



## Relationship Between Gerontological Nursing Education and Attitude Toward Older People

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### ABSTRACT

**Background:** Nursing students' attitudes toward older people affect the quality of care provided to the aging population. Although gerontological nursing has been delivered as a stand-alone course in Macao since 2008, Macao nursing students' attitudes toward older people have not been investigated.

**Objective:** The purposes of this study were 1) to explore nursing students' background information and attitudes toward older people and 2) to examine the presence of relationships between these factors and gerontological nursing education in Macao, a special administrative region of China.

**Methods:** A cross-sectional survey design was adopted. Nursing students in Macao were invited to complete a questionnaire to record their demographic characteristics and gerontological nursing education and measure their attitudes toward older people using Kogan's Attitudes Toward Older People (KAOP) scale.

**Results:** Data from 377 (83.04%) nursing students who returned the questionnaire were analyzed. The students were found to have positive attitudes toward older people, with a mean KAOP score of  $168.44 \pm 18.38$  (mean  $\pm$  standard deviation). In particular, the item with the lowest mean score was "older adults have excessive demands for love" ( $2.5 \pm 1.2$ ), while the item with the highest mean score was "older adults need no more love than others" ( $6.0 \pm 1.0$ ). The results also revealed that Macao nursing students' positive attitudes toward older people were associated with having "religion," "good experience in gerontological nursing taught course," and "good experience in clinical practice with older people," which were thus considered to be the predictors of their positive attitudes toward older people.

**Conclusion:** Religion and gerontological nursing education are associated with Macao nursing students' attitudes toward older people. A longitudinal study is needed to evaluate the gradual changes in nursing students' attitudes. Nursing students' future career choices and perceptions of gerontological nursing education should be explored in a future study.

### 1. Introduction

The growing aging population has become a major global concern. Macao also faces challenges related to the aging population. In 2016, the life expectancy at birth in Macao was 83.3 years and 9.1% of the population was aged 65 years or above. It is estimated that Macao's aging population will reach 23.7% by 2036 (Macao Statistics and Census Service, 2016). Accordingly, to provide direct holistic care to older people in the future, there will be an increasing need for well-trained and skillful nurses (Hanson, 2014; Haron et al., 2013) who are committed to working with older people in diverse settings (Plonczynski et al., 2007).

Today's nursing students will become tomorrow's nurses for providing direct care to the aging population. In this regard, some studies

have concluded that most new nursing graduates who commonly work with older people (Bleijenberg et al., 2012) in gerontological nursing settings, such as nursing homes and older adult day care centers, do not want to choose gerontological nursing as their first job area after graduation (Bleijenberg et al., 2012; Neville, 2015; Robinson and Cubit, 2007; Williams et al., 2006; Wray and McCall, 2007). Attitude can determine a person's interest in specific situations and populations. Accordingly, nursing students' negative attitudes toward older people have been associated with disinclination to work in gerontological nursing settings after graduation (Abreu and Caldevilla, 2015).

One systematic review study found that nursing students' attitudes toward older people were vary and inconsistent (Liu et al., 2013). Some studies have suggested that nursing students in China and Taiwan have neutral (Chen and Walsh, 2009) to positive attitudes toward older

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people (Pan et al., 2009; Wang et al., 2009; Wang et al., 2010; Wu, 2011). Most citizens in Macao, a special administrative region of China, are Chinese. Given the longevity of the population in Macao, nursing students' attitudes toward older people need to be further explored to prepare the nurses to adequately care for the growing aging population.

### 1.1. Attitude Toward Older People

Attitudes toward older people have an important effect on the quality of care provided by nurses and other healthcare professionals (Bleijenberg et al., 2012; Lambrinou et al., 2009; Liu et al., 2013; Rathnayake et al., 2016). Attitudes are cultivated by individuals' past experiences and influence their behavior and reactions (Cozort, 2008; Hanson, 2014). Some factors that affect nursing students' attitudes toward older people include beliefs, culture, values, experiences (Lovell, 2006), and the attitudes of other staff members and healthcare personnel in acute settings such as hospitals (Koh, 2012).

