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## Original Article

# The correlation between socioeconomic status and health self-management in the elderly



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### ABSTRACT

**Purpose:** To determine the correlation between socioeconomic status and health self-management in the elderly and to provide a scientific basis for the promotion of healthy ageing.

**Methods:** We recruited 6173 people aged  $\geq 60$  years from three regions in Hebei Province using the multi-stage stratified cluster sampling method. The participants were surveyed using questionnaires.

**Results:** The health self-management behaviours of elderly people differed with the area of residence, education level, and personal monthly income. An ordered probit model showed that behaviours were better in elderly people who lived in urban areas, who were educated to college level or higher, and with higher monthly incomes ( $p < 0.05$ ).

**Conclusion:** Socioeconomic status plays a decisive role in health self-management in the elderly. We suggest appropriate measures for promoting health self-management among the elderly.

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## 1. Introduction

Given the deterioration that comes with ageing, health problems among the elderly have received widespread attention; however, health care resources are insufficient for meeting their health care requirements. Socioeconomic status is the root cause of health issues among the elderly: there are obvious differences between income and economic status and health [1,2]. There are obvious disparities between the health statuses of the elderly [3]. Therefore, health self-management warrants close attention so that it becomes one of the main

forms of health promotion among the elderly. Health self-management emphasises elderly people taking the initiative to monitor and manage their own physical function through biological, psychological, and sociological intervention techniques [4]. Overall, health self-management is affected by the population, socioeconomics, activities of daily living, and other factors [5,6]. We aimed to determine the relationship between socioeconomic status and health self-management among the elderly, improve health self-management among the elderly, and provide scientific evidence for health promotion policies.

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## 2. Design and methods

### 2.1. Subjects

From July 2012 to May 2013, people aged  $\geq 60$  years were recruited from three regions in Hebei Province using the multi-stage stratified cluster sampling method. Sampling was divided into four stages; the first involved urban areas: According to economic and geographical features, Tangshan (higher economic level than the national average; northeast coastal area), Shijiazhuang (higher economic level than the Hebei average; southern region), and Zhangjiakou (lower economic level than the Hebei average; northwest region) were selected as three representative cities of Hebei Province. The second stage involved randomly selecting a city and county in each of the three cities. The third stage involved randomly selecting a street office/town in every urban area/county. The fourth stage involved recruiting a community/natural village within the province by cluster sampling.

The inclusion criteria were age  $\geq 60$  years; with official household registration; residing  $>1$  year in the survey area. The exclusion criteria were mental disorder, senile dementia, cognitive impairment; communication disorders; not officially registered households. We distributed 6558 survey questionnaires; 6173 valid questionnaires were returned.

### 2.2. Methods

#### 2.2.1. Evaluation index

Based on the studies by Li [7] and Luo and Yan [8] on the socioeconomic status structure of China, we used personal monthly income, education level, and residence as the evaluation index.

#### 2.2.2. Surveys

The survey was mainly performed by investigators and graduate and undergraduate students of the Nursing and Rehabilitation Institute of Hebei United University. Investigation personnel were trained to perform centralised examination registration investigations, and visited homes to carry out the questionnaire survey on a one-to-one basis as a supplementary method. Based on the principle of informed consent, the respondents should have agreed to the survey investigation. Respondents completed the survey independently, or had another person fill in their responses on their behalf.

The survey tools included:

- 1) A self-designed questionnaire on education level, personal monthly income, residence (urban/rural), sex, age, marital status, activities of daily living, health care, and pension insurance.
- 2) The Adult Health Self-Management Skills Assessment Scale (AHSMSRS) [9] developed by Zhao and researchers at the Harbin Medical University School of Nursing. The Cronbach's  $\alpha$  was 0.933; content validity was 0.895. There were three subscales (38 items): behaviours (14 items), environment (10 items), and consciousness (14 items). Using a Likert 5-point scale, each subscale was evaluated as follows: behaviour and environment scales were scored

as "always" (5 points), "often" (4 points), "sometimes" (3 points), "occasionally" (2 points), "never" (1 point); scores ranged 14–70 points and 10–50 points. The consciousness subscale was scored based on "quite agree", "agree", "not sure", "do not quite agree", "disagree" and "confident", "more confident", "uncertain", "not too confident", "not confident"; the answers were scored with 5, 4, 3, 2, and 1 point, respectively, and scores ranged 14–70 points. A higher score indicated a higher level of health self-management. The scores were divided into three levels: low (14 points), intermediate (28 points), and high (56–70 points) health self-management behaviours and consciousness, and low (10 points), intermediate (20 points), and high (40–50 points) health self-management environment.

#### 2.2.3. Statistical analysis

Stata 10.0 software was used to conduct Pearson correlation analysis,  $\chi^2$  testing, non-parametric rank sum testing, and ordered probit and probit regression analysis.

## 3. Results

### 3.1. Sample characteristics

We surveyed 6558 people; 6173 completed the questionnaires. There were 3125 urban elderly (50.6%) and 3048 rural elderly (49.4%). There were 3724 people educated to primary school level and below (60.3%), 2026 with junior and senior high school education (32.8%), and 423 with college education and above (6.9%). There were 731 people without monthly income (11.8%), 1216 with  $\leq 500$  yuan income (19.7%), 1126 with 500–1000 yuan income (18.2%), 1915 with 1000–2000 yuan income (31.1%), and 1185 with  $>2000$  yuan income (19.2%). The age range was 60–98 years; the average age was  $68.92 \pm 7.97$  years. There were 3024 men (49%) and 3147 women (51%); two people did not state their sex. Regarding marital status, 4709 people were unmarried (76.3%), 80 were divorced (1.3%), 1174 were widowed (19%), 127 were remarried (2.1%), and 83 were of unmarried (1.3%). Fifty-four respondents did not answer the health insurance questions; 5523 (90.3%) had medical insurance. Ninety-two people did not answer the questions on pension insurance; 3655 (60.1%) had pension insurance.

### 3.2. Correlation between each socioeconomic status index

Pearson correlation analysis showed that education and personal monthly income were related to urban and rural residence and that education level was related to personal monthly income (Table 1).

### 3.3. Relation between health self-management and socioeconomic status

Health self-management behaviour, environment, consciousness, and average total scores were statistically

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