# General Practitioners' Knowledge of Ageing and Attitudes Towards Older People in China

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## ABSTRACT

**Objectives:** To explore GPs' knowledge of ageing, attitudes towards older people and factors affecting their knowledge and attitudes in a Chinese context.

**Methods:** Four hundred GPs were surveyed using the Chinese version of the Aging Semantic Differential (CASD) and the Chinese version of the Facts on Aging Quiz scale (CFAQ1).

**Results:** The CASD scores indicated that GPs had a neutral attitude towards older people. The CFAQ1 scores indicated a low level of knowledge about ageing. GPs' awareness of the mental and social facts of ageing was poorer compared to that of physical facts. Male GPs had a significantly higher negative bias score than female GPs. All other variables did not have any statistically significant influence on knowledge and attitudes.

**Conclusions:** Findings suggest the need for education interventions for GPs regarding knowledge of ageing and also provide evidence for future development of continuing medical program for this group of medical doctors.

**Key words:** ageing, attitude, continuing medical education, general practitioners, knowledge

## Introduction

The population of adults aged 65 or over has increased from 5.57% in 1990 to 8.87% in 2010 and has reached 119 million in China [1]. Because China has the largest population of older people in the world and a high proportion of older people living with chronic conditions, every general practitioner (GP) in China will likely encounter older people during their daily practice. Successful chronic disease management relies on the GPs' holistic view of healthy ageing and how to address individualised care needs for older people that prevent functional decline and promote independence. There is an increased concern that this group of medical professionals have not been prepared to work with older people due to a lack of gerontological components in their formal medical education [2,3].

GP training was established in 1992 in China [2]. Since 2007, the Chinese Ministry of Health has initiated standardised training for GPs by issuing guidelines and developing 34 accredited training institutes [3] . Although the number of GP training programs has significantly increased over the last two decades, few studies have reported the effectiveness of these programs. In addition, in China, medical doctors are prepared at different levels of medical education ranging from a 3-year diploma program to a 6-year

bachelor degree. Therefore, their needs may differ in the GP training program. Some doctors who received GP training were not satisfied with their programs [4]. This paper reports the results of a study of GPs' knowledge of ageing and attitudes towards older people for the purpose of informing a continuing medical education program to improve GPs' competencies in the care of older people.

In other countries a negative attitude towards ageing among healthcare professionals was reported in the literature and was viewed as a barrier to providing quality healthcare for older people [5-7]. A survey found that 16% of GPs made the decision to not refer some older patients for secondary treatment because they believed that the patients would not be treated due to their older age [5]. Helmuth reported a significant relationship between negative attitudes towards older people and favorable attitudes towards restraint use [6].

Previous studies have also shown that a lack of knowledge about ageing among health professionals resulted in improper care. GPs often overlook a mild cognitive impairment and view this condition as a result of normal ageing [8]. Greater than 90% of mild dementia cases were undiagnosed due to the ignorance of early symptoms of dementia. In developing countries, improper care for older people because of GPs' lack of knowledge might be more serious than that in developed countries due to lack of education resources for GPs.

Although there are numerous studies in the literature on the topic of healthcare professionals' attitudes towards older people, the results from these studies are controversial and range from negative to positive [9-12]. Most studies focused on nursing

or medical students' knowledge of ageing and attitudes towards older people [13-15] with few studies on GPs. The aims of the present study were thus to explore GPs' knowledge of ageing, attitudes towards older people, and factors affecting their knowledge and attitudes in a Chinese context.

## Methods

### Study participants

The study was approved by the Ethical Committee of XXX Medical University. The setting was XXX Medical University, Centre of Continuing Medical Education. The center provides a 3-month required continuing training program for GPs to update their knowledge of the care of older people. All the GPs were selected from 19 provinces in China. All the participants in this study were recruited from a pool of GPs who were enrolled in this program from May, 2010 to June, 2011.

### Measurements

A cross-sectional questionnaire survey design was used. The survey was conducted during the training. General information collected from each participant included age, gender, professional rank, and work experience in aged care. Based on a literature search, 2 instruments were used to measure participants' attitudes towards and knowledge of older people.

