

Title of Thesis

Why don't nursing students like to work in a gerontological setting?

by

HSU, Mei Hua Kerry

A Thesis Submitted to

The Education University of Hong Kong
in Partial Fulfillment of the Requirement for
the Degree of Doctor of Education

March 2018



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

Statement of Originality

I, HSU, Mei Hua Kerry, hereby declare that I am the sole author of the thesis and the material presented in this thesis is my original work except those indicated in the acknowledgement. I further declare that I have followed the University's policies and regulations on Academic Honesty, Copyright and Plagiarism in writing the thesis and no material in this thesis has been submitted for a degree in this or other universities.

HSU, Mei Hua Kerry

March 2018

Thesis Examination Panel Approval

Members of the Thesis Examination Panel approved the thesis of HSU, Mei Hua Kerry defended on X January 201&.

Principal Supervisor

Prof XXX, Xxx Xxx
Chair Professor
Faculty of Xxxx
The Education University of Hong Kong

External Examiner

Prof XXX, Xxx Xxx
Chair Professor
Department of Xxxx
Xxxx Xxxx University

Associate Supervisor

Dr XXX, Xxx Xxx
Associate Professor
Department of Xxxx
The Education University of Hong Kong

Internal Examiner

Prof XXX, Xxx Xxx
Professor
School of Xxxx
Xxxx Xxxx University

Approved on behalf on the Thesis Examination Panel:

Chair, Thesis Examination Panel
Prof XXX, Xxx Xxx
Chair Professor
Department of Xxxx
The Education University of Hong Kong

Abstract

The world's older population is estimated to reach 22% by 2050 which is double from 11% in 2000. Macao also faces challenges with regards to an aging population. It is estimated that by 2036, 23.7% of Macao's population will be aged 65 years or older. Previous studies addressed that there were not many nursing students choosing to work in gerontological nursing (GN) after graduation. To date, little is known about Macao nursing students' attitude towards older people, as well as preferences and willingness towards working in GN after graduation. The purpose of this study was to examine the preparedness of nursing students for GN practice in Macao, including their attitudes towards older people, preference and willingness to work in GN after graduation, and factors affecting and contributing in GN education and future work.

A survey design was adopted to understand the situation and attitude among Macao nursing students towards working in GN after graduation. This survey also included a small section with open-ended questions that helped enrich the understanding of the subjective perception of Macao nursing students towards GN education and working in GN after graduation. In total 377 Macao nursing students were included (return rate=83.04%) in this survey study.

This study concluded: (a) 24.4% Macao nursing students had willingness to work in GN settings after graduation. (b) Only 9.5% Macao nursing students chose GN as the first to third future work (most preference). (c) Macao nursing students with higher Kogan's attitude scores towards older people (KAOP) would be more willing to work at GN after graduation. Religion, culture factor, intention factor, and education factor were associated with positive attitudes towards older people. (d) Three predictors of preference and willingness towards GN work were confirmed in this study including "intention to live with 65+", "good experience of clinical practice with 65+" and "KAOP".

Two themes were confirmed in open-ended questions' findings: (a) GN education including GN taught course and clinical practice. (b) Non-educational factors relating to salary and GN setting, personal interest and experiences with older people. Personal interest is confirmed in this study as the most important factor among nursing students towards future working in GN. On the basis of research findings, this study proposed suggestions and strategies in GN education to promote nursing students' preferences and willingness towards working in GN after graduation.

This study gained more understandings among Macao nursing students in preference and willingness to work in GN after graduation. As ageing society, the findings will provide information to nursing educators and policy makers for strategies in GN education and policy to promote more nursing students working in GN after graduation.

Keywords: Nursing student, Gerontological nursing (GN), Kogan's attitude towards older people (KAOP), Preference/Willingness for future career.

Acknowledgments

I would like to say EDD study has been a very long journey in my life. Firstly, I would like to express my sincere gratitude to my supervisors Prof. LUI, Tai Lok and Dr. LING, Man Ho for the unconditional and continuous support of EdD study, for their patience, motivation, and immense knowledge. Especially, I would like to thank Dr. LING for his teaching and valuable time to help me in revising my thesis. My supervisors' clear guidance helped me in all the time of research and writing of this thesis especially in this final year. I would like to thank their insightful comments, encouragements and more importantly- patience, but also for the hard questions which guided me to widen my research from various perspectives.

My sincere thanks also goes to, Prof VAN, Iat Kio, Head of Kiang Wu Nursing College of Macao, and Prof. LIU, Ming, Head of School of Health Sciences in Macao Polytechnic Institute, who provided me opportunities to collect all nursing students data in Macao for this research, and Ms. LAM, Wai Wa, Head of Director of Lar de Cuidados Especiais 澳門母親會護理安養院 who provided the support and information on the situation of gerontological nursing in Macao. Also, I would like to thank all nursing students involved in Macao, without them this research could not be finished.

I thank my colleagues in Macao, Dr. YEH, Qian Hong, Dr. YUAN, Hao Bin and Dr. DAI, Hong Xia, and two friends in Taiwan and U.S.A., Ms. HSIN, Cindy and Mr. Matthew V. Beland for their unconditional support and advice before deadline.

Last but not the least, I would like to thank my family in Taiwan: my mother, my sisters, brother, and brothers-in-law for supporting me spiritually throughout writing this thesis and my life in general.

