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FACTORS AFFECTING NURSING STUDENTS’ INTENTION TO WORK WITH OLDER PEOPLE IN CHINA

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Abstract

Background: In Western countries, caring for older people was viewed as an unattractive area by nursing students. The literature reported a number of barriers, including ageism that contributed to this undesirable situation.

Aim: The purpose of this study was to explore factors affecting nursing students’ intention to work with older people in a university in China.

Method: A cross-sectional survey was conducted with 622 nursing students enrolled in a 4-year Bachelor of Nursing program at the university. Data analysis methods mainly included Chi-Square test, Mann-Whitney test, factor analysis and logistical regression.

Results: Working with older people was ranked as the second to least preferred area by nursing students. Ageist attitudes described as Prejudice was negatively associated with intention to work with older people; while students aged under-20 were more positively associated with an intention to work with older people.

Conclusion: Nursing curriculum should be designed to target ageist attitude, by promoting socialisation with older people and creating a more supportive learning environments in the care setting of older people.
FACTORS AFFECTING NURSING STUDENTS’ INTENTION TO WORK WITH OLDER PEOPLE IN CHINA

INTRODUCTION

The ageing population is a global phenomenon that will require nursing education in each country to respond to it promptly and appropriately. China showed a faster growth of ageing population over the past three decades, partly resulting from the introduction of the one-child policy in 1979 and the dramatic improvement in life expectancy (United Nations, 2008). The population of those aged 65 or over has increased from 4.7% in 1980 to 8.2% in 2010 and it is predicted to reach 23.3% by 2050 in China (United Nations, 2008). As caring for older people has been viewed as a family’s responsibility in China, care services funded by governments for older people to live in communities and nursing homes are consequently underdeveloped (Wu et al., 2009, Wan et al., 2008). Nurses working in these areas are poorly paid, compared to those working in hospitals (Dong & Ding, 2009). Despite the increased demand for a competent nursing workforce to deliver care services to older people, gerontological nursing education has yet to be integrated into the nursing curriculum (CNCA, 2007, Dong & Ding, 2009, Wu et al., 2009). A general lack of studies on the factors affecting gerontological nursing education in China is one aspect contributing to this situation.

LITERATURE REVIEW

A body of evidence in Western countries showed that caring for older people was unpopular among nursing students (Henderson et al., 2008, McCann et al., 2010). Factors such as attitudes, working experiences, work environment issues and the social status of the care of older people were associated with this reality (Gallagher &
Bennett, 2006, Herdman, 2002, Holroyd et al., 2009). Attitudes towards older people shaped health care professionals’ behaviours in care delivery and was also directly related to the quality of care to older people (Jacelon, 2002, McLafferty & Morrison, 2004). Two varieties of attitude described as Appreciation and Prejudice were frequently reported in studies on nursing students (Ekaterini et al., 2009, Holroyd et al., 2009, Pan et al., 2009). Appreciation attitudes are associated with understanding older people, while prejudice is a form of ageist attitude contributing to discriminatory opinions with regard to older people’s rights, or failure to recognise individual needs of older people (Holroyd et al., 2009, Ekaterini et al., 2009). Studies found students at a junior level usually demonstrated worse prejudice attitudes due to their general lack of knowledge about older people (Ekaterini et al., 2009, Hweidi & Al-Obeisat, 2006).

Studies also revealed that cultures strongly influence socialisation between the young and the older. People raised in a Western culture usually hold ‘individualist’ values that tend to encourage and emphasise individual achievements and independency (Li & Buechel, 2007). Older people enjoy living independently without their adult children around, therefore the opportunity in the household for intergenerational interaction on a permanent basis is quite low. Eastern cultures endorse ‘collectivist’ values that rate group achievements higher than individual ones (Li & Buechel, 2007). In addition, people from East Asia are strongly influenced by Confucianism, which strongly promotes filial piety (Pan et al., 2009). The core values of collectivism and Confucianism impose the duties of caring for older people on family members (Li & Buechel, 2007). Young people raised in an intergenerational household have a long-term engagement with, and many more opportunities to socialise with older people (Pan et al., 2009). For this reason they may be less likely to stereotype older people.
There is argument in the literature that the working environment issue is also an influence on students’ intention to work with older people (Brown et al., 2008, Herdman, 2002). Caring settings that show evidence of sub-standard care, understaffing, difficulties in career advancement and low payment were also identified as barriers for students to consider working in the area (Brown et al., 2008, Herdman, 2002). In China the family was the only source of support for older people, due in the main to the underdevelopment of social security and government sponsored long-term care or other care services for older people (Wu et al., 2009, Dong & Ding, 2009). Care burdens felt by family caregivers may also affect students’ view of the care of older people.

