



Knowledge, Attitude and Practice of Unintentional Injuries Among Old People in Urban Zunyi, Southwest China

Xue Wang

Department of Epidemiology and Health Statistics, School of Public Health, Zunyi Medical University, Zunyi, Guizhou, China

Huiting Yu

Department of Epidemiology and Health Statistics, School of Public Health, Zunyi Medical University, Zunyi, Guizhou, China

Chan Nie

Department of Epidemiology and Health Statistics, School of Public Health, Zunyi Medical University, Zunyi, Guizhou, China

Chao Wang

Department of Epidemiology and Health Statistics, School of Public Health, Zunyi Medical University, Zunyi, Guizhou, China

Xiuquan Shi*

Department of Epidemiology and Health Statistics, School of Public Health, Zunyi Medical University, Zunyi, Guizhou, China
Department of Epidemiology and Health Statistics, School of Public Health, Zunyi Medical University, Zunyi 563006, Guizhou, China

Abstract

Objective: To describe the KAP (knowledge, attitude and practice, KAP) and explore the influence factors for UIs (unintentional injuries, UIs) among the elderly (aged ≥ 60 years) in urban districts of Zunyi, China. **Methods:** Using random cluster sampling method, a survey was conducted with questionnaires, to collect UIs and related KAP in the elderly and analyze its influencing factors. **Results:** The annual incidence of UIs (falls, burns, traffics, etc.) was 17.46% in some urban districts of Zunyi. Among them, 27.94% elderly regarded UI as a type of disease; the channels to acquire related knowledge through TV (79.05%), listening to others' narration (56.83%), community publicity (26.03%), books or newspapers (22.86%) and internet (9.84%). While 76.51% of the elderly believed that UIs were preventable; 81.59% old people worried about UIs; 93.97% of the elderly chose to seek help when they suffered UIs; and 95.25% of elderly people followed traffic rules when crossing the road. In the case of gas use, 25.77% of the cases were checked and closed each time, 40% and 20% old people would check the time before taking the medicine, and purchasing food. Factors affecting the occurrence of UIs were age, heart disease (both $P < 0.05$). Moreover, the living condition had an effect on "whether considering UIs as a kind of disease" ($P = 0.003$). **Conclusion:** The KAP of UIs in the elderly is not optimistic, though most elderly people think the damage can be prevented; prevention on UIs related behavior needs to be enhanced. We should arouse the public to pay more attentions to keep elderly people far away UIs risk factors in this area.

Keywords: Elderly; Unintentional injuries; Knowledge, Attitude and practice.



CC BY: [Creative Commons Attribution License 4.0](https://creativecommons.org/licenses/by/4.0/)

1. Introduction

UIs (unintentional injuries, UIs), commonly known as accidental injuries, refers to tissue injury, asphyxia, hypoxia, abnormal activity. Treatment or care required, due to the transfer of energy (mechanical energy, chemical energy, thermal energy). UIs is one of the serious disasters that threaten public safety and people's life. Because of the decline in physiological and social functions, the change in psychological state, the elderly have a decreased ability to control the environment and cope with environmental emergencies, making them became a high risk and vulnerable population.

UIs of elderly, in particular, is a growing public health problem in the world, and often led to injured, disability and hospitalization, even it is fatal to people sometimes. Statistical data shown that despite substantial decreases in mortality of UIs between 1990 and 2016 for both HICs (High-income countries, HICs) and LMICs (low- and middle-income countries, LMICs), a large disparity continues to exist between HICs and LMICs [1].

However, the proportion of unspecified unintentional injuries among elderly decreased significantly for many states in the United States from 1999 to 2013 [2]. A regression model shown the proportion of persons aged 65 years or older was the strongest predictor of the incidence of hospitalization for traumatic injury [3], so the injuries seriously threaten the physical health of elderly and affect the quality of life of the elderly. In South Korea, UIs incidence was higher in males than in females, and the mortality and hospitalization rates due to injury per 100,000 persons were the highest among those over 75 years old [4]. Data are for the U.S shown that UIs cause of death rank the fourth in 2015 [5]. Falls are the second leading cause of UIs deaths worldwide and people older than 65 years of age suffer the greatest number of fatal falls [6].