Table of Contents

Statement of Originality	i
Thesis Examination Panel Approval	ii
Abstract.....	iii
Acknowledgments	v
Table of Contents	vi
List of Abbreviations.....	ix
List of Figures.....	x
List of Tables.....	xi
Chapter 1: Introduction	1
1.1 Background	1
1.1.1 Global aging.....	1
1.1.2 Nursing shortage	2
1.1.3 Attitude towards older people	4
1.2 Purpose of the Present Study	6
1.3 Research Questions	6
1.4 Conceptual Framework of the Present Study	7
1.5 Study Variables.....	8
1.5.1 Attitudes towards older people.....	8
1.5.2 Willingness to work in GN	8
1.5.3 Preference for GN as a future career.....	9
1.5.4 Factors related to attitude towards older people	9
1.6 Null Hypotheses.....	9
1.7 Definitions of Relevant Terms.....	10
1.8 Limitations.....	11
1.9 Delimitations.....	12
1.10 Significance of this Study	13
1.11 Summary.....	13
Chapter 2: Literature Review	15
2.1 Nursing Students’ Willingness and Preference towards Working in Gerontological Nursing after Graduation.....	15
2.2 Factors Related to Willingness and Preference towards Working in Gerontological Nursing after Graduation.....	17
2.3 Attitudes towards Older People	19
2.3.1 Factors influencing nursing students’ attitudes towards older people	20
2.3.2 Demographic characteristics	23
2.3.3 Cultural factors.....	24
2.3.4 Intention factors	25
2.3.5 Gerontological nursing education	26
2.4 Summary of the Findings and Gaps from the Literature Review	32
2.4.1 Summary	32
2.4.2 Gaps in existing studies	34
Chapter 3: Research Methods	35

3.1 Introduction	35
3.2 Research Design	35
3.3 Sample	41
3.4 Instrument	41
3.4.1 Part One	42
3.4.2 Part Two: Attitude towards older people.....	43
3.4.3 Part Three	53
3.4.4 Reliability and validity of the instrument	54
3.4.5 Trustworthiness of the qualitative data	57
3.5 Procedure of Data Collection	58
3.6 Data Analysis	60
3.6.1 Quantitative data	60
3.6.2 Qualitative data analysis	63
3.7 Ethical Considerations	64
3.7.1 Data storage	64
3.7.2 Confidentiality	64
3.8 Summary of the Chapter Three	65
Chapter 4: Results	66
4.1 Introduction	66
4.2 Sample Description	66
4.3 Descriptive Data for this Study	68
4.3.1 Demographic characteristics for participants.....	68
4.3.2 Culture factors.....	69
4.3.3 Intention factors	71
4.3.4 GN education	73
4.3.5 Willingness towards working in GN settings.....	75
4.3.6 Preference of future career.....	76
4.3.7 Contributors towards working in GN	83
4.3.8 Attitudes toward older people among participants.....	85
4.4 Applicable Results of Research Questions	88
4.4.1 Demographic characteristics	94
4.4.2 Culture factors.....	97
4.4.3 Intention factors	100
4.4.4 GN education factors	103
4.5 Logistic Regression Analysis	124
4.5.1 Predictors of preference GN as future work	127
4.5.2 Predictors of willingness to work in GN after graduation	129
4.5.3 Summary of logistic regression analysis.....	130
4.6 Summary of the Findings in Quantitative Data	131
4.6.1 Attitude towards older people (KAOP).....	131
4.6.2 Preference GN as future work.....	131
4.6.3 Willingness to work at GN.....	132
4.6.4 Predictors	132
4.7 Findings of Open-Ended Questions	134
4.7.1 Question 1- What are your thoughts and suggestions about GN taught course?..	134
4.7.2 Question 2- What are your thoughts and suggestions about clinical practicum in GN?	138
4.7.3 Question 3- What are your thoughts about working in "Gerontological nursing"?	142
.....	142
4.7.4 Question 4- What are your thoughts about "any factors that would be contributors	

for working at GN in the future"?	146
4.7.5 Question 5- What are your suggestion about professional development to encourage more nurses working in GN?	150
4.8 Summary of the Findings in Open-Ended Questions	154
4.8.1 Participants' views and thoughts in GN education	160
4.8.2 Factors towards working in GN settings	160
Chapter 5: Discussion	162
5.1 Introduction	162
5.2 Correlation between Attitudes towards Older People and Factors among Nursing Students in Macao	163
5.2.1 Demographic characteristics	163
5.2.2 Culture factors	164
5.2.3 Intention factors	165
5.2.4 GN education factors	165
5.2.5 Willingness towards working in GN	167
5.3 Preference GN as Future Work and Contributor to GN among Nursing Students in Macao	167
5.4 Willingness towards Working in GN after Graduation among Nursing Students in Macao	168
5.5 Other Factors	170
5.6 Summary and Interpretation of Findings of Open-Ended Questions	171
5.6.1 Views and thoughts in GN education	172
5.6.2 Factors towards working in GN settings	174
5.7 Strategies to promote nursing students into GN	175
5.7.1 Teaching methods and activities	177
5.7.2 Teacher and preceptor	178
5.7.3 Clinical practice	179
5.7.4 Other activities	180
5.8 Implementation of the Results for the Practice	180
5.8.1 GN education	181
5.8.2 Policy implication	182
5.9 Limitations and Suggestions for Future Study	183
5.10 Conclusion	184
References	187
Appendix A: List of Panel of Experts for Content Validity	203
Appendix B: A set of documents with consent form for experts of CVI	204
Appendix C: A set of documents for pilot study	219
Appendix D: Approval for Data collection from HREC of The Education University of Hong Kong	232
Appendix E: Approval for Data Collection from Kiang Wu Nursing College of Macao	233
Appendix F: Approval for Data Collection from School of Health Sciences, Macao Polytechnic Institute	235
Appendix G: A set of documents for main study	236