Studies have reported inconsistent findings on the association of nursing students' attitudes toward older people with gender (Ayoğlu et al., 2014; Holroyd et al., 2009; Hweidi and Al-Obeisat, 2005, 2006; Lambrinou et al., 2009; Pan et al., 2009; Shen and Xiao, 2012; Türgay et al., 2015; Usta et al., 2012), age (Shen and Xiao, 2012), and year of the nursing program (Bleijenberg et al., 2012; Flood and Clark, 2009; Gonçalves et al., 2011; Holroyd et al., 2009; Hweidi and Al-Obeisat, 2006; Lambrinou et al., 2009; Runkawatt et al., 2013; Shen and Xiao, 2012; Stewart et al., 2005; Usta et al., 2012; Williams et al., 2007). These inconsistent findings suggest the need to explore Macao nursing students' demographic characteristics in relation to their attitudes toward older people.

### 1.2. Gerontological Nursing Education in Macao

Gerontological nursing education and clinical practice have been reported as factors that influence nursing students' attitudes toward older people (Evers et al., 2011; McKinley and Cowan, 2003; Rodgers and Jean, 2011; Runkawatt et al., 2013; Usta et al., 2012). For example, attitudes toward older people are positively correlated with attending a gerontological nursing course (Blais et al., 2006; Deschodt and Milisen, 2010; Gonçalves et al., 2011; Koh, 2012). In addition, several studies have concluded that gerontological programs or training courses can reduce negative attitudes and stereotypes of nursing students toward older people (Brown et al., 2008; Cozort, 2008; Holroyd et al., 2009; Neville and Dickie, 2014; Stevens, 2011; Tullo et al., 2010). Therefore, it is recommended that nursing programs contain a compulsory gerontological nursing course that integrates both theoretical classes (taught subject) and clinical practicum (McGarry et al., 2009; Ryan and McCauley, 2004; Türgay et al., 2015) to promote students' interest and willingness to work in gerontological care units (McGarry et al., 2009). One study concluded that Year IV nursing students had more knowledge after attending a stand-alone course in gerontological nursing, which led to more positive attitudes toward older people, compared with Year I nursing students who did not attend the course (Bleijenberg et al., 2012).

In Macao, nursing schools provide a 4-year nursing bachelor program [Bachelor of Science in Nursing (BSN)] and produce 120–140 registered nurses every year. A gerontological nursing course has been adopted and delivered as a compulsory unique subject in the BSN programs in Macao since 2008. The gerontological nursing course includes theory (taught subject) and clinical practice in hospitals and older adult care centers. However, the effect of gerontological nursing education on Macao nursing students' attitudes toward older people has not yet been explored. Therefore, a better understanding of Macao nursing students' attitudes toward older people and the relationships among variables is needed to improve gerontological nursing education in Macao.

### 1.3. Purpose

The purposes of this study were 1) to explore nursing students' background information and attitudes toward older people, and 2) to examine the presence of relationships between these factors and gerontological nursing education in Macao.

## 2. Methods

### 2.1. Design and Participants

This study used a cross-sectional survey design. All Macao nursing students were invited to participate in the study in 2015. Inclusion criteria were nursing students aged at least 18 years of age and registered in full-time nursing programs in Macao.

In total, 484 nursing students in Macao who met the inclusion criteria were recruited for the study, of which 30 participants were excluded because they were included in the pilot study. A questionnaire was then distributed to the 454 eligible nursing students in 2015, and 377 (83.04%) completed questionnaires were ultimately included in the study.

### 2.2. Instrument

The survey instrument used in this study comprised a questionnaire on demographic characteristics, gerontological nursing education, and Kogan's Attitudes Toward Older People (KAOP) scale. The demographic characteristics included continuous (age) and categorical (gender, level of education, and religion) variables.

Items analyzed in gerontological nursing education included “gerontological nursing taught subject experience” and “clinical practice experience with 65+ age group” together with categorical variables. These two items were rated using four response categories (no, poor, fair, and good).

