical maintenance and health was formulated. Eight elderly people were interviewed

135   in the Second Affiliated Hospital of Zhejiang Chinese Medical University and Zhejiang hospital

136   to collect the core information of the elderly about medical care and health. Through SPSS

137   software to test the reliability and validity of the questionnaire, it is concluded that Crobach's was

138   0.792, which can be considered that the questionnaire had good internal reliability. The

139   classification of the questionnaire was reasonable, the reliability of the questionnaire was high,

140   and the internal consistency of the scale was high. According to KMO and Bartlett test,

141   KMO=0.826, $\chi2$=853.731, the degree of freedom was 36, and the p value was 0.000. It showed

142   that the correlation between various factors was very strong, and the results were scientific and

143   reliable.

144   **Quality Control**

145   In July 2021, with the support of the School of Humanities and Management of Zhejiang

146   University of Traditional Chinese Medicine, a college student practice group named "Beautiful

147   Zhejiang Practice Group" was established to conduct research on this theme. Before the official

148   start of the research, the members of the practice group conduct unified training to ensure that the

149   members of the practice group use unified guidelines to explain the research purpose and filling

150   method to the research subjects when collecting data, so as to gain the trust and cooperation of the

151   research subjects. During the investigation, all questionnaires and interviews were conducted

152   independently and anonymously, without involving the personal privacy of the respondents and

153   the interviewees, and the true thoughts of the respondents were collected as much as possible.

154   During the data entry process, data checkers repeatedly analyze and proofread the data to ensure

155   the accuracy and reliability of the data.

156   **Pilot scale study**

157   Before the formal investigation, a representative community in the coastal cities and municipalities

158   in eastern China that has developed a model of combining medical care, nursing and health care -

159   Fuyang Ruifeng Senior Apartment Community, and two elderly hospitals - Zhejiang Hospital and

160   Xihu District Integrated Traditional Chinese and Western Medicine Hospital were selected. A 3-

161   day pre-survey was conducted among 90 senior citizens. At the same time, 13 institutional staff

162   members from 4 elderly care institutions of different levels and types were selected for interviews,

163   considering the heterogeneity factors such as geographical location and scale. According to the

164   results of the pre-investigation and the interview content of the staff, the content of the

165   questionnaire was modified and deleted, and the structure was adjusted so that the elderly could

166   better understand the questions and answer them independently.

167   **Sample size calculation**

168   This survey uses convenience sampling to select 2 typical communities and 8 nursing homes in

169   eastern coastal cities and cities in China, one of the first batch of 50 "national pilot units for the

170   combination of medical care and maintenance", as research carriers. In order to obtain higher

171 accuracy, the confidence level was determined as 95% (=1.962), the maximum allowable absolute

172 error was 8% (μ=0.08). According to the maximum value of P=0.5, the initial sample size was

173 determined as 286, and 354 questionnaires were actually recovered. 347 copies, with a recovery

174 rate of 98.0%. To ensure the accuracy of the data, the investigators uploaded the survey data in

175 real time on the terminal.

176 **Statistical analysis**

177 The data set was established with Excel 2017 and imported into SPSS 21.0 software package for

178 statistical analysis. The frequency, composition ratio and are used for statistical description. T-test,

179 one-way ANOVA and multiple linear regression analysis were used to analyze the influencing

180 factors of family medical maintenance integrated service demand. The difference was statistically

181 significant ($P < 0.05$).

182 **Results**

183 **Basic Patient Information**

184 According to the purpose and object of the survey, the basic information of the surveyed elderly,

185 such as gender, age, education level, marital status, medical insurance, pension insurance type and

186 monthly family income, were analyzed as follows (**Figure 1**). 48.1% of men and 51.9% of women

187 participated in the questionnaire. Among them, 37.5% were aged 60-65, 13.3% were aged 66-70,

188 15.6% were aged 71-75, 9.5% were aged 76-80 and 24.2% were aged over 80. The number of

189 people with education level of primary school and below accounted for 27.7%, that of junior high

190   school and senior high school accounted for 41.8%, and that of college and above accounted for

191   30.6%. 76.9% were married, 2% were unmarried, 17.6% were widowed and 3.5% were divorced.