List of Abbreviations

BSN	Bachelor Science of Nursing
GN	Gerontological Nursing
KAOP	Kogan's Attitude towards Old People Scale
KAOP-	Kogan's Attitude towards Older People Scale Negative Statement
KAOP+	Kogan's Attitude towards Older People Scale Positive Statement
Macao SAR	Macao Special Administrative Region
MOP	Macao Pataca
WHO	World Health Organization



List of Figures

<i>Figure 1.</i> Conceptual framework of this study.	8
<i>Figure 2.</i> The recruitment process.	67
<i>Figure 3.</i> Factors and attitude towards older people.	106
<i>Figure 4.</i> Factors and preference GN as future work.	112
<i>Figure 5.</i> Factors and willingness to work at GN.	118
<i>Figure 6.</i> Relations among KAOP, preference and willingness GN as future work.	124
<i>Figure 7.</i> The Model of PW among Nursing Students in Macao.	133
<i>Figure 8.</i> Views and thoughts in GN education among Macao nursing students.	155



List of Tables

Table 1	<i>Variables Included in the Present Study</i>	37
Table 2	<i>Comparison of Instruments to Assess Nursing Students' Attitudes towards Older People</i>	47
Table 3	<i>Content Validity Index</i>	55
Table 4	<i>The Internal Consistency of the KAOP</i>	57
Table 5	<i>Demographic Characteristics of Participants (N=377)</i>	68
Table 6	<i>Correlation between demographic characteristics (N=377)</i>	69
Table 7	<i>Ratio in Gender and Level of Education</i>	69
Table 8	<i>Culture Factors (N=377)</i>	70
Table 9	<i>Correlation between Culture Factors (N=377)</i>	71
Table 10	<i>Intention Factors (N=377)</i>	72
Table 11	<i>Correlation between intention factors (N=377)</i>	73
Table 12	<i>GN Education (N=377)</i>	74
Table 13	<i>Correlation between GN Education Factors (N=377)</i>	75
Table 14	<i>Willingness towards Working in GN Settings (N=377)</i>	75
Table 15	<i>Preference of Future Career (N=377)</i>	77
Table 16	<i>Preference GN as Future Career (N=377)</i>	82
Table 17	<i>Choices of the Contributors in Gerontological Nursing (N=377)</i>	84
Table 18	<i>Attitude towards Older People of Participants (N=377)</i>	86
Table 19	<i>Factors and Attitudes towards Older People (N=377)</i>	89
Table 20	<i>Demographic Characteristics and Attitudes towards Older People (N=377)</i>	95
Table 21	<i>Culture Factors and Attitudes towards Older People (N=377)</i>	98
Table 22	<i>Intention Factors and Attitudes towards Older People (N=377)</i>	101
Table 23	<i>GN Education Factors and Attitudes towards Older People (N=377)</i>	104

Table 24	<i>Factors and Preference GN as Future Work (N=377)</i>	109
Table 25	<i>Factors and Willingness to Work at GN (N=377)</i>	115
Table 26	<i>Preference GN as Future Work and Attitudes towards Older People (N=377)</i>	120
Table 27	<i>Preference and Willingness to Work in GN and Attitudes towards Older People (N=377)</i>	122
Table 28	<i>Correlations between “Preference GN as Future Work” and “Willingness to Work in GN after Graduation” (N=377)</i>	124
Table 29	<i>Variables for Logistic Regression Analysis</i>	126
Table 30	<i>Predictors of Preference GN as Future Work (N=377)</i>	128
Table 31	<i>Predictors of Willingness to Work in GN after Graduation (N=377)</i>	130
Table 32	<i>Summary of Answers for Open-ended Questions (N=377)</i>	134
Table 33	<i>Codes and Category for Question 1 (N=191)</i>	136
Table 34	<i>Codes and Category for Question 2 (N=238)</i>	140
Table 35	<i>Codes and Category for Question 3 (N=310)</i>	144
Table 36	<i>Codes and Category for Question 4 (N=353)</i>	148
Table 37	<i>Codes and Category for Question 5 (N=270)</i>	152
Table 38	<i>Participants’ Views and Thought in GN Education</i>	156
Table 39	<i>Factors towards Working in GN Settings</i>	159

Chapter 1: Introduction

1.1 Background

Nursing education aims not only to cultivate nursing students' abilities, professional knowledge, and skills, but also to promote their attitudes for caring people in need across the lifespan. Nursing students' attitudes influence the provision of high quality care in future practice as well as their career satisfaction and job retention. Given the rapidly ageing population, nursing students' attitudes toward older people are important for their future career choices and nursing practice in gerontological nursing (GN).

1.1.1 Global aging

The increasing aging population is causing global concern. The World Health Organization (WHO) (2015) estimates that, worldwide, there will be 2 billion people aged 60 years or older by 2050, and this figure was 900 million in 2015. Thus, the world's population of those aged over 60 years is expected to double from 12% to 22% between 2015 and 2050. This is a significant increase from the estimated 524 million people aged 65 years or older in 2010 (World Health Organization, 2015).