#### *1. The Chinese version of the Aging Semantic Differential (CASD)*

General attitudes towards older people were studied using the Chinese version of Polizzi's ASD that consists of 24 pairs of polar opposite adjectives (e.g., friendly-unfriendly) [16]. Polizzi's ASD was developed from Rosencranz and McNevins' ASD Scale, which is a 32-item scale and has been used frequently as a means of understanding the attitudes of healthcare professionals towards older people and attitudinal change [7,14,17,18]. However, the ASD was developed in 1969 and many adjectives used in the scale are outdated [16]. The Polizzi's ASD, developed through a rigorous research project, is viewed as more accurate for assessing attitudes towards older people in contemporary society. Based on a previous study [18], the original response scale was reduced from 7 to 5 points. Items ranged from 1 to 5 with higher scores indicating a more negative attitude, and the response set had 3 as the mid-point. Mean item scores between 2.51 and 3.50 were considered neutral [18].

***2. The Chinese version of the Facts on Aging Quiz scale (CFAQ1)***

The Facts on Aging Quiz 1 (FAQ1) [19] was originally designed to help stimulate discussion about and reflection on misconceptions about ageing, but it has been widely used to assess knowledge of ageing in a variety of settings [20]. It covers physical, mental, and social facts and common misconceptions about ageing. The FAQ1 is a 25- item knowledge scale designed to force a *true*, *false*, or *don't know* response from participants to a statement related to their knowledge of older people. The FAQ1 was also used to test attitudes towards older people indirectly by analysing the bias score in the scale [21,22]. Palmore [19] classified 16 items as indicators of negative bias towards older people if answered incorrectly and 5 items as indicators of a positive bias if answered incorrectly.

The remaining 4 items were considered bias-neutral. The CFAQ1 had been previously validated in China [23]. Knowledge (% FAQ1 correct responses), ignorance/lack of knowledge (% FAQ1 don't know responses), positive bias (% FAQ positive items incorrect responses), negative bias (% FAQ negative items incorrect responses), and net bias (% FAQ positive bias score minus negative bias score) were analysed from the FAQ1 data that were collected.

### Statistical analysis

Data were entered into a Statistical Package for the Social Sciences (SPSS) 18.0 version software package (SPSS Inc., Chicago, IL), checked for errors, then exported to Stata statistical software, version 12.0 (StataCorp LP, College Station, Texas). The descriptive statistics for interval scale measurements are expressed as means and standard deviations (SDs), whereas percentages are used for categorical data. The knowledge and attitude scores were assessed to determine whether they were normally distributed using normal probability plots and a Kolmogorov-Smirnov test. An independent-sample t-test or an analysis of variance (ANOVA) were used to statistically analyse normally distributed data, whereas a Mann-Whitney U test was used to statistically analyse skewed data in a group comparison of gender and professional rank. Pearson's r was used to analyse the association between knowledge and attitudes scores, and the association between continuous independent and dependent measures.

## Results

## Demographics

The questionnaire was sent to a total of 400 GPs and was returned by 270; thus, the response rate was 67.5%. The demographics of the study sample are given in Table 1.The majority of the sample (63.0%) was male, and 86.9% had high professional ranks.

## Attitudes towards older people

The mean score on the CASD was 2.56 (possible range, 1–5), suggesting that the respondents generally had a neutral attitude towards older people (Appendix I). The mean score of 15 out of 24 items (62.5% of the total items) fell into the neutral category, with 9 items (37.5%) in the positive category, and no item in the negative category. Only 3 item scores were greater than 3. Those were the cheerful-crabby item, the unselfish-selfish item, and the flexible-inflexible item with mean scores of 3.01, 3.13, and 3.27, respectively. Only 1 item, frugal-generous, was below 2.

No significant gender or professional rank differences were found in CASD scores (Table 2). Bivariate correlation analyses revealed no significant association between age and CASD scores ($r = 0.04$, $p = 0.54$) and no significant association between work experience and CASD scores ($r = 0.06$, $p = 0.37$).

## Knowledge of older people

Data obtained via the CFAQ1 indicated that participants' knowledge was low with a mean correct response rate of 50.74% (Appendix II). The 8 most common misconceptions (with over one-half of the group responding incorrectly) are displayed in Table 3. Factors

affecting knowledge of ageing and bias score were statistically analysed and presented in Table 4. Male GPs showed a significantly higher negative bias score than their female counterparts (Table 4).