The Kogan's Attitude Toward Old People (KAOP) scale (Kogan, 1961) has been used in many studies in different countries to assess participants' attitudes toward older people aged 65 years and over. Various translations of this scale have shown good validity and reliability in this population (Erdemir et al., 2011; Lambrinou et al., 2009; Ogiwara et al., 2007; Söderhamn et al., 2001). Some studies have used the Chinese version of the KAOP scale to evaluate registered nurses' and nursing students' attitudes toward older people (Chen and Walsh, 2009; Wang et al., 2009; Wang et al., 2010; Wu et al., 2009; Yen et al., 2009). The KAOP scale comprises 34 items, including 17 positive items (KAOP+) and 17 negative items (KAOP−), rated on a 6-point Likert-scale ranging from 1 (strongly disagree) to 7 (strongly agree), where a score of 4 indicates no response to an item (Kogan, 1961). The 17 negatively worded items are reverse scored. The total score on the KAOP scale ranges from 34 to 238, with higher scores indicating more positive attitudes.

In a validation study, the Cronbach's alpha coefficient for the total scale was found to be 0.86, indicating good reliability and validity (Polit and Beck, 2017). The results suggested that the instrument has adequate validity, reliability, feasibility, and appropriateness for use in this study. Therefore, the Chinese version of the KAOP scale was adopted in this study to assess Macao nursing students' attitudes toward older people.

### 2.3. Ethical Considerations

Three higher education institutions in Hong Kong and Macao that were involved in this study approved the study. Informed consent was obtained from all participants after briefing them about the aim and procedure of the study. Participants were informed that they could withdraw from the study at any time, without any negative consequences. The name and personal data of all participants were kept

confidential and replaced by research codes. The written report did not use any identification data. Instead, participants were addressed as a group of nursing students in the report. All research data were locked in a secure place.

### 2.4. Data Analysis

Statistical analyses were performed using the SPSS program (version 24), and the level of significance was set at < 0.05 in a two-tailed test for all tests.

Descriptive statistics were used to examine the frequency distribution (percentage of sample), central tendency (mean), and dispersion or variability [standard deviation (SD)]. The independent *t*-test and analysis of variance (ANOVA) were used to examine the presence of statistically significant differences in the mean KAOP scores between the categorical variables. Finally, multiple regression analysis with backward elimination method was adopted to examine the relationship between the variables and attitudes toward older people among nursing students in Macao.

## 3. Results

### 3.1. Characteristics of Nursing Students in Macao

The demographic data of all participants (*n* = 377) are summarized in Table 1. There were 321 (85.1%) female and 56 (14.9%) male nursing students. Their mean age was 21.3 ± 4.5 (mean ± SD) years. The included participants were from BSN Year I to Year IV. > 77% (*n* = 293) of nursing students reported having “no religion.”

### 3.2. Experience of Gerontological Nursing Education Among Nursing Students

Table 2 shows the experience of gerontological nursing education among Macao nursing students. Most nursing students who had taken a gerontological nursing course rated “gerontological nursing taught subject experience” as “fair” (*n* = 98, 26.0%) and “good” (*n* = 53, 14.1%) and 57.0% of the nursing students rated “clinical practice experience with older people” as “good.”

### 3.3. Nursing Students' Attitudes Toward Older People

The results of Macao nursing students' attitudes toward older people are presented in Table 3. The nursing students had positive attitudes toward older adults, with a mean KAOP score of 168.44 ± 18.38. The mean score of the 17 positive items (KAOP+) was 85.22 ± 10.48, and that of the 17 negative items (KAOP-) was 83.22 ± 11.28. In particular, the item with the lowest mean score was “older adults have

**Table 2**  
GN education (N = 377).

Variable	n (%)
Experience of GN taught subject	
No	204 (54.1)
Poor	22 (5.8)
Fair	98 (26.0)
Good	53 (14.1)
Experience of clinical practice with 65+	
No	71 (18.8)
Poor	1 (0.3)
Fair	90 (23.9)
Good	215 (57.0)