China is the most populous country in the world, with a current population of over 1.37 billion people (The World Bank, 2017). Further, the proportion of those aged 65 years or older increased dramatically from 4.7% of the total population in 1980 to 8.2% in 2010. It is predicted that this proportion will reach 23.3% by 2050 (Shen and Xiao, 2012). Further, by 2050, approximately 100 million Chinese citizens are expected to be aged over 80 years (World Health Organization, 2015b). This will result in challenges for the Chinese society regarding health care for older adults.

Macao also faces challenges with regards to an aging population. In 2016, 9.1% of

Macao's total population of approximately 644,900 people was aged 65 years or older and the life expectancy at birth was 83.3 years (86.4 and 80.2 years for women and men, respectively). It is estimated that by 2036, 23.7% of Macao's population will be aged 65 years or older (Macao Statistics and Census Service, 2016b). Globally, as a result of ageing, older people in households and communities seek the services of health care settings including clinics, hospitals, and nursing homes that provide direct care to people who need long-term care or hospice care, and/or for those who are critically ill. Thus, there is a significant increase in the demand for healthcare for older adults, including long-term care facilities, hospital services, and caregivers/medical professionals.

Ageing poses challenges and offers opportunities for the healthcare professionals. Though older people have been associated with disability, chronic illness, and cognitive impairment (World Health Organization, 2015b), they are also considered as a resource for the family, community, and society as they have many life experiences to share with younger generations. The ageing of the population will affect the economic system of governments and will increase healthcare demands and the need for more well-trained health professionals in gerontological care to expand the services provided in aged care settings in an age-friendly environment (World Health Organization, 2015b). Thus, well-trained health professionals, aged care settings, and social support for the ageing population are needed. In preparation for meeting the needs of an ageing population globally, it is important to **train** nursing students appropriately because they will provide direct care to the older population after graduation.

1.1.2 Nursing shortage

Nursing students continue to perform important roles in providing healthcare services to the society and the continually increasing older population. Nursing education plays a key role in ensuring that nursing students become competent and professional healthcare providers in the future. As they are expected to play a critical role in caring for the increasing older

population, it is essential that nursing students are adequately prepared to meet the future challenges in gerontological care. As such, it is important that they possess the necessary skills to care for older people and maintain positive attitudes towards older population. It is also important that educational institutions training nursing students ensure that the essential skills pertaining to gerontological care are learned and that students are encouraged to pursue careers in gerontological nursing after graduation.

Globally, it is estimated that there will be a shortage of almost 12.9 million nurses, physicians, and other health human resources by 2035. It is reported that this may be the result of decades of underinvestment in healthcare worker education, training, wages, working environments, and management. In 2013, it was estimated that there was a shortage of 7.2 million healthcare workers worldwide (World Health Organization, 2015b).

In China, there was a shortage of millions of nursing home employees to care for the growing older population in 2012, which led to increased workload for the existing nurses, resulting in nurses' jobs being perceived as physically tiring (Shen and Xiao, 2012). With a notable disproportion in the nurse-to-patient ratio, there is global focus on the shortage of nurses to provide direct care to older people (De Guzman et al., 2009; Skaalvik, Normann, & Henriksen, 2012). However, so far, no international standard of nurse-to-patient ratio in aged care has been defined. Furthermore, nurse-to-patient ratios have been linked to patient mortality and low job satisfaction.

An investigation by the Association of Hong Kong Nursing Staff (AHKNS) in 2013 found that the average nurse-to-patient ratio in public hospitals was between 1:10 and 1:12, a far cry from the statutory ratios (1:4 to 1:6) found in several other countries. No official reports or statistics from the government and other organizations in Macao report the nurse-to-patient ratio here, which seems to depend on the arrangement of each individual hospital and healthcare institution. In 2015, there were 2,279 registered nurses for 646,800 residents in

Macao, with a nurse-to-resident ratio of 3.5:1,000 (Macao Statistics and Census Service, 2015), which represented a lower ratio than that reported in Hong Kong (4:1,000 or above) (Liu, Lam, Fong, & Yuan, 2013).

The government of Macao SAR plans to increase the nurse-to-resident ratio to 3.5-4.0:1,000 by 2020, as the population is expected to reach 829,000 by then (Macao Statistics and Census Service, 2016a). As such, to achieve this goal, the total number of nurses will need to be increased by 50.1% within the next several years (Liu et al., 2013). A study suggested that 20% more nurses will be needed for gerontological care in Macao by 2020 (Van, 2010). The nursing shortage in Macao is a consequence of the lack of manpower necessary to provide direct and quality care for citizens, especially for the 9.5% of older adult population (Liu et al., 2013). Nursing students' future work preferences will provide some information to educators and policy makers.

Therefore, nursing educators in Macao need to focus on training nursing students appropriately, in order to develop future professionals who are skilled in practicing gerontological nursing.

1.1.3 Attitude towards older people

As the global aging crisis continues, studies have concluded that most new nursing graduates commonly work with older people (Bleijenberg, Jansen, & Schuurmans, 2012) in settings such as nursing homes and older adult day care centers, even though they do not want to choose GN as their first job area after graduation (Bleijenberg et al., 2012; Robinson and Cubit, 2007; Williams, Nowak, & Scobee, 2006; Wray and McCall, 2007). A study revealed that relatively few nurses and nursing students are willing to choose gerontology as a career choice (Henderson, Xiao, Siegloff, Kelton, & Paterson, 2008) and that nursing students having negative attitudes towards older people (Abreu and Caldevilla, 2015), owing to which they do not prefer working in GN settings after graduation.