Data obtained from the CFAQ1 also demonstrated that the level of ignorance was slightly high with a mean of 10.83% *don't know* responses. An analysis of the CFAQ1 bias score revealed that the net bias score was -17.3%, which indicated a global negative bias towards older people in this population. Age, work experience, and professional rank had no statistically significant association with CFAQ1 scores.

**Correlation between CASD scores and CFAQ1 scores**

Bivariate correlation analyses revealed a significantly positive association between CASD scores and CFAQ1 % knowledge scores (correct response). This finding indicated that a lower knowledge score is associated with negative attitudes, although the strength of the relationship was weak ($r = 0.16$, $p = 0.01$). However, there was no significant association between CASD scores and CFAQ1 % positive bias scores ($r = 0.03$, $p = 0.61$) and between CASD scores and CFAQ1 % negative bias scores ($r = -0.09$, $p = 0.16$).

## Discussion

Healthcare professionals are known to be particularly vulnerable to developing negative attitudes towards older people because of their increased exposure to ill and infirm older people [11]. Although some studies showed positive attitudes towards older people [17],

most studies reported negative ASD scores for doctors or medical students in developed counties [7,15]. In the present study, there was no evidence that GPs hold a negative stereotypical view towards older people, as measured by the CASD. The finding is consistent with another study that reported Chinese students' attitudes towards older people using a 20-item semantic differential scale [13]. The result in the previous study was attributed to Chinese social conventions and long-inherited culture. In Chinese culture, older people are highly valued, respected, and have a high status, perhaps due to the centuries-long influence by Confucianism. However, this interpretation is questionable. Stewart et al [18] reported a neutral score on the ASD in a study conducted in America. They interpreted the neutral attitude at "face value" only, meaning that the result did not indicate that participants did not have some stereotypical perceptions.

Unlike the CASD, which is used to measure a global attitude towards older people in a direct way, the FAQ1 mainly tests participants' knowledge and indirectly measures participants' attitudes towards older people. According to previous studies, one of the most important strengths of using FAQ1 is to identify the most frequent misconceptions, either for theoretical interest, practical interest, or as a practical guide to identify a group's educational needs [20].

The CFAQ1 data revealed that Chinese GPs had lower knowledge scores, evidenced by an average of 50.7% correct answers (ranging from 20 to 76%). The scores are almost identical to those of the participants in Palmore's study [20]. For medical students, the

overall average score was 60% in Palmore's original study and other studies [24]. This observed result should raise concerns about the current GPs' knowledge level in China.

Although the training program for GPs has been established for 20 years, GPs still demonstrated inadequate knowledge about ageing. A number of factors may contribute to the situation. First, disparities in GPs' education and training exist across urban and rural areas and between provinces in China. In Chen et al.'s study, the authors identified that the standardised GP training program had been established only in the provincial capital cities and at least 60 to 70% of doctors in the community had not received GP training [25]. Second, GP education is often delivered by hospital professors or public health lecturers who have never been formally trained in GP medicine [25]. A lack of placement opportunities for GP training has also been reported. In addition, the Standardised Curriculum for GPs' training program issued by the Ministry of Health of China in 2007 is viewed as inadequate due to lack of specific requirements for the practice of gerontological medicine [3].

In the present study, the GPs showed a lower level of awareness of the mental and social facts of ageing than their level of awareness of physical facts. Previous studies [26] indicated that social factors influenced older people's satisfaction with their physicians, especially those who provided them with primary health care. Physicians' awareness of psycho-social well-being might have effects on the management of health issues for older patients that were socially and psychologically constructed.

Eight of the most common misconceptions identified in the present study belong to mental and social facts. Compared with previous studies [20,22], items 20, 9 and 13 are the most frequent misconceptions that have not been reported by others. Item 13 has the worst implications as GPs who think it's "almost impossible" for older people to learn something new are unlikely to bother recommending lifestyle changes necessary for good health. This result provides further evidence that the medical education curriculum still focuses rigidly on disease with limited consideration to the social and psychological well-being of older people as advocated by the Word Health Organisation (WHO) [27,28].