Studies have identified a positive correlation between positive working experience with older people and an intention to work with them (Shue et al., 2005). Due to co-morbidities and often complex health conditions, caring for older people requires specialised knowledge and skills (Xiao et al., 2008, Holroyd et al., 2009). In which case the demonstrated reluctance of students to work with older people may also be due to lack of confidence and competencies (Xiao et al., 2008, Holroyd et al., 2009). Education intervention may change students’ attitudes towards, and motivate them to work with older people. As factors affecting the care for older people vary in a social–cultural context, gerontological nursing education should be based on research evidence.
METHODS

The aim of this study was to explore factors affecting nursing students’ intention to work with older people in a university in China. A cross-sectional survey given to all students enrolled in a 4-year Bachelor of Nursing program was utilised. This study was an extension of a major research project (reported elsewhere) entitled the ‘Partnership in Aged Care Education (PACE)’ in an Australian university (named AU in the manuscript) (Henderson et al., 2008, Xiao et al., 2008). The ethics committee of AU approved this study and the CMU agreed to participate as a part of an educational collaboration between the two universities. A letter of introduction was provided prior to the survey explaining volunteer participation and the intention of maintaining respect, discretion and privacy for participants. The survey was undertaken between April and May 2009 in lecture theatres prior to commencement of their lectures. This was done by research assistants who were not the lecturers or tutors of these students at that time. Among 887 students, 622 completed the survey with a response rate of 70.1%.

Data Collection Tools

The survey was developed by adopting a career choice tool used in Stevens and Crouch’s (Stevens & Crouch, 1998) study, and by modifying an attitudes questionnaire used in Johnson’s (1992) study. Students were asked to rank from 9 predetermined practice areas. They were also encouraged to explain reasons for their first and last preferences in open-ended questions. An attitudes questionnaire generated and validated by Johnson (1992) was modified for this study. The 16-items have then been rated on a 5-point Likert scale. Demographic data was collected on...
gender, age and previous experience in working, either paid or unpaid, with older people.

The 16-item attitudes questionnaire was translated from English to Chinese. Backward translation from Chinese to English was undertaken by a bilingual person and reviewed by a native English speaker to ensure that the core meaning of each item was maintained between the two versions of the questionnaire. A test and re-test reliability of the Chinese version of the questionnaire was undertaken with 20 first-year nursing students in CMU with 2 weeks between each. The correlation coefficient $r$ was 0.79 ($p < 0.0005$ CI=99.9% confidence interval), which is viewed as acceptable (Polit, 2010). The actual survey in CMU was undertaken after completion of the reliability test.

**Statistic Analysis Methods**

A Chi-square test for independence was used to test the differences in age, gender, and working experience between groups. The Mann-Whitney Test was applied to compare attitudes between groups for non-parametric data. PASW (Predictive Analysis Software) version 17 was used in exploratory factor analysis (EFA) to identify latent factors underlying these attitudes. Principal component factor analysis (PCFA) with varimax orthogonal rotation was applied. In order to undertake logistic regression analysis, a cut-off point of the students’ ranking on working ‘with older people’ was used, with ratings 1 to 7 as ‘more likely to work with older people’, and ratings 8 and 9 as ‘less likely to work with older people’. The dichotomous outcomes of ‘more likely’ and ‘less likely’ to work with older people were categorical variables and used as dependent variables in a logistic regression model. The model was used to
test whether 5 independent variables, described as prejudice, appreciation, age ‘under-20’ and ‘20 or above’, ‘experience with older people’ and ‘junior (year 1 and 2) or ‘senior (year 3 and 4) level of study’ contributed to students’ intention to work with older people.

RESULTS
The characteristics of samples are shown in Table 1. The majority of students were aged 20 to 30 with experience in caring for older people—mainly their relatives—or in volunteer work at elderly care institutes, or else via clinical placements. The proportion of students who have had working experience with older people in year 4 is significantly higher than those in year 1 \( (X^2=8.902, \ P=0.003) \).