Unfortunately, many countries are finding it difficult to recruit enough nurses for gerontological care (Goncalves, 2009; Koh, 2012; Shen and Xiao, 2012) or for providing direct care to older people. Some nursing students showed positive attitudes towards older people, but they did not want to work in GN after graduation (Henderson, et al., 2008; King, Roberts, & Bowers, 2013). The job duties of a gerontological nurse can cause stress and burn out in nursing staffs working in a hospital or long-term care facility, which in turn can lead to work dissatisfaction and increased turnover (De Guzman et al., 2009). Additionally, working with older people is perceived to be difficult because of concerns related to heavy workload, limited resources, and over-rigid routines (Abbey et al., 2006). Henderson, Xiao, Siegloff, Kelton, and Paterson (2008) revealed that nursing students were anxious about their ability to communicate with older people and they perceived that this specialty offers little opportunity for the development of skills (Henderson et al., 2008).

Therefore, a better understanding of nursing students' attitudes towards GN and aged care can be used to design a GN course that encourages more nursing students to work in GN after graduation. Nursing education has been reported to play a significant role in changing nursing students' attitudes towards older people and in promoting their willingness to work in the gerontological setting after graduation (King et al., 2013). A unique course on GN, including theory and clinical practice, delivered as a part of the Bachelor of Science in Nursing (BSN) program, has been linked to the promotion of nursing students' attitudes and interests in working in GN settings after graduation (Deschodt and Milisen, 2010; Goncalves et al., 2011; Koh, 2012). Given the global situation of ageing, many BSN programs have adopted GN (theory course and clinical practice) as a compulsory subject for nursing students.

In Macao, a GN course has been adopted and delivered as a compulsory unique subject in the BSN program since 2008. The GN course includes theory and clinical practice in hospitals and aged care centers. However, the impact of GN education on nursing students'

attitudes towards older people and aged care has not yet been explored in Macao. This lack of knowledge on current nursing students' attitudes and views towards aged care might have a negative impact on manpower availability for GN.

1.2 Purpose of the Present Study

The care demands of older adults are expected to increase, especially in the nursing profession. Macao will need more nurses to take up GN; however, the current situation suggests that most nursing students lack interest in engaging in aged care.

The purpose of this study was to examine the current situation of nursing students for GN practice in Macao, including their attitudes towards older people, preference and willingness to work in GN after graduation, and factors affecting and contributing in GN education and future work. On the basis of this purpose, the present study tested the relationship among factors (background, culture, intention, and GN education), Macao nursing students' attitude towards older people, and willingness to and preference for choosing GN work as future careers after graduation.

The following were the independent variables examined in this study: (a) background characteristics, (b) cultural factors, (c) intention factors, and (d) GN education. The following were the dependent variables: (a) attitude towards older people, (b) willingness to work in GN after graduation, and (c) preference to work in GN after graduation. This study also aimed to explore Macao nursing students' views towards GN education. Thus, the present study adopted a quantitative and qualitative descriptive non-experimental survey design with convenience (non-probability) sampling to examine the research questions described in the next section.

1.3 Research Questions

On the basis of the purpose in the present study, the following research questions were explored:

1. Are demographic characteristics, cultural factors, intention factors, and GN education related to “attitude towards older people” among nursing students in Macao?
2. Are demographic characteristics, cultural factors, intention factors, and GN education related to “preference for GN as a future career” among nursing students in Macao?
3. Are demographic characteristics, cultural factors, intention factors, and GN education related to “willingness to work in GN after graduation” among nursing students in Macao?
4. Is there any relationship between attitudes towards older people and preference for GN as a future career among nursing students in Macao?
5. Is there any relationship between attitudes towards older people and willingness to work in GN among nursing students in Macao?
6. What are the views of nursing students regarding the GN theory course and clinical practice?
7. What factors affect nursing students’ tendency to choose GN as a future career choice in Macao?

1.4 Conceptual Framework of the Present Study

The relationships among factors, attitudes towards older people, and the preference/willingness to work in GN after graduation among Macao nursing students were examined in the present study. Attitudes affect people’s decisions and choices, but many factors contribute to these attitudes. Therefore, a conceptual framework was developed (Figure 1) to guide the present study.

Owing to the growing number of older people in Macao, it is important to understand nursing students’ preferences regarding their future career choice. The findings of this study will be useful in fostering Macao nursing students’ positive attitudes towards older people, and in driving changes in both GN education and policy, to encourage more nursing students to work in GN after graduation.

Factors believed to affect nursing students' attitudes towards working in GN include demographic characteristics, culture, intention, and GN education. Therefore, the conceptual framework was developed to include these factors.