One of objectives of this study was to assess whether the CFAQ1, which is mainly used to measure ageing-related knowledge, can be applied to measuring attitude towards older people by comparing CFAQ1 scores with CASD scores. We found no statistically significant association between attitude scores (negative bias or positive bias) from the CFAQ1 and scores on the CASD.

The CFAQ1 data indicated that 5 out of the 8 most frequent misconceptions involve negative stereotypes of the aged. The net bias score (-17.3%) showed a negative trend, suggesting that negative bias towards older people may exist among these Chinese GPs. For practical purposes, Palmore suggested that any individual net bias score in the range of ±20% was probably not significantly different from 0 and may be consider a neutral-bias score [29]. Thus, both of the 2 scale scores indicated a neutral attitude towards older people. The CFAQ1 yielded rich information on some unrealised cognitive biases but the CASD

did not. This observation suggests that the CFAQ1 is suitable for the evaluation of the effectiveness of a gerontological education program.

Palmore [20] indicated that knowledge and misconceptions tend to be similar in all age, gender, occupational, racial, and national groups, and the only variables that consistently relate to knowledge are education and attitudes. On the contrary, in the present study, gender seemed to have a significant influence on the CFAQ1 negative bias scores and female doctors showed a lower CFAQ1 negative bias than did male doctors. This finding might be explained by the influence of Chinese culture. Older people are more likely to live with their family members, perform various household chores, and engage in productive family activities when possible [13]. In the present study, the average age of those GPs is greater than 38, indicating that most of them were at the age where living with one's older parents is common. In addition, in most Chinese families, women still do most of the housework [30]. Female GPs might therefore have had more opportunities to interact with their older parents in the household, thus might be less negative biased towards older people than their male counterparts.

In the present study, the entire sample showed a lack of knowledge of ageing, which is a major concern, and the contributing factors should be investigated in future studies. In order to deliver quality and safe care for older people in a rapidly growing older population, it is imperative to enrich gerontological education for GPs in China. GPs' practice should be grounded on an eco-system of health care, rather than solely making a physiopathological diagnosis. Therefore, medical education and continuing medical

education should contain sufficient gerontological components. In addition, competencies in working with multidisciplinary team members to achieve holistic health care for older people, as required for medical doctors in developed countries, should be integrated in the curricula for GPs.

## Limitations

This research had some limitations, which should be considered when interpreting the results. First, the findings are restricted to a convenience sample. Although the training program was compulsory for GPs, the participants in our study were selected from GP clinics that provide medical care for older people who have full medical care insurance coverage. They did not represent GPs population in China. Therefore, the findings are not generalisable. Secondly, the survey was conducted during the training. Therefore, the results might be biased by the training. Thirdly, although the same scales were used, cross-national comparisons have to be interpreted with care as responses might be culturally biased.

## Conclusions

In light of the rapidly ageing population in China, it is crucial to prepare GPs with adequate knowledge, skills, and attitudes to ensure quality and safe care for older people. In the present study, there was no evidence to indicate that GPs held a negative stereotypical view towards older people. However, their knowledge on ageing was quite low. The findings suggest that education interventions for this group of medical doctors are imperative. The

findings provide research evidence for planning continuing medical education program for this group of medical doctors in China.

**Key Points**

- GP did not appear to hold a negative stereotypical view towards the older people.
- It is of concern that GPs' knowledge scores of ageing were lower than healthcare students. GPs' awareness of the mental and social facts of ageing was poorer compared to that of physical facts.
- The CFAQ1 and CASD the can be used to assess GP's knowledge of ageing and attitudes toward older people in GP training programs.

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Table 1 Demographic of the study population

| Variable | Participants (n=270) † |
|---|---|
| Gender (N, %) | |
| Female | 97, 37.0 |
| Male | 165, 63.0 |
| Age (Mean ± SD, range) | 38.98±6.50, 10-55 |
| Years of work experience in Aged Care (Mean ± SD, range) | 9.19±6.19, 1-34 |
| Professional rank (N,% ) | |
| Consultant | 40, 15.4 |
| Resident | 186, 71.5 |
| Medical officer | 34, 13.1 |

† The number of participants for each variable are not equal to n=270 due to missing data.