192   The number of people without medical insurance accounted for 6.6%, and the number of people

193   with commercial medical insurance accounted for 9.8%.   The new rural cooperative insurance

194   accounted for 21%, the medical insurance for urban residents accounted for 14.1% and the medical

195   insurance for urban employees accounted for 42.7%. Both commercial insurance and medical

196   insurance accounted for 5.8%. The number of people without endowment insurance accounted for

197   15.3%, the number of people whose endowment insurance was government organs and institutions

198   accounted for 33.7%, urban employees or urban and rural residents account for 36%, land

199   expropriated farmers accounted for 7.5%, and commercial insurance accounted for 7.5%. 13.3%

200   of households have a monthly income of less than 3000 RMB, 25.1% have a monthly income of

201   3000-5999 RMB, 31.7% have a monthly income of 6000-9999 RMB, and 30% have a monthly

202   income of 10000 RMB or more.

203   **Residents' cognition of the combination of medical and health care**

204   Residents have a high level of awareness of the combination of medical care and health. Well

205   known, know and better known (63.4%), little known and unknown (35.6%). The cognitive level

206   of residents aged 60-80 was more than 60%, and the cognitive level of residents over 80 was lower

207   than that of other age groups ($\chi2=43.925$,P<0.05). The higher the education level of the elderly,

208   the higher the recognition of the medical and health care ($\chi2=65.490$,P<0.05). Registered

209   residence type, urban residents' awareness of medical and health care combination was higher than

210   that of suburban residents (χ2=28.331,P<0.05). The overall cognitive level of married residents

211   was significantly higher than that of residents with other marital status (χ2=32.027,P<0.05).

212   Residents whose occupation before retirement was enterprise employees and national civil

213   servants have higher cognition (χ2=51.861,P<0.05). Residents whose medical insurance was

214   commercial insurance or commercial insurance and medical insurance have higher overall

215   cognition than residents with other medical insurance (χ2=64.252,P<0.05). Residents without

216   pension insurance have higher awareness than other residents (χ2=27.857,P<0.05). The higher

217   the monthly family income, the higher the residents' cognition (χ2=43.312,P<0.05) (**Table 1**).

218   **Family situation**

219   Residents' overall support for the combination of medical and health care was relatively high. The

220   family monthly income was higher, the residents' support for the combination of medical and

221   health care was higher. The residents willing to spend 1000-1999 RMB and ≥ 4000 RMB per

222   month for the combination of medical and health care have a higher degree of support than other

223   spending levels. In the survey, 7 elderly people have no children. After excluding 7 the elderly,

224   the data showed that 98.5% of their children support, support and very much support the

225   combination of medical care and health. The higher level of support of children, the higher level

226   of support of the elderly (**Table 2**).

227   **Willingness to combine medical care with health care**

228   More than 95% of the elderly and their children supported the combination of medical and health

229   care. In the survey, the higher the understanding of the combination of medical and health care,

230   the higher the degree of support (χ2=49.694,P<0.05) (**Table 3, Figure 2**).

231   **Multivariate logistic regression analysis**

232   Based on the χ2 test, this study combined with multivariate ordered logistic regression analysis.

233   To explore the influence of various factors on the willingness of the elderly to combine medical

234   and health care in Eastern coastal cities in China, a multi-factor ordered logistic regression analysis

235   was carried out on 347 cases. The results showed that gender, age, marital status, medical insurance

236   type and old-age insurance type had little effect on the support of the combination of medical and

237   health care for the elderly (P>0.05). In terms of educational level, compared with the control group

238   with education below primary school, the elderly with bachelor's degree or above are more willing

239   to support the combination of medical and health care (P<0.05). The registered residence type was

240   more obvious than that of the urban residents (P<0.05). In terms of occupation, compared with the

241   enterprise employees in the control group, the elderly who were employed as migrant workers

242   before retirement were more willing to support the combination of medical and health care

243   (P<0.05). From the perspective of family monthly income, the elderly with family income ≥ 10000

244   RMB have more obvious support for the combination of medical and health care than the elderly

245   with family monthly income < 3000 RMB in the control group (P<0.05). In terms of the degree of

246   understanding, the degree of understanding and support in different degrees are significantly

247   higher than that in the control group (P<0.05) (**Table 4**).