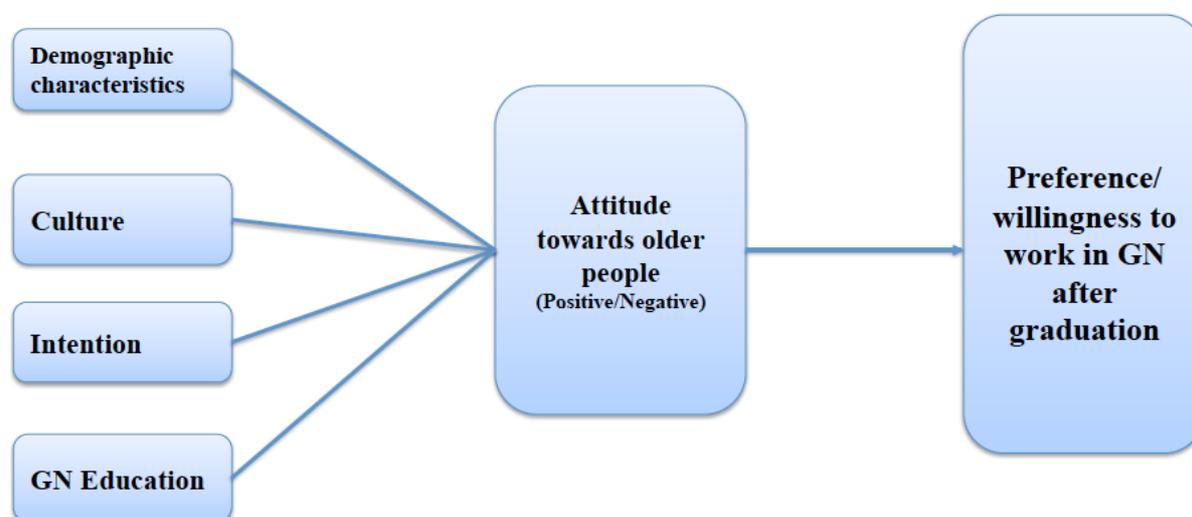


Figure 1. Conceptual framework of this study.

This conceptual framework includes all the factors which might influence a nursing student's preference/willingness to work in GN after graduation.

1.5 Study Variables

Study variables were described as the following session.

1.5.1 Attitudes towards older people

Attitudes towards older peoples comprised a set of dependent variable in this study. These attitudes were measured using the Kogan's Attitudes towards Older People (KAOP) scale to explore nursing students' values and beliefs regarding older people and to examine their relationship with the study variables. The KAOP examines participants' 17 positive (KAOP+) and 17 negative (KAOP-) attitudes towards older people. This study examined the relationships between these factors, and GN education and clinical practice.

1.5.2 Willingness to work in GN

Participants' willingness to work in GN was measured using their response to one item on "working in the GN setting after graduation."

1.5.3 Preference for GN as a future career

Participants' preference for GN as a future career was examined based on their ratings for GN as the first to twelfth future career choice.

1.5.4 Factors related to attitude towards older people

The literature review suggested that the following factors are related to attitude towards older people:

1. Demographic characteristics, which included age, gender, education, religion, and family status.
2. Cultural factors, which included "living with older people (65+ years)", "time spent with people aged 65+ years in the past 5 years", "being raised by people aged 65+ years", "having lived with people aged 65+ years", and "importance of filial piety".
3. Intention factors included "having a neighbor aged 65+ years", "getting along with people aged 65+ years", "preference for spending time with people aged 65+ years", "readiness to live with people aged 65+ years in the future", "nursing being the first study choice", and "preference for family nursing".
4. GN education factors included "having experience of clinical practice with people aged 65+ years", "having experience of clinical practice with people aged 65+ years", "having been taught GN as a subject", and "having experience of GN clinical practice".

1.6 Null Hypotheses

On the basis of the conceptual framework, the following hypotheses were proposed on the relationships examined in this study:

1. There will be no difference in nursing students' attitude towards older people (KAOP score) with demographic characteristics, culture factors, intention factors, GN education factors.

2. There will be no difference in preference GN as future work with demographic characteristics, culture factors, intention factors, GN education factors.
3. There will be no difference in willingness to work at GN with demographic characteristics, culture factors, intention factors, GN education factors.
4. There will be no relationship between students' attitudes towards older people (KAOP) and preference GN as future career.
5. There will be no relationship between students' attitudes towards older people and willingness to work at GN after graduation.

1.7 Definitions of Relevant Terms

The following definitions were used in this study:

1. "Ageing" refers to the biological changes that occur over time, which results from the accumulation of a wide variety of molecular and cellular damage (World Health Organization, 2015a, p.225).
2. "Attitude" is a "person's predisposition to evaluate a symbol, object, or aspect of the world as positive or negative" (Cozort, 2008, p. 21).
3. "Attitude towards older people" is defined as a person's positive or negative feelings toward older people.
4. "Factor," in this study, refers to an element that actively contributes to certain situation pertaining to working in the field of aged care.
5. "Geriatric care" focuses on the medical problem of older people (Miller, 2015, p. 64). It is "the branch of medicine specializing in the health and illnesses of older people, and their appropriate care and services (World Health Organization, 2015a, p. 227)".
6. The initial focus of "gerontology" was primarily on the problem of aging and older adults; however, the focus has recently shifted to fostering healthy and successful aging (Miller,

2015, p. 64). WHO (2015) defined “gerontology” as “the study of the social, psychological, and biological aspects of ageing (World Health Organization, 2015a, p. 227).