Table 2 The effect of gender and professional rank on the Chinese version of Aging Semantic Differential scores

| Variable | Group | N | Mean | SD | Statistic | P-value |
|---|---|---|---|---|---|---|
| Gender | Male | 165 | 2.54 | 0.60 | t=-0.02 | 0.98 |
| | Female | 97 | 2.54 | 0.64 | | |
| Professional rank | Consultant | 40 | 3.55 | 0.70 | F=1.03 | 0.41 |
| | Resident | 186 | 3.42 | 0.60 | | |
| | Medical officer | 34 | 3.49 | 0.56 | | |

SD: Standard deviation.

Table 3 The 8 most frequent misconceptions on the Chinese version of the Facts on Aging Quiz 1 (n=266)

| Item† | Fact | % incorrect |
|---|---|---|
| -11 | The majority of old people are unable to adapt to change | 88.3 |
| 20 | The majority of medical practitioners tend to give low priority to the aged. | 70.7 |
| -9 | Older workers have fewer accidents per driver than those under age 65. | 65.8 |
| -16 | The majority of old people say they are seldom bored. | 62.0 |
| 23 | Old people tend to become more religious as they age. | 59.0 |
| 19 | Over 15% of the population are now age 65 or over. | 58.6 |
| -24 | The majority of old people say they are seldom irritated or angry | 56.0 |
| -13 | It is almost impossible for the average old person to learn something new | 51.1 |

*Note:* † Even-number items are true; odd-number items are false. Errors on items marked - indicate negative bias.

Table 4 The effect of gender on the Chinese version of the Facts on Aging Quiz 1 scores

| Variable | Gender | Number | Mean | SD | Statistic | P-value |
|---|---|---|---|---|---|---|
| FAQ1 % correct responses | Male | 162 | 50.47 | 9.68 | t=-0.61 | 0.54 |
| | Female | 96 | 51.21 | 9.02 | | |
| FAQ1% don't know responses | Male | 162 | 10.54 | 11.30 | U=-1.44 | 0.15 |
| | Female | 96 | 11.33 | 9.50 | | |
| FAQ1% - bias[†] | Male | 162 | 40.35 | 13.99 | t=2.17 | 0.03* |
| | Female | 96 | 36.52 | 13.18 | | |
| FAQ1% + bias[‡] | Male | 162 | 20.37 | 22.56 | U=-0.96 | 0.34 |
| | Female | 96 | 23.96 | 25.23 | | |
| FAQ1% net bias[§] | Male | 162 | -19.98 | 29.47 | U=-1.78 | 0.07* |
| | Female | 96 | -12.57 | 32.12 | | |

SD: Standard deviation.

*Note:* [†]Negative bias: % FAQ negative items incorrect responses

[‡]Positive bias: % FAQ positive items incorrect responses

[§]Net bias: % FAQ positive bias score minus negative bias score

* P-value<0.05

Appendix I The mean score on the Chinese version of Aging Semantic Differential (n=270)[†]

| Category[‡] | Item | N | Mean | SD |
|---|---|---|---|---|
| neutral | 1.Cheerful- Crabby | 269 | 3.01 | 1.22 |
| | 2.Pleasant- Unpleasant | 267 | 2.76 | .98 |
| | 7.Tolerant- Intolerant | 270 | 2.70 | 1.13 |
| | 9.Fair- Unfair | 268 | 2.68 | .96 |
| | 10.Grateful- Ungrateful | 270 | 2.66 | .97 |
| | 11.Unselfish- Selfish | 270 | 3.13 | 1.04 |
| | 12.Considerate- Inconsiderate | 268 | 2.82 | 1.04 |
| | 13.Patient- Impatient | 269 | 2.80 | 1.02 |
| | 15.Calm- Agitated | 266 | 2.59 | 1.00 |
| | 16.Thoughtful- Thoughtless | 267 | 2.61 | 1.00 |
| | 17.Humble- Arrogant | 266 | 2.81 | .91 |
| | 19.Flexible - Inflexible | 270 | 3.27 | 1.13 |
| | 21.Hopeful- Despairing | 266 | 2.63 | .89 |
| | 22.Optimistic- Pessimistic | 269 | 2.58 | .98 |
| | 23.Trustful- Suspicious | 269 | 2.62 | 1.12 |
| positive | 3.Friendly- Unfriendly | 270 | 2.17 | .88 |
| | 4.Kind- Cruel | 270 | 2.03 | .82 |
| | 5.Sweet -Sour | 268 | 2.48 | .95 |
| | 6.Nice- Mean | 269 | 2.13 | .80 |