248   **Discussion**

The current situation of China's national conditions

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250 At present, China is in the rapid development stage of population aging. The aging problem was

251 serious and causes social anxiety. The elderly have no home and nowhere to go. The disabled and

252 retarded elderly stay in medical institutions and consume medical resources. However, more and

253 more elderly people are afraid of getting old because they can't get effective care or the cost of

254 care was too high. Medical and health care will provide full-cycle continuous health management

255 and care for the healthy elderly, high-risk elderly, semi-disabled and disabled elderly in different

256 service scenarios. At present, the state has vigorously advocated the combination of medical and

257 health care at the policy level, and encouraged the provision of one-stop medical and health care

258 services for the elderly (Tan, 2019; Zeng & Liu, 2016). The outline of "healthy China 2030" plan

259 clearly proposes to "focus on the whole population and the whole life cycle" and improve the

260 "treatment rehabilitation long-term care service chain".

261 **Analysis of willingness to combine medical and health care and related factors**

262 Whether the policy was implemented in place, in addition to the strong support of government

263 departments was related to the willingness of the elderly to combine medical and health care and

264 related factors. In this study, the willingness to combine medical and health care and related factors

265 was studied in Eastern coastal cities in China. It provides a basis for effectively establishing a

266 medical and health care service system in line with Eastern coastal cities in China and establishing

267 a practical, effective and landing integrated medical care service model. From the single factor

268 analysis of Table 1, we can see that the level of education, pre-retirement occupation, registered

269 residence type and family monthly income affect the cognition level of the elderly to medical and

270 healthy care. And this was consistent with the conclusions of Wu Li group (Jiang, Dong, & Li,

271 2020; Wu, Yao, Li, He, & Xie, 2020). The reason for the analysis was that for this group with high

272 education level, their pre-retirement career will be relatively stable and their family monthly

273 income will be higher. Such groups will also pay more attention to which medical care method

274 was more suitable for themselves. This was also confirmed by the family situation and degree of

275 support in Table 2: the family monthly income was positively correlated with the degree of support

276 for the combination mode of medical and health care, which was also confirmed by the research

277 of Liu Jinlin (J. Liu, Shen, & Chen, 2018). It showed that the elderly's support for medical and

278 health care services was restricted by their economic ability. Their family income was high, and

279 they have a higher ability to bear and pay for medical care and health. The income level was usually

280 positively correlated with the education level. The elderly with higher education level will timely

281 evaluate their health needs and respond positively (Zhuang, Jiang, & Zhang, 2016). The study

282 found that the elderly with registered residence as urban residents were more familiar with the

283 medical maintenance mode while the suburban residents knew less. The reason was that the

284 medical care market in the urban area has developed rapidly and the information has been obtained

285 more thoroughly. On the other hand, affected by the baby boom in the 1960s and the family

286 planning policy in the 1980s, the family aging structure has developed abruptly. In the face of the

287 care work of four elderly people, urban residents with limited accompanying care energy more

288 choose to support the medical care model, and the elderly were also affected by the surrounding

289 population. Due to the pressure of public opinion, more children still chose family pension.

290   Therefore, suburban farmers have limited sources of information on the combination of medical

291   and health care. The degree of children's support for the medical care model affected the elderly's

292   cognition and support for the medical care model, which was consistent with the research

293   conclusions of Liu Liyun et al.(L. Liu et al., 2019).

294   Through multivariate logistic regression analysis, from the perspective of educational level,

295   compared with the control group with education below primary school, the elderly with bachelor

296   degree or above are more willing to support the combination of medical care and health care. The

297   registered residence type was more obvious than that of the urban residents. In terms of occupation,

298   compared with the enterprise employees in the control group, the elderly who were employed as

299   migrant workers before retirement were more willing to support the combination of medical care

300   and health. From the perspective of family monthly income, the elderly with family income $\geq$

301   10000 RMB have more obvious support for the combination of medical care and health than the

302   elderly with family monthly income < 3000 RMB in the control group. In terms of the degree of

303   understanding, the degree of understanding and support in different degrees are significantly

304   higher than that in the control group.