Preferences of Working With Older People
Preferred nursing areas are presented in Table 2. ‘Working with older people’ was ranked as the second to least preferred area by all year level of students. Working with children was most preferred by the 1\textsuperscript{st} year students while general medical, operation theatre and surgical wards were the most preferred areas by the year 2, year 3 and year 4 students respectively.

Only a small proportion of students ranked ‘working with older people’ as their first preference with 9 (4.4%), 6 (2.8%), 2 (1.6%) and 3 (3.9%) in years 1, 2, 3, and 4 respectively. There are no significant differences among the different year levels of students on ‘more likely to work with older people’ (rating 1 to 7) and ‘less likely to work with older people’ (rating 8 and 9). Open-ended questions revealed the reasons for choosing 'working with older people' as the least preferred area (see Table 3).
Attitudes Towards Older People

Prior to performing factor analysis, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of 0.3 and above. The Kaise-Meyer-Oklin value was 0.73, which met the acceptable sampling adequacy (Polit, 2010). The KMO and Bartlett test was significant ($X^2 =1085.9$, $p=0.00$). Factors were extracted based on examinations of interpretability, the agreement of factors in the two groups, and loading value > 0.40 on a factor (Polit, 2010, p. 348). Two rounds of analysis were performed when 2 interpretable factors were identified that were in agreement with data. High loadings were found for 7 items on Factor 1 and 5 items on Factor 2 (see Table 4). The other 4 items were deleted as they showed loading values lower than 0.40. The researchers interpreted Factor 1 as prejudice, and Factor 2 as appreciation (see Table 4). The two-factor solution constituting 12 items explains 36.4% of the variance.

Reliability of these two factors was tested with $r1=0.23$, $r2=0.22$ respectively. As it is difficult to achieve a good reliability on a scale with so few items, mean inter-item correlation is viewed as an adequate indicator of internal consistency (Briggs & Cheek, 1986, Polit, 2010). The acceptable range of mean inter-item correlation is between 0.2 to 0.4 for a short scale (Briggs & Cheek, 1986). The results suggest an acceptable internal consistency reliability of the attitudes scale with two factors (see Table 4). The psychometric properties of the previous used attitudes instrument were tested in this study in a Chinese context, using EFA to test the structural validity and inter-item correlation for internal consistency reliability.
**Group Comparisons of Attitudes**

The total scores of Prejudice and Appreciation were compared between groups (see Table 5). Results revealed that (1) the 1st year students demonstrated significantly less Prejudice than both the 2nd year students \((Z = -2.78, P<0.006)\) and the 4th year students \((Z = -2.97, P<0.003)\). (2) The 1st year students also demonstrated a significantly better Appreciation than the 2nd year students \((Z = -2.24, P<0.025)\). (3) The 3rd year students demonstrated significantly better attitudes of appreciation than the 2nd year students \((Z = -4.52, P<0.0005)\).

**Factors Affecting Nursing Students’ Intention to Work With Older People**

Direct logistic regression was carried out to predict the likelihood of multiple factors affecting students’ intention to work with older people. As explained before, ‘less likely to work’ and ‘more likely to work’ were entered as dependent variables, while Prejudice, Appreciation, age ‘under-20’ and ‘20 or above’, ‘experience with older people’ and ‘junior or senior level of study’ were entered as independent variables in the logistic model (see Table 6). The full model was statistically significant, \(X^2 (5, N=621) = 36.256, p<0.0005\).

The strongest associated variable in the model is ‘Prejudice’ (negative association), followed by ‘age under 20’ (positive association). The odds ratios for the two variables are 0.63 and 1.73 respectively. Students who held prejudice were about 0.63 times to choose to work with older people. Students aged under-20 were 1.73 times to choose to work with older people.
DISCUSSION

Our study raises the same concern as that uncovered in earlier studies in Western countries, in that working with older people was perceived as a less preferred area than other care areas. Prejudice was identified as a barrier for students to choose to work with older people in our study. Unlike findings from previous studies (Ekaterini et al., 2009, Holroyd et al., 2009, Hweidi & AI-Obeisat, 2006), our study revealed that first-year nursing students show better attitudes than others in the study. Our findings may support the notion of a Collectivist culture and filial piety having a positive influence on young people (Pan et al., 2009). Work experience with older people as described by first year students was mainly via means of caring for their grandparents at home. The correlation between younger age and being ‘more likely to work’ with older people may also support the positive influence of filial piety on younger people, as the majority of students aged ‘under-20’ were in the first-year group. Learning activities aimed to promote socialisation with older people should be incorporated into the nursing curricula, considering China’s increased numbers of nuclear families without grandparents living in the same household (Dong & Ding, 2009, Wu et al., 2009).