**Table 3**  
Attitude toward older people of participants (N = 377).

Variable	Mean (SD)
KAOP (total score)	168.4 (18.4)
KAOP –	83.2 (11.3)
KAOP +	85.2 (10.5)
1N. Older adults should live in special residences.	4.6 (1.6)
2N. Older adults are different.	4.0 (1.6)
3N. Older adults are unable to change.	5.0 (1.3)
4N. Older adults quit work when they become pensioners.	5.2 (1.2)
5N. Older adults have shabby homes.	5.8 (1.0)
6N. Wisdom does not come with advancing age.	3.9 (1.5)
7N. Older adults have too much influence in society.	4.1 (1.3)
8N. Older adults make others feel ill at ease.	5.4 (1.2)
9N. Older adults bore others with their stories.	5.4 (1.4)
10N. Older adults are always prying into the affairs of others.	5.5 (1.3)
11N. Older adults have irritating faults.	5.3 (1.3)
12N. Older adults have a negative influence on a neighborhood.	5.5 (1.2)
13N. Older adults are much alike.	4.4 (1.6)
14N. Older adults are untidy.	5.8 (1.0)
15N. Older adults are irritable, grouchy and unpleasant.	5.5 (1.2)
16N. Older adults complain about the young.	5.5 (1.3)
17N. Older adults have excessive demands for love.	2.5 (1.2)
1P. Older adults should live integrated with the young.	4.6 (1.2)
2P. Older adults are no different from anyone else.	4.9 (1.5)
3P. Older adults are capable of new adjustment.	5.3 (1.0)
4P. Older adults prefer to work as long as they can.	5.3 (1.1)
5P. Older adults have clean, attractive homes.	4.5 (1.2)
6P. Older adults grow wiser with advancing age.	4.2 (1.3)
7P. Older adults should have more power in society.	4.5 (1.2)
8P. Older adults are relaxing to be with.	4.9 (1.1)
9P. It is nice when older adults speak about their past.	5.7 (0.9)
10P. Older adults mind their own business.	5.0 (1.2)
11P. Older adults have the same faults as the young.	5.5 (0.9)
12P. Neighborhoods are nice when integrated with older adults.	5.6 (1.0)
13P. Older adults are different from one another.	5.8 (1.0)
14P. Older adults are clean and neat.	4.7 (1.1)
15P. Older adults are cheerful, agreeable and good-humored.	4.8 (1.2)
16P. Older adults seldom complain about the young.	3.9 (1.3)
17P. Older adults need no more love than others.	6.0 (1.0)

**Table 1**  
Demographic characteristics of participants (N = 377).

Variable	n (%)
Age	21.3 (1.6) <sup>a</sup>
Gender	
Male	56 (14.9)
Female	321(85.1)
Education	
Year I	105 (27.9)
Year II	99 (26.3)
Year III	80 (21.2)
Year IV	93 (24.7)
Religion	
No	293 (77.7)
Yes	84 (22.3)

<sup>a</sup> Mean(SD).

excessive demands for love” (2.5 ± 1.2), whereas that with the highest mean score was “older adults need no more love than others” (6.0 ± 1.0).

### 3.4. Relationship between Characteristics, Gerontological Nursing Education, and KAOP Scores among Nursing Students

The mean KAOP, KAOP+, and KAOP- scores were compared between nursing students with and without religion using an independent *t*-test. Religion was found to have a significant effect on KAOP and KAOP+, indicated by significant differences in the mean KAOP and KAOP+ scores between nursing students with and without religion. Nursing students with religion had higher mean KAOP scores (*p* < .05) than those without religion.

Further, ANOVA was used to compare the mean KAOP, KAOP+,

**Table 4**  
Factors and attitudes toward older people (N = 377).

Variable	n (%)	KAOP		t <sup>a</sup> /F(df) <sup>b</sup>	p	KAOP-		t <sup>a</sup> /F(df) <sup>b</sup>	p	KAOP+		t <sup>a</sup> /F(df) <sup>b</sup>	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Total scores	377 (100)	168.4	18.4			83.2	11.3			85.2	10.5		
Demographic characteristics													
Religion				-2.162 <sup>a</sup>	0.032 <sup>*</sup>			-1.105 <sup>a</sup>	0.271			2.589 <sup>a</sup>	0.001 <sup>**</sup>
No	293 (77.7)	167.4	18.3			82.9	11.2			84.5	10.57		
Yes	84 (22.3)	172.2	18.2			84.4	11.4			87.8	9.77		
GN education factors													
Clinical practice experience with 65+				3.981(3) <sup>b</sup>	0.008 <sup>**</sup>			1.227(3) <sup>b</sup>	0.300			5.483(3) <sup>b</sup>	0.001 <sup>**</sup>
No	71 (18.8)	168.2	22.2			83.3	14.6			84.9	11.6		
Poor	1 (0.3)	157.0	-			83.0	-			74.0	-		
Fair	90 (23.9)	163.1	16.7			81.3	11.0			81.8	9.2		
Good	215 (57.0)	170.8	17.2			84.0	10.1			86.8	10.3		
Experience of GN taught subject				3.092(3) <sup>b</sup>	0.027 <sup>*</sup>			1.266(3) <sup>b</sup>	0.286			3.961(3) <sup>b</sup>	0.008 <sup>**</sup>
No	204 (54.1)	167.7	19.2			82.7	12.1			85.0	11.0		
Poor	22 (5.8)	158.8	17.8			80.0	11.6			78.8	9.5		
Fair	98 (26.0)	170.5	17.9			84.6	10.8			85.9	9.9		
Good	53 (14.1)	171.5	14.7			83.9	8.3			87.6	8.6		