Fall is the major cause of injury in elderly in China, and the proportion of fall in UIs in this population increased with age [7], both the mortality rate and incidence rate of falls the elderly at a high level, which is related to several risk factors in physiological, behavioral and environmental aspects [8]. Studies have shown that the incidence of falls in the elderly can be reduced meanwhile, by raising awareness [9]. Due to the underdeveloped economic condition and lower level of education in the western region, as well as special living customs, the research results, prevention and control experience in the non-western region may not be applicable.

Based on that, our study aimed to investigate and collect the cases of UIs of elderly people, as well as the current situation of KAP (knowledge, attitude and practice; KAP) related to injury prevention in some urban areas of Zunyi, and discussed relevant influencing factors, so as to provide reference for the prevention of injuries of elderly people in western regions.

2. Methods

2.1. The Inclusion/Exclusion Criteria and Study Design

The target population of this study is the permanent population in urban Zunyi, southwest China. The inclusion criteria were as following: (1) People aged 60 and above; (2) The elderly have lived in some urban areas of Zunyi for more than one year; (3) The elderly who are conscious and able to communicate with the investigator; (4) Willing to cooperate with the study after the researcher explained the purpose of the study. Exclusion criteria: (1) Patients who had been paralyzed in bed for nearly 1 year and were hospitalized for a long time; (2) Old people who have severe visual, hearing and speech problems. A random cluster sampling, cross-sectional study were used in our study.

2.2. The Investigation Method and Quality Control

Our study was conducted in urban areas of Zunyi, southwest China. A total of 330 individuals aged no less than 60 years were recruited, and the older adults on multiple community squares and house number of some community residents were selected by a random cluster sampling. All required data were collected through face-to-face interviews using questionnaires. People with a middle school education or above, filled in the questionnaire by themselves. And those only with a primary school education even below, or too old, who cannot fill in the questionnaire by themselves, investigator should fill in the questionnaire according to the interview results of the elderly.

To ensure that the questionnaire can be returned after no missing items and ensure the validity of the questionnaire. The questionnaire were collected on the spot by trained researchers and professionals. Excluding the questionnaires which exist age absence, missing answers of more than 10% and logical errors. EpiData (version 3.02, EpiData Association, Denmark) is used to data entry and carefully audit and proofread it.

2.3. Statistical Analysis

Epidemiological approach was used to conduct the analysis. Microsoft Office Excel (version 2010) and SPSS (version 18.0, IBM Corp., Armonk, NY, USA) were used for data analysis. Count data is represented by frequency and percentage (%). Chi-square tests or rank sum tests were performed to assess the difference in knowledge, attitude and practice of UIs among different age groups. The multivariate logistic regression analysis used to examine possible influence factors related UIs. All tests were two-tailed, and $P < 0.05$ was considered statistically significant.

3. Results

In total, 330 elderly responded to the questionnaire and 315 effective questionnaires were finally sorted out (valid response rate, 95.5%). Male: female was 0.97:1; persons aged 60~69 years, accounting for 49.21%. The majority of elderly lived with their children, accounting for 60.00%; 40.63% of the elderly participated in outdoor activities more than three times a week; 68.57% of the elderly were contact with their neighbors frequently. The incidence rate of UIs (falls, burns, traffic accidents) was 17.46%. Hypertension was the main chronic disease in this population. The most popular daily activity was walking and shopping. (See [table 1](#))

Of the sample, 27.94% elderly regarded UI as a type of disease. The awareness rates of the meaning represented by the emergency Numbers 110 (similar as 911 in USA), 119 and 120, in order from high to low is 110, 120 and 119. In addition, The channels to acquire related knowledge through TV (79.05%), listening to others' narration (56.83%), community publicity (26.03%), books or newspapers (22.86%) and internet (9.84%). Of the result, 76.51% of the elderly believed that UI is preventable; people who worried about UIs accounted for 81.59%; and 75.24% of people were worried about a sudden attack of disease. (See [table 2](#)). There was no significant difference in the worry degree of UIs between different genders, living conditions and types of chronic diseases. It was statistically significant to worry about the degree of injury in different age groups ($P = 0.022$). (See [table 3](#)).