7. “Gerontological nursing” pertains to the use of evidence-based information to address the unique physiological, psychosocial, developmental, economic, cultural, and spiritual needs related to the process of care of older adults; collaboration with older adults and their significant others to promote autonomy, wellness, comfort, optimal functioning, and quality of life from healthy aging to end of life; and leadership in interprofessional teams in a holistic and person-centered approach (Miller, 2015, p. 65).
8. GN setting in this study, refers to aged care institutions including nursing home and day-care center for older adults in Macao.
9. “Nursing student” in this study, refers to students enrolled in the Bachelor of Science in Nursing (BSN) program in Macao.
10. “Older people” refers to individuals with “the chronological age of 65 years” (World Health Organization, 2015a”).
11. “Willingness” in this study, is the state of being prepared to do something.
12. “Preference” in this study, is a feeling of liking or wanting one thing (e.g., future career choice) more than another.

1.8 Limitations

1. This study was confounded by time limitations for collecting data during the academic year of 2014–2015 in Macao. All data were collected at one time point for each participant. This study did not implement any intervention to change the attitudes of the nursing students towards older people and working in the GN setting.
2. This study focused only on nursing students who were studying BSN in Macao. Thus, those nursing students studying outside Macao were not included in this study.

3. This study aimed to explore the attitudes of Macao nursing students towards older people and future career choices. It did not involve the review and evaluation of the GN curriculum.
4. This study aimed to understand Macao nursing students' views and opinions alone; it did not involve the perspectives of educators and clinical preceptors.
5. This study did not involve the modification of the GN curriculum offered in BSN programs in Macao.
6. This study did not compare the differences in nursing students from different nursing schools in Macao. It focused on factors affecting Macao nursing students' attitudes, preferences, and willingness regarding working in GN settings.
7. This study did not follow up the actual career choices of the nursing students after graduation.
8. The instrument used in this study had not been used earlier, and it was designed focusing on the Macao nursing students included in this study.

1.9 Delimitations

This study focused on Macao nursing students, who will be registered nurses after graduation, to explore their attitudes toward gerontological care. The findings provided evidence for and information about the factors affecting Macao nursing students' readiness to work in GN settings after graduation. These findings can also be used to develop strategies to encourage nursing students to work in GN settings after graduation, which in turn will help prepare for the ageing society in Macao. This study was conducted in Macao. It did not aim to compare the differences among nursing students; rather, it aimed to identify the factors contributing to their preparedness to work in GN settings after graduation.

As this study was conducted in Macao, it cannot represent other nursing students, who are citizens of Macao, enrolled in baccalaureate nursing programs elsewhere in the world.

1.10 Significance of this Study

GN theory and clinical practice have been compulsory courses in the BSN program in Macao. Educators can use the present findings about nursing students' attitudes towards older people to develop and modify the GN curriculum appropriately. This study helps to fill the knowledge gaps related to Macao nursing students' attitudes and career choices pertaining to working in GN settings after graduation. This study supplemented by open-ended questions for qualitative data from nursing students in Macao to provide a comprehensive and objective understanding of their attitudes towards working in GN settings.

In addition, the present findings provide evidences for the improvement of GN education. The government and health care authorities can use this information to guide future aged care policies in Macao. Additionally, the evidence regarding nursing students' attitudes towards GN can be used to develop and modify policies to encourage more nurses to work in GN.

1.11 Summary

The older population in Macao comprised more than 9.1% of the total population in 2016. Therefore, the preparation of nursing students for GN is inevitable and important. After graduation, nursing students will play a key role in providing direct care to older people. Some studies have revealed that nursing students' attitudes towards older people are important for their future career choices because negative attitudes reduce their interest in working in aged care.

From the literature and the current situation in Macao, the present study aimed to explore the attitudes of Macao nursing students towards working in GN settings and the factors affecting the same. That is an important step towards identifying the underlying factors that

contribute nursing students' willingness to and preference for working in GN settings. As nursing schools in Macao provide GN education in their programs, this study also examined Macao nursing students' views regarding the current GN education (both theoretical courses and clinical practice). This knowledge will lead to more precise information for GN curriculum improvement such that more nursing students can be encouraged to choose GN as their future career.

Chapter 2: Literature Review

This review of the existing literature assesses nursing students' attitudes towards older people, preference and willingness to work in GN. Factors related to nursing students' attitudes towards older people and future work choices are examined. The role of GN education in aged care has also been explored. This review is based on published studies in original research. The sources were identified and explored through a systematic search in four international electronic databases (MEDLINE, CINAHL, Science Direct and ERIC). The terms, "nursing students", "attitudes towards older people" and "career choice and factors" were used to search for relevant studies. The search was limited to publications from 2000–2015 and written in English. This review aims to identify the gaps in the literature and identify the current knowledge about the relationships among the study variables.

2.1 Nursing Students' Willingness and Preference towards Working in Gerontological Nursing after Graduation

Given the situation of global aging and longer life expectancy, older people may experience changes in morbidity patterns and concomitant chronic illnesses (Hanson, 2014). There will be an increasing need for trained and skilled of nurses in gerontological nursing to provide direct holistic care to older people (Haron, Levy, Albagli, Rotstein, & Riba, 2013; Hanson, 2014), who are committed to working with older people in diverse settings (Plonczynski et al., 2007).