<sup>a</sup> Independent t-test.

<sup>b</sup> One-Way ANOVA.

<sup>\*</sup> Significant when *p* < .05.

<sup>\*\*</sup> Significant when *p* < .01.

and KAOP– scores between nursing students with different clinical practice experience ratings and between nursing students with different gerontological nursing taught subject experience ratings. The results showed that gerontological nursing education had a significant effect on KAOP and KAOP+. Nursing students with “good clinical practice experience with 65+” had higher mean KAOP (*p* < .01) and KAOP+ (*p* < .01) scores than those with “poor,” “fair,” and “no” experience. Similarly, nursing students with “good gerontological nursing taught subject experience” had higher mean KAOP (*p* < .05) and KAOP+ (*p* < .01) scores than those with “poor,” “fair,” and “no” experience.

In summary, nursing students' positive attitudes (KAOP+) toward older people were associated with religion (*p* < .05), good clinical practice experience with older people (*p* < .01), and good gerontological nursing taught subject experience (*p* < .05; Table 4).

### 3.5. Predictor of Nursing students' Attitudes Toward Older People

The multiple regression analysis results using the backward elimination method are presented in Table 5. “Age,” “gender,” and “year of the nursing program” were not associated with attitudes toward older people and thus were excluded from the regression model. “Religion,” “clinical practice experience with older people,” and “gerontological nursing taught experience” predicted 37.4% variance in KAOP scores among Macao nursing students and thus were considered to be the predictors of their attitudes toward older people. The positive coefficients indicated that having religion, good clinical experience with older people, and good experience in gerontological nursing taught subject had positive effects on KAOP scores.

**Table 5**  
Predictors of attitudes toward older people.

Variables	B	S.E.	Beta	t	p
Religion	5.307	2.228	0.120	2.381	0.018 <sup>*</sup>
Clinical practice experience with older people	4.772	1.904	0.129	2.506	0.013 <sup>*</sup>
GN taught experience	3.915	1.614	0.125	2.426	0.016 <sup>*</sup>

<sup>\*</sup> Significant when *p* < .05.

## 4. Discussion

The results of this study revealed that Macao nursing students of the BSN program have positive attitudes toward older people, consistent with those of some previous studies (Holroyd et al., 2009; Evers et al., 2011; King et al., 2013; Pan et al., 2009). Macao nursing schools produce 120–140 BSN graduates every year as registered nurses. Nursing students are enrolled in clinical nursing practice from the first year of the BSN program, which might be associated with the positive trend observed in their attitudes toward older people. Further, this study identified three predictors of positive attitudes toward older people, namely having religion, good clinical practice experience, and good gerontological nursing taught subject experience.

The lowest mean KAOP score was for the item “older adults have excessive demands for love” (2.5 ± 1.2), whereas the highest mean KAOP score was for the item “older adults need no more love than others” (6.0 ± 1.0). Macao nursing students had less positive attitudes toward older people regarding their demands for love; they suggested that older people need no more love than other generations. These findings suggest that the gerontological nursing course should include topics about the needs and physical and psychosocial disorders of older people to improve nursing students' understanding of this population.