Our study found that 93.97% of the elderly in this area will choose to seek help when they suffering UIs; 50.16% of seniors check the expiration date occasionally when buying food; 65.08% of the elderly will carry communication tools with them; 40% of the elderly check the expiration date before taking any medication; and 64.44% of the elderly have calcium supplements in sometimes. In the case of falls and injuries, 80.64% chose to go to the hospital; 93.37% of them chose to go to the hospital, when the traffic accident occurred; 82.22% of the elderly chose to flee immediately, when the fire broking out. (See [table 2](#))

Compared with men and women, the awareness of falling was the most common injury for the elderly, and they worried about the suddenly disease attacking. Before taking medicine, when buying food, they looked at the

expiration date and occasionally calcium supplementation, and the differences were statistically significant ($P < 0.05$). There were statistically significant differences among different age groups (all $P < 0.05$), they were occurrence of injury, the awareness of whether UI was a disease, the degree of fear of UIs happening, the fear of suddenly disease attacking, looking at expiration date before purchasing food, and the choice of seeking help after injury.

Between the age groups 60~69 years old and 70~79 years old, the knowledge of whether UI is a disease ($P=0.008$); The age groups was between 60~69 years old and 80~91 years old, 70~79 years old and 80~91 years old, and worried about the suddenly disease attacking ($P=0.026$ and $P=0.015$). Between the age groups 60~69 years old and 80~91 years old, whether UIs happened within one year ($P=0.004$). Moreover, living conditions have an impact on the awareness of UI is a disease ($P=0.003$); Age and gender had impact on whether carry a communication tool ($P<0.001$ and $P=0.001$). All were statistically significant (See [table 4](#)). Multivariate logistic regression analysis showed that age and heart disease ($P = 0.002$ and $P = 0.034$) were the factors influencing injury occurrence (See [table 5](#)).

4. Discussion

Our survey found there was a statistically significant difference in the incidence of UIs in some urban areas between age groups 60~69 years old and 80~91 years old. The awareness rate of UIs knowledge was not high among the elderly in some urban areas, while old people's attitudes towards UIs was acceptable. The survey found that age was related to the degree of worrying about UIs happening in old people, and the largest proportion was worry about falls. Living at home alone was an independent risk factor for fall-related mortality (odds ratio, 3.0) [10], the fall is a major cause of emergency fatal and non-fatal injuries to the elderly who more than 65 years old [11], perhaps it is the main reason why older people worry about it. Our study shown it was not optimistic for the elderly to prevent the occurrence of UIs. For the elderly, checking the shut-down situation every time after gas used, checking the expiration date before taking medicine and buying food every time, which was below 40%, lower than the elderly in Jining Province, northeast China [12].

A previous study had shown that the incidence of UIs in the elderly can be reduced meanwhile, by raising awareness [9]. Our survey found it was statistically significant that the awareness of falling was the most common injury among the elderly between men and women. Moreover, the difference in awareness rate of whether UI was a disease was existed between different ages. Clinicians and service providers should consider the differences of awareness in gender and ages when developing strategies for the prevention of UIs among older adults. As it is well known, behavior changes must be based on the enrichment of knowledge. At the same time, it is necessary to have the correct belief and positive attitude as motivation. Different cognitions and attitudes may lead to different behaviors to prevent injuries and to choose different ways to seek help after UIs. Furthermore, it was similar to research [3, 7] that age may affect the incidence of injury

Therefore, we suggested that the level of KAP about UIs prevention could be improved through the following ways:

1. Enhance the family visit function. In view of the poor physical condition of some elderly people, it should be door-to-door propaganda education to constantly consolidate the knowledge and attitude of the elderly about UIs and ask them for less going out.
2. Giving out propaganda materials with sound and pictures, and playing relevant video regularly in the community. Because low education level of the elderly, poor hearing and vision ability, and simple words publicity cannot achieve a satisfactory result.
3. Relevant departments should pay more attention to the high incidence of UIs and advocate various social groups and organizations to care about the physical and mental health of the elderly.

In addition, we should encourage their sons or/and daughters the elderly to carry out education for the elderly and remind the elderly to pay more attention to UIs. For the elderly, due to physical function decline, some bad behaviors may cause UIs and have serious consequences. Therefore, the elderly should be helped to correct wrong behaviors, such as remembering to close the gas valve, concerning the expiration date of food and drug, learning a communication tool, taking ID or contact information even including illness information or first-aid drugs, which can remind other people to offer helps when UIs happen. For the elderly who are worried about falling, exercise or physical therapy and vitamin D supplement are recommended to reduce the risk of falling [13]. Activities with high requirements of attention and body awareness are the most effective prevention for falls in the elderly [14].