| | | | | |
|---|---|---|---|---|
| | 8.Cooperative- Uncooperative | 270 | 2.46 | .95 |
| | 14.Positive- Negative | 270 | 2.44 | .87 |
| | 18.Frugal - Generous | 270 | 1.56 | .90 |
| | 20.Good - Bad | 269 | 2.35 | .79 |
| | 24.Safe- Dangerous | 268 | 2.37 | .94 |

*Note:* †The number of participants for each item are not equal to n=270 due to missing data

‡ Classification scheme for a Likert-scored response set of 1 to 5 (with higher scores classified as negative and lower scores as positive), the following classification was applied: positive, 1.00-2.50; neutral, 2.51-3.50; negative, 3.51-5.00)

Appendix II The response percentage on the Chinese version of the Facts on Aging Quiz 1 (n=266)

| Item† | Correct | Incorrect | Don't Know |
|---|---|---|---|
| -1. The majority of old people are senile (have defective memory, are disoriented, or demented). | 78.2 | 19.9 | 1.9 |
| +2. All five senses(sight, hearing, taste, touch, and smell) all tend to weaken in old age. | 73.3 | 25.9 | 0.8 |
| -3. The majority of old people have no interest in, nor capacity for, sexual relations. | 48.1 | 21.4 | 30.5 |
| +4.Lung vital capacity tends to decline in old age. | 72.2 | 27.1 | 0.8 |
| -5. The majority of old people feel miserable most of the time | 77.1 | 19.2 | 3.8 |
| +6. Physical strength tends to decline in old age. | 66.2 | 31.2 | 2.6 |
| -7. At least one-tenth of the aged are living in long-stay institutions (such as nursing homes, mental hospitals, homes for the aged, etc.). | 53.4 | 24.1 | 22.6 |
| -8. Aged drivers have fewer accidents per driver than those under age 65. | 16.5 | 43.6 | 39.8 |
| -9. Older workers have fewer accidents per driver than those under age 65. | 28.2 | 65.8 | 6.0 |
| -10.Over three-fourths of the aged are healthy enough to carry out their normal activities. | 77.8 | 18.8 | 3.4 |

| | | | |
|---|---|---|---|
| -11. The majority of old people are unable to adapt to change | 10.9 | 88.3 | 0.8 |
| +12. Old people usually take longer to learn something new. | 89.5 | 9.8 | 0.8 |
| -13. It is almost impossible for the average old person to learn something new. | 47.0 | 51.1 | 1.9 |
| +14.Older people tend to react slower than younger people | 84.2 | 14.3 | 1.5 |
| 15. In general,older people tend be pretty much alike. | 56.8 | 41.0 | 2.3 |
| -16. The majority of old people say they are seldom bored. | 30.5 | 62.0 | 7.5 |
| -17. The majority of old people are socially isolated. | 62.4 | 31.6 | 6.0 |
| -18. Older people have fewer accidents than younger workers. | 48.5 | 36.1 | 15.4 |
| 19. Over 15% of the population are now age 65 or over. | 15.8 | 58.6 | 25.6 |
| 20. The majority of medical practitioners tend to give low priority to the aged. | 24.1 | 70.7 | 5.3 |
| -21. The majority of old people have incomes below the poverty line(as defined by the federal government) | 40.6 | 35.3 | 24.1 |
| -22. The majority of old people are working or would like to have some kind of work to do (including house work and volunteer work). | 56.4 | 30.5 | 13.2 |
| 23. Old people tend to become more religious as they age. | 18.8 | 59.0 | 22.2 |
| -24. The majority of old people say they are seldom irritated or angry. | 32.3 | 56.0 | 11.7 |
| -25.The health and economic status of old people will be about the same or worse in 2020(compared to younger | 59.8 | 19.5 | 20.7 |

| | | | |
|---|---|---|---|
| people). | | | |
| Mean | 50.7 | 38.4 | 10.9 |

*Note:* †Even-number items are true; odd-number items are false. Errors on items marked - indicate negative bias.