In this study, nursing students' attitudes were not associated with age or gender, which is in contrast to the findings of other studies that have reported significant differences in nursing students' attitudes based on gender (Ayoğlu et al., 2014; Holroyd et al., 2009; Hweidi and Al-Obeisat, 2005, 2006; Lambrinou et al., 2009; Pan et al., 2009; Shen and Xiao, 2012; Türgay et al., 2015; Usta et al., 2012) and the year of BSN program (Bleijenberg et al., 2012; Flood and Clark, 2009; Gonçalves et al., 2011; Holroyd et al., 2009; Hweidi and Al-Obeisat, 2006; Lambrinou et al., 2009; Runkawatt et al., 2013; Shen and Xiao, 2012; Stewarta et al., 2005; Usta et al., 2012; Williams et al., 2007). Some studies have reported that senior students (Bleijenberg et al., 2012; Flood and Clark, 2009; Gonçalves et al., 2011; Holroyd et al., 2009; Hweidi and Al-Obeisat, 2006; Lambrinou et al., 2009; Runkawatt et al., 2013; Stewarta et al., 2005; Usta et al., 2012; Williams et al., 2007) have better attitudes toward older people than junior students. However, the results of the present study demonstrated that the year of the BSN program had no effect on students' attitudes toward older people, but good gerontological nursing education experience was found to be a predictor of positive attitudes.



To the best of our knowledge, no study to date has evaluated whether religion is associated with attitudes toward older people. The current study revealed that nursing students with religion had higher mean scores for the KAOP, KAOP–, and KAOP+ than those without religion, indicating that those who are religious have more positive attitudes toward older people.

Further, nursing students with good clinical practice experience with older people and good gerontological nursing taught subject experience had more positive attitudes toward older people than those with fair, poor, or no experience. Macao nursing schools have included clinical practicum in hospitals and nursing homes for nursing students of Year I to IV of the BSN program. Because Macao has an aging population, almost all nursing students have interactions with older people during their clinical practice. These findings are consistent with those of previous studies that reported that gerontological nursing education and clinical practice improve nursing students' attitudes toward older people (Rodgers and Jean, 2011; Runkawatt et al., 2013; Usta et al., 2012) and reduce stereotypes about them (Brown et al., 2008; Cozort, 2008; Holroyd et al., 2009; Neville and Dickie, 2014; Stevens, 2011; Tullo et al., 2010).

The findings of the present study suggest that nursing educators should adopt effective strategies to increase the socialization of nursing students through both clinical practice and theory course (Eltantawy, 2013) to promote their positive attitudes toward and understanding about older people. For example, the gerontological nursing taught course should include topics on the normal aging process and physical and psychosocial disorders to promote nursing students' knowledge and skills in caring for older people (Abreu and Caldevilla, 2015). Moreover, online learning about topics related to gerontological nursing should be implemented (Eltantawy, 2013) to enhance the learning process and motivation (Chen et al., 2015) among nursing students and to increase their interest in gerontological nursing. Positive clinical placements and environments in gerontological settings are important for promoting nursing students' positive attitudes toward older people (Evers et al., 2011) and encouraging compassionate care (Straughair, 2012) to ensure high quality of gerontological nursing care to older people. This strategy can also promote nursing students' future career choices in gerontological nursing.

## 5. Limitations

This study had some limitations. First, the cross-sectional design meant that the changes in the Macao nursing students' attitudes toward older people over time were not evaluated. Second, although the KAOP scale was developed in 1960 and has been used in many relevant studies, it might not fully reflect the culture of Greater China in terms of attitudes toward older people and gerontological nursing. This study only focused on nursing students in Macao and did not involve any comparison with other parts of Greater China. Third, this study did not compare pre- and post- gerontological nursing education changes in students' attitudes toward older people in Macao.

## 6. Conclusion

This survey study provides a better understanding of the relationship between nursing students' attitudes toward older people and gerontological nursing education in Macao. Notably, Macao nursing students showed positive attitudes (high KAOP mean scores) toward older people. Having religion, good gerontological nursing taught subject experience, and good clinical practice experience with older people were found to have significant positive effects on the Macao nursing student's attitude toward older people and were thus considered as predictors of positive attitudes. A longitudinal study is warranted to understand the changes in nursing students' attitudes over the course of the BSN program. A future study should also evaluate nursing students' future career choices and their perceptions of gerontological nursing

education.

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