There are some limitations in our study. First, our current work is based on a sampling of elderly and the analyses were limited to the sample size. Second, the data were collected in a retrospective cross-sectional study, and the survey aimed at old people aged no less than 60 years old, so some memory error even recall bias could not be avoid.

5. Conclusion

In summary, the awareness rate of the knowledge of UIs was not optimistic to the elderly in urban Zunyi, southwest China. Most of the elderly believe that the injury can be prevented, but the related behaviors of the UIs prevention need to be strengthened, and the targeted prevention measures should be carried out based on the risk factors of UIs.

5.1. Author Statements

5.1.1. Ethical Approval

Our data were collected from the elderly after obtaining their written informed consent, and all analyses were anonymous to protect privacy.

Acknowledgements

This study was granted by special funding for the discipline construction of doctoral degree authorization of Zunyi Medical University (Grant No. 2015-996036; PI: Xiuquan Shi).

Competing Interests

The authors have no competing or conflicting interests

Reference

- [1] Wu, Y., Schwebel, D., and Hu, G., 2018. "Disparities in unintentional occupational injury mortality between high-income countries and low- and middle-income countries: 1990–2016." *International Journal of Environmental Research and Public Health*, vol. 15, pp. 2296-2307.
- [2] Xunjie, C., Yue, W., Jie, Y., David, S., and Guo qing, H., 2016. "Mortality from unspecified unintentional injury among individuals aged 65 years and older by U.S. State, 1999–2013." *International Journal of Environmental Research and Public Health*, vol. 13, pp. 763-771.
- [3] Cook, A., Gonzalez, J., and Balasubramanian, B. A., 2014. "Do neighborhood demographics, crime rates, and alcohol outlet density predict incidence, severity, and outcome of hospitalization for traumatic injury? A cross-sectional study of Dallas County, Texas, 2010." *Injury Epidemiology*, vol. 1, pp. 23-34.
- [4] Kim, A., Song, H., Park, N., Choi, S., and Cho, J., 2018. "Injury pyramid of unintentional injuries according to sex and age in South Korea." *Clinical and Experimental Emergency Medicine*, vol. 5, pp. 84-94.
- [5] CDC-NCHS, 2018. "Accidents or unintentional injuries." Available: <https://www.cdc.gov/nchs/fastats/accidental-injury.htm>
- [6] World Health Organization, 2018. "Falls." Available: <http://www.who.int/en/news-room/fact-sheets/detail/falls>
- [7] Er, Y. L., Duan, L. L., Ye, P. P., Wang, Y., Ji, C. R., and Deng, X., 2016. "Epidemiologic characteristics of fall in old population: Results from national injury surveillance in China, 2014." *Zhonghua liu xing bing xue za zhi*, vol. 37, pp. 24-28.
- [8] Taylor-Piliae, R. E., Peterson, R., and Mohler, M. J., 2017. "Clinical and community strategies to prevent falls and fall-related injuries among community-dwelling older adults." *Nursing Clinics of North America*, vol. 52, pp. 489-497.
- [9] Lee, H. C., Chang, K. C., Tsauo, J. Y., Hung, J. W., Huang, Y. C., and Lin, S. I., 2013. "Effects of a multifactorial fall prevention program on fall incidence and physical function in community-dwelling older adults with risk of falls." *Archives of Physical Medicine and Rehabilitation*, vol. 94, pp. 606-615.
- [10] Evans, D., Pester, J., Vera, L., Jeanmonod, D., and Jeanmonod, R., 2015. "Elderly fall patients triaged to the trauma bay: Age, injury patterns, and mortality risk." *The American Journal of Emergency Medicine*, vol. 33, pp. 1635-1638.
- [11] Goldberg, E. M., Mccreedy, E. M., Gettel, C. J., and Merchant, R. C., 2017. "Slipping through the cracks: A cross-sectional study examining older adult emergency department patient fall history, post-fall treatment and prevention." *Rhode Island Medical Journal*, vol. 100, pp. 18-23.
- [12] Jing-Hua, Z., Li-Yan, G., Ai-Qin, S., and Hai-Xia, Y., 2017. "Survey on the knowledge, attitude and practice of unintentional injuries among the elderly, Jining city." *Preventive Medicine Tribune*, vol. 23, pp. 737-740.
- [13] Moncada, L. V. V. and Mire, L. G., 2017. "Preventing falls in older persons." *American Family Physician*, vol. 96, pp. 240-247.
- [14] Heinimann, N. B. and Kressig, R. W., 2014. "Accidental falls in the elderly." *Praxis*, vol. 103, pp. 767-773.