The age-associated attitudes and preference of working with older people identified in our study may indicate the negative impact of working experience on students (Brown et al., 2008). With the exception of the first-year students, the 2nd and 3rd year students have 4 and 2 weeks in clinical placements respectively, while the 4th year students have an entire 2 semesters in clinical placements in the CMU. These students are exposed to a variety of caring settings in acute-care hospitals. The older people they
cared for were mainly those with severe disability and acute illnesses. They may experience reality shock when confronting the differences between caring for their grandparents at home and for those they have never met before, and between what they had been taught about the care of older people in a cultural context and what they witnessed in the under-resourced, underdeveloped, and serious underpayment in care settings such as those described in the open-ended questions. Previous studies have identified that students may develop a negative view of the care of older people in ‘impoverished’ care environments where they have witnessed substandard care services for older people (Brown et al., 2008).

Educational intervention is viewed as one way to prepare students to cope with the reality shock and to support them to develop a positive clinical experience by creating supportive learning environments in clinical placements while presenting role models for students (Holroyd et al., 2009, Brown et al., 2008). However, in the nursing curriculum in CMU, a gerontological nursing topic was only offered for the third year students, and was mainly focused on diseases in a medical model. The students may not have been prepared with adequate attitudes or specialised knowledge and skills when they encountered older people in their clinical placements. Learning the care of older people in a chaotic workplace without well-designed learning support, such as preceptship and debriefing, may further contribute to students’ negative view of the care of older people. A curriculum that integrates gerontological topics, content and clinical experiences throughout a 4-year study is imperative.

The ‘one-child policy’ and rapid industrialisation-generated internal migration are changing the family structure and weakening the practice of filial piety in the care of
older people (CNCA, 2007). In 2009 the number of older people living in an ‘empty
nest’ situation had increased significantly and has now reached 50% in both city and
rural areas (CNCA, 2007). There is an ever-increasing demand for nurses to deliver
diverse health care services for older people in community care to complement
family-based care in China (CNCA, 2007). However, community care was
consistently ranked as the second to least preferred area by first, second and third year
students. Students’ answers to the open-ended questions indicated that they were
aware of the under-developments and under-resource in this care area. Our findings
support previous studies from Western countries (Brown et al., 2008, Holroyd et al.,
2009) that the poor work and pay conditions are barriers for students to choose to
work with older people. These socially constructed issues that are confronted by
students should be openly discussed in a supportive learning environment in the
nursing curriculum in order to prepare students to be advocates for older people and
their family carers.

CONCLUSION

Our study suggests that the unpopular nature of the care of the older people as
identified in Western countries exists also in China. Using a cross-sectional survey,
this study identified that ageist attitude was a barrier preventing students from
choosing to work with older people. This study also identified that first year nursing
students demonstrated better attitudes towards older people, when compared with
other year level students. In addition, students aged under-20 were more likely to
choose to work with older people. Together these findings suggest that the Collectivist
culture and Confucianism may have a positive influence on young people’s view of
the care of older people. Education providers could use culture as a resource in the
nursing curriculum to promote socialisation between nursing students and older people in order to better develop students’ understanding of older people.

Due to the use of a sample from a single university in China, sampling bias exists in this study. Findings from this study cannot be generalised, suggesting that a further study is needed to confirm the preliminary findings using random sampling among all nursing students in China. Financial reward was identified as a factor affecting nursing students’ intention to work with older people in open-ended questions, but was not captured through the questionnaire, suggesting that the questionnaire needs to be further developed by adding statements on financial reward.