305   **Highlights and Shortcomings**

306   In this study, with the help of a typical community health service center, one of the first batch of

307   50 "national pilot units for the combination of medical care and maintenance" as a carrier, we have

308   an in-depth understanding of the development of combine medical and health care. However, in

309   this study, although 347 valid samples were successfully obtained, which is representative in the

310   eastern coastal cities of China, the sample size still needs to be expanded if it is extended to the

311   whole country. In the future research, information technology can be effectively used to expand

312   the sample size through non-contact methods such as emails and text messages. In addition, there

313   is a bias in the survey of the elderly with dialects. Although the staff will follow the explanation

314   during the survey, the staff will have a certain inductiveness to the elderly, and there may be a

315   certain bias in the results.

316   **Suggestions**

317   Increase investment in elderly activity centers, and actively carry out elderly activities that were

318   beneficial to physical and mental health. Learning health care knowledge, providing healthy diet

319   and spiritual comfort to alleviate the pressure of family and social elderly care, this was an

320   important way to achieve healthy elderly care and healthy aging. It was also necessary to

321   strengthen the training of professional talents and improve the level of elderly care in communities

322   or institutions. The government and elderly care institutions should do a good job in the planning

323   and construction of institutional elderly care in accordance with the demographic characteristics

324   of the local elderly and the development level of elderly care services. And build a group of new

325   elderly care institutions and fully functional elderly care institutions with medical care, elderly

326   care, nursing care, rehabilitation and end-of-life escort. And strengthen the training of

327   professionals with a combination of medical care and nursing, improve the level of institutional

328   care for the elderly, provide convenient and high-quality medical, rescue, rehabilitation, care,

329   comfort and other services for the elderly, sickly, and disabled elderly, and provide satisfactory

330   material and spiritual services.

331   **Conclusion**

332   In this study, the willingness and related factors of the combine medical and health care were

333   studied in the eastern coastal cities of China, in order to effectively establish a localized combine

334   medical and health care in line with the social conditions, strategies and institutional background

335   of the eastern coastal cities in China. It provides a basis for meeting the dual needs of the elderly

336   for medical care and old-age care.

337   Based on the results of this study, we believe that it is necessary to increase investment in elderly

338   activity centers, actively carry out activities that are beneficial to the physical and mental health of

339   the elderly, and improve the level of elderly care in communities and institutions. The government

340   and elderly care institutions should establish fully functional elderly care institutions such as

341   medical care, elderly care, nursing, rehabilitation, and hospice care. To sum up, it is necessary to

342   improve the service level of elderly care institutions, provide the elderly with convenient and high-

343   quality medical, rescue, rehabilitation, nursing, comfort and other services, and provide

344   satisfactory material and spiritual services.

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346

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Figure 1

Basic Information of the elderly
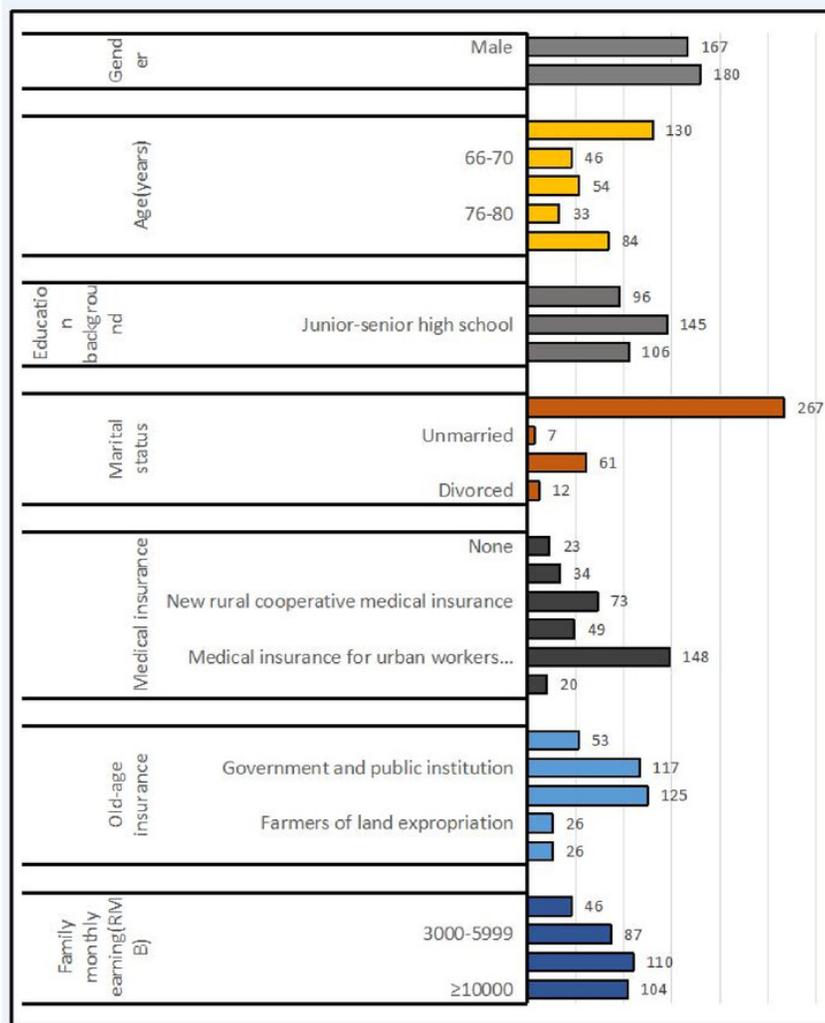
Figure 1. Basic Information of the elderly