Table-1. Basic characteristics of old people in urban Zunyi.

| Factors | Persons | Percent (%) | Factors | Persons | Percent (%) |
|--|---------|-------------|----------------------------------|---------|-------------|
| Gender | | | Occurrence UIs? | | |
| Male | 155 | 49.21 | Yes | 55 | 17.46 |
| Female | 160 | 50.79 | No | 260 | 82.54 |
| Age(years) | | | Communicate with children | | |
| 60~69 | 155 | 49.21 | Call or video | 57 | 18.09 |
| 70~79 | 115 | 36.51 | Children go home | 239 | 75.87 |
| 80~91 | 45 | 14.29 | Rare contacts | 16 | 5.08 |
| Living situation | | | No children | 3 | 0.95 |
| Live alone | 38 | 12.06 | | | |
| Live with spouse | 88 | 27.94 | Drinking frequency | | |
| Live with children | 189 | 60.00 | Zero | 266 | 84.44 |
| Non-slip floor? | | | Once | 14 | 4.44 |
| Yes | 166 | 52.70 | Twice | 15 | 4.76 |
| No | 149 | 47.30 | Three times or above | 20 | 6.34 |
| House type | | | | | |
| Apartment for aged | 25 | 7.93 | | | |
| Private house | 95 | 30.16 | Contact with neighbors | | |
| Building with toilet | 185 | 58.73 | Frequently | 216 | 68.57 |
| other | 10 | 3.17 | Occasionally | 75 | 23.81 |
| Frequency of outdoor activities /week | | | Rarely | 16 | 5.08 |
| Everyday | 124 | 39.37 | Never | 8 | 2.54 |
| Once | 29 | 9.21 | | | |
| Twice | 34 | 10.79 | Total | 315 | 100.00 |
| Three times or above | 128 | 40.63 | | | |

Table-2. The KAP of UIs of the old people in urban Zunyi

| Knowledge | n | knowledge rate (%) | Attitude | n | Percen (%) | Practice | n | Percent (%) |
|--------------------------------|-----|--------------------|---|-----|------------|-------------------------|-----|-------------|
| UI is a type of disease | | | UIs | | | Falling | | |
| | 88 | 27.94 | Preventable | 241 | 76.51 | Bandaged oneself | 123 | 39.05 |
| Falling is a common UIs | | | Unpreventable | 74 | 23.49 | Go to hospital | 254 | 80.64 |
| | 216 | 68.57 | Situation of worry about UIs | | | Have nothing | 41 | 13.02 |
| | | | Do not worry | 58 | 18.42 | Looking for help | 106 | 33.65 |
| Know 110 | 198 | 62.86 | Ordinary worry | 83 | 26.35 | Traffic accident | | |
| | | | Worried | 174 | 55.24 | Bandaged oneself | 54 | 17.14 |
| Know 119 | 188 | 46.98 | Worry about a sudden attack of disease | | | Go to hospital | 296 | 93.97 |
| | | | Yes | 237 | 75.24 | Have nothing | 7 | 2.22 |
| Know 120 | 148 | 59.68 | No | 78 | 24.76 | Looking for help | 113 | 35.87 |
| | | | | | | Fire accident | | |
| | | | | | | Flee immediately | 259 | 82.22 |
| | | | | | | Calling119 | 119 | 37.77 |
| | | | | | | Have nothing | 7 | 2.22 |
| | | | | | | Looking for help | 151 | 47.94 |

UIs: Unintentional injuries; KAP: knowledge, attitude and practice.