REFERENCES
International Journal of Nursing Practice 12 (5), 273-279

Henderson, J., Xiao, L., Sieglof, L., Kelton, M. & Paterson, J. 2008. 'Older people have lived their lives': first year nursing students’ attitudes to older people.
Contemporary Nurse 30 (1), 32-45


Table 1 Demographic information of participants (N=622)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Year 1 (%)</th>
<th>Year 2 (%)</th>
<th>Year 3 (%)</th>
<th>Year 4 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N=204)</td>
<td>(N=218)</td>
<td>(N=123)</td>
<td>(N=77)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>14 (6.9)</td>
<td>22 (10.1)</td>
<td>4 (3.3)</td>
<td>12 (15.6)</td>
</tr>
<tr>
<td>female</td>
<td>190 (93.1)</td>
<td>196 (89.9)</td>
<td>119 (96.7)</td>
<td>65 (84.4)</td>
</tr>
<tr>
<td>age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>under-20</td>
<td>100(49)</td>
<td>29 (13.3)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>20 to 30</td>
<td>104 (51)</td>
<td>189 (86.7)</td>
<td>123 (100)</td>
<td>77 (100)</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>98 (48)*</td>
<td>118 (54.1)</td>
<td>66 (53.7)</td>
<td>53 (68.8)*</td>
</tr>
<tr>
<td>no</td>
<td>106 (52)</td>
<td>99 (45.4)</td>
<td>57 (46.3)</td>
<td>24 (31.2)</td>
</tr>
</tbody>
</table>

Note: (1) * P=0.003 when comparing the two groups; (2) Experience= working experience with older people

Table 2 Preferred nursing areas

<table>
<thead>
<tr>
<th>Categories</th>
<th>Year 1 M±SD(rank)</th>
<th>Year 2 M±SD(rank)</th>
<th>Year 3 M±SD(rank)</th>
<th>Year 4 M±SD(rank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>With children</td>
<td>3.1±2.1 (1)</td>
<td>4.5±2.6 (5)</td>
<td>4.7±2.6 (4)</td>
<td>6.0±2.4 (6)</td>
</tr>
<tr>
<td>Midwifery</td>
<td>3.5±2.3 (2)</td>
<td>4.0±2.3 (4)</td>
<td>3.5±2.0 (2)</td>
<td>3.9±2.6 (2)</td>
</tr>
<tr>
<td>Operation theatre</td>
<td>3.9±2.4 (3)</td>
<td>3.3±2.3 (2)</td>
<td>3.2±2.5 (1)</td>
<td>3.1±2.3 (1)</td>
</tr>
<tr>
<td>General Surgical</td>
<td>4.4±2.0 (4)</td>
<td>3.8±1.9 (3)</td>
<td>3.7±1.9 (3)</td>
<td>3.1±1.8 (1)</td>
</tr>
<tr>
<td>General Medical</td>
<td>5.1±1.9 (5)</td>
<td>2.3±2.1 (1)</td>
<td>5.4±1.9 (6)</td>
<td>5.1±2.0 (3)</td>
</tr>
<tr>
<td>ICU</td>
<td>5.4±2.4 (6)</td>
<td>4.6±2.4 (6)</td>
<td>4.8±2.3 (5)</td>
<td>5.8±2.5 (5)</td>
</tr>
<tr>
<td>With older people</td>
<td>5.9±2.2 (7)</td>
<td>6.1±2.1 (8)</td>
<td>6.4±2.2 (8)</td>
<td>6.3±2.0 (7)</td>
</tr>
<tr>
<td>Community care</td>
<td>5.9±2.5 (8)</td>
<td>5.7±2.5 (7)</td>
<td>6.1±2.4 (7)</td>
<td>5.6±2.4 (4)</td>
</tr>
<tr>
<td>Psychiatric nursing</td>
<td>7.8±1.9 (9)</td>
<td>7.6±2.1 (9)</td>
<td>7.2±2.3 (9)</td>
<td>7.1±2.2 (8)</td>
</tr>
</tbody>
</table>

Note: 1 as the most preferred and 9 as the least preferred
### Table 3: Reasons for choosing ‘working with elderly’ as the least preferred area