Figure 2

Relationship between cognitive level and support level
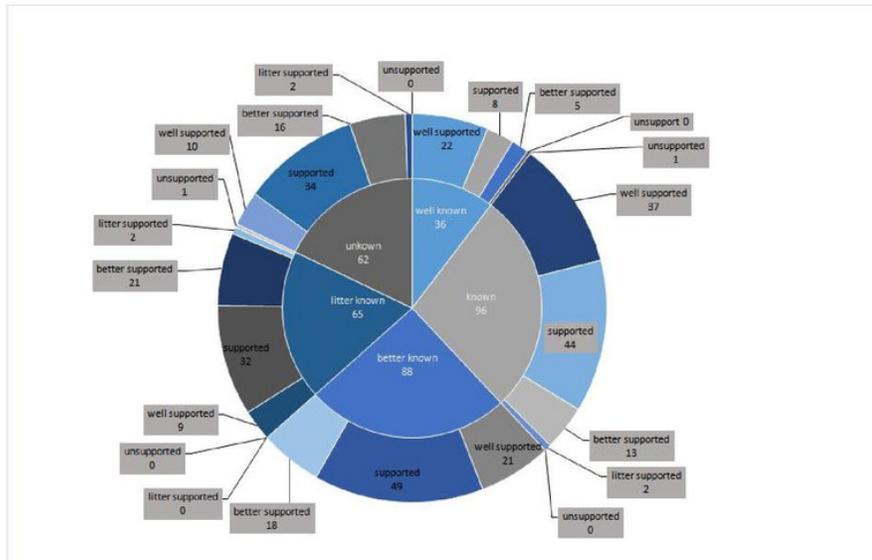
Figure 2. Relationship between cognitive level and support level