Table-3. Comparison of anxiety about UIs among the elderly in urban Zunyi

| Factors | | The degree of worry about UIs | | | | | Mean Rank | P-value |
|------------------|---------------------------|-------------------------------|--------|----------|---------|--------------|-----------|---------|
| | | Never worried | Do not | Ordinary | Worried | Very worried | | |
| Gender | | | | | | | | 0.130 |
| | Male | 3 | 21 | 40 | 58 | 33 | 165.59 | |
| | Female | 10 | 24 | 43 | 55 | 28 | 150.65 | |
| Age (years) | | | | | | | | 0.022 |
| | 60~69 | 2 | 20 | 36 | 70 | 27 | 167.03 | |
| | 70~79 | 6 | 16 | 35 | 28 | 30 | 158.37 | |
| | 80~91 | 5 | 9 | 12 | 15 | 4 | 125.98 | |
| Living situation | | | | | | | | 0.176 |
| | Live alone | 1 | 9 | 5 | 11 | 12 | 169.18 | |
| | Live with spouse | 2 | 11 | 25 | 26 | 24 | 169.30 | |
| | Live with children | 10 | 25 | 53 | 76 | 25 | 150.49 | |
| Chronic disease | | | | | | | | 0.052 |
| | Cardiovascular disease | 2 | 18 | 35 | 65 | 43 | 169.34 | |
| | Visual/Hearing difficulty | 1 | 3 | 3 | 19 | 19 | 208.58 | |
| | Osteoarthopathy | 1 | 9 | 19 | 28 | 11 | 153.01 | |
| | Diabetes | 2 | 3 | 11 | 16 | 6 | 152.38 | |
| | Chronic bronchitis | 0 | 2 | 5 | 7 | 5 | 172.16 | |

Table-4. The differences between sexes, ages and KAP of UI in old people(n=315)

| Factors | Persons agree | Gender | | Age (years) | |
|---|---------------|----------|---------|-------------|---------|
| | | χ^2 | P value | χ^2 | P value |
| Knowledge | | | | | |
| UI is a disease | 88 | 1.167 | 0.280 | 7.261 | 0.027 |
| Falling is a common UIs | 216 | 6.766 | 0.009 | 2.250 | 0.325 |
| Attitude | | | | | |
| Worry about UIs happening | 174 | 4.489 | 0.344 | 24.226 | 0.002 |
| Worry about disease happening | 237 | 6.000 | 0.014 | 6.632 | 0.036 |
| UIs was preventable | 241 | 0.178 | 0.673 | 0.908 | 0.635 |
| Practice | | | | | |
| Looking for help after UIs | 296 | 1.575 | 0.210 | 0.422 | 0.805 |
| Observe traffic regulations | 300 | 0.041 | 0.840 | 4.626 | 0.089 |
| Checking expiration date before purchasing food | 63 | 16.786 | 0.000 | 23.723 | 0.000 |
| Checking expiration date before taking medicine | 126 | 6.618 | 0.037 | 6.814 | 0.121 |
| Checking gas valve every time | 42 | 0.230 | 0.891 | 2.530 | 0.701 |
| Calcium supplement everyday | 31 | 0.563 | 0.755 | 9.204 | 0.031 |
| UIs happened within one year | 55 | 0.375 | 0.540 | 7.680 | 0.017 |

*Ages: 1=60~69 years old; 2=70~79 years old; 3=80~91 years old. KAP: knowledge, attitude and practice.

Table-5. Multivariate Logistic regression analysis of the factors related to UIs of the elderly in urban Zunyi

| Factors | | B | P -value | OR value | 95%CI |
|----------------------------------|------------------|--------|----------|----------|-------------|
| Whether UIs happen | | | | | |
| | Ages | -0.663 | 0.002 | 0.515 | 0.342~0.776 |
| | Hypertension | 0.586 | 0.063 | 1.796 | 0.969~3.330 |
| | Heart disease | 1.083 | 0.034 | 2.954 | 1.087~8.028 |
| | Osteoporosis | 0.526 | 0.211 | 1.691 | 0.742~3.855 |
| | Constant | -1.268 | 0.269 | 0.281 | |
| UI is a disease | | | | | |
| | Ages | -0.329 | 0.063 | 0.719 | 0.508~1.018 |
| Living condition | | | | | |
| | Live alone | - | - | 1.000 | Ref. |
| | Live with spouse | -0.482 | 0.388 | 0.618 | 0.207~1.845 |
| | Constant | 2.482 | 0.000 | 11.964 | |
| Whether carry communication tool | | | | | |
| | Ages | 1.331 | 0.000 | 3.786 | 2.561~5.596 |
| | Gender | 0.914 | 0.001 | 2.495 | 1.464~4.252 |
| | Constant | -4.317 | 0.000 | 0.013 | |

* Ages: (1=60~69 years old, 2=70~79 years old, 3=80~91 years old); Living condition [(Dummy variable); Live alone (as reference); Live with spouse: (0=No,1=Yes), Live with children: (0=No,1=Yes)]; Hypertension, Heart disease, Osteoporosis (0=No,1=Yes). OR: Odds Ratio; CI: confidence interval.