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do not feel confidence in working with older people</td>
<td>• I find difficult to communicate with older people.</td>
</tr>
<tr>
<td></td>
<td>• Older people like to criticise young people. It is difficult to reach an understanding with them.</td>
</tr>
<tr>
<td></td>
<td>• I feel scared to care for dying older people</td>
</tr>
<tr>
<td>2. The nature of the work</td>
<td>• You do not feel achievements in the care of the older person, but I feel it in ICU and the operating theatre.</td>
</tr>
<tr>
<td></td>
<td>• It is not an exciting area, but boring.</td>
</tr>
<tr>
<td></td>
<td>• It is not a challenging area in which to develop myself. I feel that by working in ICU and the operating theatre I can obtain more new knowledge and skills to help my career development after graduation.</td>
</tr>
<tr>
<td>3. The work environments</td>
<td>• Care of older people in the community arena is underdeveloped.</td>
</tr>
<tr>
<td></td>
<td>• There are limited resources to support elderly care in the community.</td>
</tr>
<tr>
<td>4. Financial concerns</td>
<td>• I find nursing older people is very rewarding work, but not rewarding in terms of the pay you receive.</td>
</tr>
<tr>
<td></td>
<td>• I can receive a higher wage by working in ICU, the operating theatre and surgical wards, rather than in caring for older people in the community.</td>
</tr>
</tbody>
</table>
Table 4 Attitude structures

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1 Prejudice</th>
<th>Factor 2 Appreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly people are difficult to talk to</td>
<td>0.70</td>
<td>-0.15</td>
</tr>
<tr>
<td>Elderly people are resistant to change</td>
<td>0.68</td>
<td>0.04</td>
</tr>
<tr>
<td>Elderly people are out of step with time</td>
<td>0.63</td>
<td>-0.06</td>
</tr>
<tr>
<td>Elderly people live too much in the past</td>
<td>0.55</td>
<td>0.12</td>
</tr>
<tr>
<td>Elderly people are critical of young people</td>
<td>0.53</td>
<td>0.11</td>
</tr>
<tr>
<td>Elderly people are best accommodated in retirement villages</td>
<td>0.47</td>
<td>-0.01</td>
</tr>
<tr>
<td>Elderly people are uninteresting to associate with</td>
<td>0.47</td>
<td>-0.11</td>
</tr>
<tr>
<td>Elderly people are good source of knowledge</td>
<td>0.09</td>
<td>0.68</td>
</tr>
<tr>
<td>Elderly people pass on valued traditions</td>
<td>0.06</td>
<td>0.66</td>
</tr>
<tr>
<td>Elderly people are respected for their wisdom</td>
<td>0.05</td>
<td>0.63</td>
</tr>
<tr>
<td>Elderly people have care and concern for other people</td>
<td>-0.16</td>
<td>0.54</td>
</tr>
<tr>
<td>Elderly people participate in a wide variety of activities and interests</td>
<td>-0.05</td>
<td>0.50</td>
</tr>
<tr>
<td>Reliability (mean inter-item correlation)</td>
<td>*r1=0.23</td>
<td>*r2=0.22</td>
</tr>
<tr>
<td>KMO and Bartlett test 0.73, p =0.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 Group comparisons of attitudes

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Year 1 (N=203)</th>
<th>Year 2 (N=218)</th>
<th>Year 3 (N=123)</th>
<th>Year 4 (N=77)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prejudice</td>
<td>MR=228.1*</td>
<td>MR=195.1*</td>
<td>MR=157.2</td>
<td>MR=103.0*</td>
</tr>
<tr>
<td>Appreciation</td>
<td>MR=197.2*</td>
<td>MR=223.8*</td>
<td>MR=138.9*</td>
<td>MR=107.6</td>
</tr>
</tbody>
</table>

Note: (a) MR=mean rank of scores; (b) 1 to 5 represent strongly agree to strongly disagree in the original questionnaire (c) *indicate p<0.05 from the Man-Whitney Test.
### Table 6 Logistic regression model

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>B</th>
<th>Wald</th>
<th>Sig.</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prejudice *</td>
<td>-0.462</td>
<td>25.596</td>
<td>.000*</td>
<td>.630</td>
</tr>
<tr>
<td>Appreciation</td>
<td>0.048</td>
<td>0.271</td>
<td>.603</td>
<td>1.049</td>
</tr>
<tr>
<td>Age below 20 or 20 to 30 (1) *</td>
<td>.547</td>
<td>4.614</td>
<td>0.032*</td>
<td>1.729</td>
</tr>
<tr>
<td>Experience with older people (1)</td>
<td>.000</td>
<td>.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Junior or senior level of study (1)</td>
<td>0.079</td>
<td>0.151</td>
<td>0.698</td>
<td>1.082</td>
</tr>
</tbody>
</table>

Note: * P ≤ 0.05 that indicates the independent variables (Prejudice and Age below 20) made a statistically significant contribution to the model