The relationship between personal general condition and cognitive condition

1 Table 1 The relationship between personal general condition and cognitive condition(n=347)

Items	Numb						χ^2	
Sex							8.836	0.087
Male	167	16(9.6%)	50(29.9%)	51(30.5%)	28 (16.8%)	2213.2%()		
Female	180	20(11.1%)	46(25.6%)	37(20.6%)	37(20.6%)	40 (22.2%)		
Age (years)							43.923	0.000
60-65	130	17(13.1%)	39 (30.0%)	38 (29.2%)	25 (19.2%)	11(8.5%)		
66-70	46	6 (13.0%)	14(30.4%)	16 (34.8%)	5 (10.9%)	5 (10.9%)		
71-75	54	3(5.6%)	14(25.9%)	18 (33.3%)	12 (22.2%)	7 (13.0%)		
76-80	33	5 (15.2%)	9 (27.3%)	5 (15.2%)	6 (18.2%)	8 (24.2%)		
>80	84	5 (6.0%)	20 (23.8%)	11 (13.1%)	17(20.2%)	31(36.9%)		
Level of education							65.490	0.000
Primary school the following	44	2	7	6	9(20.5%)	20		
Primary school	52	1	9	17	9(17.3%)	16		
Junior high school	69	9	18	12	15	15		
technical secondary school	16	0(0.0%	6	4	5(31.3%)	1(6.3%)		
high school	60	9	19	20	10	2(3.3%)		
junior college	97	14	34	26	16	7(7.2%)		
bachelor degree or above	9	1	3	3	1(11.1%)	1(11.1%)		
Household type							28.331	0.000
Urban residents	239	29	76	63	45	26		
Rural farmers	108	7	20	25	20	36		
Marital status							32.027	0.012
Married	267	31	74	71	55	36		
Single	7	3	0(0.0%)	2	1(14.3%)	1(14.3%)		
Divorced	61	1	18	12	8(13.1%)	22		
Widowed	12	1	4	3	1(8.3%)	3(25.0%)		
Occupation before retirement							51.861	0.000
Enterprise employees	91	14	29	24	19	5(5.5%)		
Civil servants	32	8	12	4	4(12.5%)	4(12.5%)		
Institutions	92	8	28	27	14	15		
Self-employed	37	3	11	10	6(16.2%)	7(18.9%)		

cognition degree

Farmers	36	2	9	9	8(22.2%)	8(22.2%)		
Migrant workers	54	1	7	13	12	21		
Others	5	0	0(0.0%)	1	2(40.0%)	2(40.0%)		
Medical treatment insurance							64.252	0.000
None	23	2 (8.7%)	3 (13.0%)	2 (8.7%)	8 (34.8%)	8 (34.8%)		
Commercial insurance	34	5 (14.7%)	16 (47.1%)	9 (26.5%)	1 (2.9%)	3 (8.8%)		
New rural cooperative	73	6 (8.2%)	12 (16.4%)	16 (21.9%)	11 (15.1%)	28 (38.4%)		
urban residents medical treatment	49	8 (16.3%)	10 (20.4%)	16 (32.7%)	24 (28.6%)	1 (2.0%)		
town worker medical insurance	148	14 (9.5%)	49 (33.1%)	37 (25.0%)	27 (18.2%)	21 (14.2%)		
endowment insurance、Medical insurance	20	1 (5.0%)	6 (30.0%)	8 (40.0%)	4 (20.0%)	1 (5.0%)		
endowment Insurance							27.857	0.020
None	53	3 (5.7%)	18 (34.0%)	18 (34.0%)	5 (9.4%)	9 (17.0%)		
agency institution	117	17	33 (28.2%)	30 (25.6%)	23 (19.7%)	14 (12.0%)		
Urban workers or urban and rural residents	125	14(11.2%)	29 (23.2%)	32 (25.6%)	27 (21.6%)	23 (18.4%)		
land expropriated farmers	26	1 (3.8%)	4 (15.4%)	5 (19.2%)	6 (23.1%)	10 (38.5%)		
business	26	1 (3.8%)	12 (46.2%)	3 (11.5%)	4 (15.4%)	6 (23.1%)		
family monthly income								
<3000 RMB	46	3 (6.5%)	6 (13.1%)	3 (6.5%)	14 (30.4%)	20 (43.5%)	43.312	0.000
3000-5999 RMB	87	7 (8.0%)	25 (28.7%)	23 (26.4%)	14 (16.1%)	18 (20.7%)		
6000-9999 RMB	110	12 (10.9%)	30 (27.3%)	37 (33.6%)	18 (16.4%)	13 (11.8%)		
≥10000 RMB	104	14	35 (33.7%)	25 (24.0%)	19 (18.3%)	11 (10.6%)		

Relationship between family situation and degree of support

Table 2 Relationship between family situation and degree of support

Degree of support Items	Number	Well supported	Support	Better supported	Little supported	Unsupported	χ^2	P
Monthly income							29.919	0.002
<3000 RMB	46	6 (13.0%)	27 (58.7%)	11 (23.9%)	2 (4.3%)	0 (0.0%)		
3000-5999 RMB	87	19 (21.8%)	41(47.1%)	26 (29.9%)	1 (1.1%)	0 (0.0%)		
6000-9999 RMB	110	36 (32.7%)	51 (46.4%)	22(20.0%)	1 (0.9%)	0 (0.0%)		
≥10000 RMB	104	38 (36.5%)	48 (46.2%)	14 (13.5%)	2(1.9%)	2 (1.9%)		
Monthly fee							57.255	0.007
0-999 RMB	94	20 (21.3%)	37 (39.4%)	34 (36.2%)	3 (3.2%)	0 (0.0%)		
1000-1999 RMB	104	27 (26.0%)	65 (62.5%)	12 (11.5%)	0 (0.0%)	0 (0.0%)		
2000-2999 RMB	61	19 (31.1%)	27 (44.3%)	13 (21.3%)	0 (0.0%)	2 (3.3%)		
3000-3999 RMB	31	4 (12.9%)	17 (54.8%)	9 (29.0%)	1 (3.2%)	0 (0.0%)		
≥4000 RMB	57	29 (50.9%)	21(36.8%)	5 (8.8%)	2 (3.5%)	0 (0.0%)		
Degree of child							194.99	0.000
Well supported	106	62 (58.5%)	32 (30.2%)	11 (10.4%)	1(0.9%)	0 (0.0%)		
Support	167	29(17.4%)	104 (62.3%)	30 (18.0%)	3 (1.8%)	1 (0.6%)		
Better supported	62	6 (9.7%)	27 (43.5%)	28 (45.2%)	1 (1.6%)	0 (0.0%)		
Little supported	4	0 (0.0%)	0 (0.0%)	3 (75.0%)	0 (0.0%)	1 (25.0%)		
Unsupported	1	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)		

Relationship between cognitive level and support level

1   **Table 3** Relationship between cognitive level and support level

Degree of support								
Items	Number	Well supported	Support	Better supported	Little supported	Unsupported	χ^2 value	P value
Know or not							49.694	0.000
well Known	36	22 (61.1%)	8 (22.2%)	5 (13.9%)	0 (0.0%)	1 (2.8%)		
know	96	37 (38.5%)	44 (45.8%)	13 (13.5%)	2 (2.1%)	0 (0.0%)		
better Known	88	21 (23.9%)	49 (55.7%)	18 (20.5%)	0 (0.0%)	0 (0.0%)		
Little known	65	9 (13.8%)	32 (49.2%)	21 (32.3%)	2 (3.1%)	1 (1.5%)		
unknown	62	10 (16.1%)	34 (54.8%)	16 (25.8%)	2 (3.2%)	0 (0.0%)		

Multi-factor Logistic regression analysis of the combination of medical, maintenance and health support

1   **Table 4** Multi-factor Logistic regression analysis of the combination of medical, maintenance and health support

Influence factors	β	$S_{\bar{x}}$	Wald value	χ^2 P value	95% confidence interval Upper limit	lower limit
Level of education						
Primary school the following	0.000					
Primary school	-.053	.389	.018	.892	-.815	.709
Junior high school	-.484	.390	1.541	.214	-1.247	.280
technical secondary school	.200	.564	.126	.722	-.906	1.307
high school	-.107	.399	.072	.789	-.888	.675
junior college	-.352	.394	.797	.372	-1.124	.420
bachelor degree or above	-2.576	.873	8.697	.003	-4.287	-.864
Household type						
Urban residents	0.000					
Rural farmers	.642	.259	6.127	.013	.134	1.151
Occupation before retirement						
Enterprise employees	0.000					
Civil servants	-.091	.389	.054	.816	-.853	.671
Institutions	.023	.279	.007	.935	-.525	.571
Self-employed	-.218	.370	.346	.556	-.943	.507
Farmers	.349	.373	.873	.350	-.383	1.081
Migrant workers	.914	.331	7.646	.006	.266	1.562
Others	.363	.865	.176	.675	-1.333	2.059
family monthly income						
<3000 RMB						
3000-5999 RMB	-.081	.360	.051	.821	-.787	.624
6000-9999 RMB	-.615	.357	2.968	.085	-1.315	.085
≥10000 RMB	-.778	.364	4.563	.033	-1.492	-.064
Know or not						
well Known	0.000					
know	.771	.382	4.067	.044	.022	1.520
better Known	1.299	.389	11.125	.001	.536	2.062
Little known	2.038	.414	24.196	.000	1.226	2.849
unknown	1.747	.415	17.764	.000	.935	2.560