Nurses play an important role in gerontological care because they provide direct care that includes physical, psychological, emotional, and spiritual care, as well as health promotion and education to older people in different settings (De Guzman et al., 2009; Hweidi and Al-Obeisat, 2006). In a rapidly aging society, people are expected to

live a long life with chronic diseases and disabilities, which necessitates the availability of care facilities (Lovell, 2006) and nurses involved in aged care (Neville, 2015b). Another impact on nursing and health care is that almost all nursing students have to provide care for older people after graduation, irrespective of their choice to not work in GN settings (Bleijenberg et al., 2012). Holroyed et al. (2009) estimated that nurses will have to spend over 75% of their working hours caring for older patients by 2020 (Holroyd, Dahlke, Fehr, Jung, & Hunter, 2009). Thus, nurses must become competent and skilled in GN (Potter, Clarke, Hackett, & Little, 2013) as the majority of aging population experiences chronic illnesses and a variety of other health problems.

Today's nursing students will become tomorrow's nurses who will be responsible for providing direct care to the older population. Cultivating nursing students' attitudes, knowledge, and skills to meet this future challenge will be essential for managing the aged care crisis effectively. Additionally, there is a global shortage of nurses as many countries are affected by a "decrease in supply that cannot meet the increased demand," especially in aged care, and unfavorable work conditions (Littlejohn, Campbell, Collins-McNeil, & Khayile, 2012). Consequently, not many nurses choose to work in GN settings (Neville, 2015b). Previous research has found only 8.6% nurses in Belgium (Deschodt and Milisen, 2010) and about 8.0% of nursing students in Australia (Stevens, 2011) would choose GN as a future career option after graduation. Gerontological nursing ranked seventh out of ten preferred career choices (Stevens, 2011). Nursing students will play an important role in health care in the future. Therefore, it is important to study nursing students' intention to work in GN settings after graduation.

Further, nursing students' attitudes towards older people have a significant impact on the quality of GN care. GN education plays an important role in cultivating

nursing students' interest in the provision of quality care to older people.

2.2 Factors Related to Willingness and Preference towards Working in Gerontological Nursing after Graduation

Previous studies have revealed several barriers to nursing students' willingness to work in GN after graduation. For instance, some studies concluded that nursing students' positive attitudes towards older people were associated with this willingness (Bleijenberg et al., 2012; Eltantawy, 2013; Gonçalves et al., 2011; Hweidi and Al-Obeisat, 2005; Koren et al., 2008) (McKinley and Cowan, 2003; Pan, Edwards, & Chang, 2009; Türgay et al., 2015). However, one Australian study reported that nursing students (N = 262) had positive attitudes toward older people, but majority of them did not want to work with them after graduation (Henderson et al., 2008). This indicates that, despite having positive attitudes towards older people, nursing students might not want to work in GN after graduation.

In general, nursing students reported anxiety towards aging and negative attitudes towards gerontology (Cheng, Cheng, Tian, & Fan, 2015). Additionally, they lacked the ability to communicate with older people, and to deal with issues related to dying and illness (Henderson et al., 2008; Shen and Xiao, 2012). Consequently, they view working with older people as a stressful and less interesting option (Shen and Xiao, 2012). Most nursing students appeared to want to work in "high paced and challenging work" (Evers, Ploeg, & Kaasalainen, 2011), and working in GN settings was considered as slow and less challenging or exciting (Carlson, Ramgard, Bolmsjo, & Bengtsson, 2013).

More importantly, the lack of support in GN practice settings from preceptors (Carlson & Idvall, 2015; Shen and Xiao, 2012) contributed to nursing students'

reluctance to work in GN after graduation. Nursing students also experienced negative feelings about caring for older people (Evers et al., 2011; Henderson et al., 2008) and the workload involved in the same (Carlson et al., 2013). Indeed, these factors are related to nursing students' lack of preparedness and training, and lack of support for caring for older people in a clinical setting (Carlson and Idvall, 2015; Shen and Xiao, 2012). On the contrary, one study from China highlighted that nursing students' (N = 916) tendency to choose GN as a future career was related to their personal interest and the clinical practice environment (Cheng et al., 2015). Nursing students in Sweden (N=183) reported that a positive clinical environment and positive values encouraged them to choose to work in GN in future (Carlson and Idvall, 2015). Positive clinical experience in GN was reported to be associated with Chinese and Swedish nursing students' readiness to choose GN as their future career. Thus, GN clinical practice plays an important role in helping nursing students understand the nature of work involved in GN or aged care. Additionally, it could promote nursing students' interests for working in GN settings after graduation.

Other studies have found that nursing students aged less than 20 years were more likely to choose to work with older people (Shen and Xiao, 2012). Additionally, among nursing students, females, those with prior nursing work experience, and those who had attended a GN-specific course exhibited higher interest in working in GN (Koskinen, Hupli, Katajisto, & Salminen, 2012). Further, nursing students were more willing to work or practice in GN as compared to students in other fields (Gonçalves et al., 2011).

A study conducted in the Philippines reported that nursing students' (N = 839) intent to care for older people can be increased if consider older people as powerful and wise (De Guzman et al., 2013). Additionally, positive past experiences with older

people through direct contact with neighbors, relatives, or older patients in a clinical setting have been reported significantly promote interest towards working with older people (Gonçalves et al., 2011). Therefore, more direct contact with older people could be used to increase nursing students' willingness to work in GN settings.

Barriers to nursing students' choice to work in GN setting include nursing students' perceptions of lack of standards of GN settings and environments owing to low payment, lack of nursing staffs, and difficulties in career advancement and promotion (Brown, Nolan, Davies, Nolan, & Keady, 2008; Sarabia-Cobo and Castanedo-Pfeiffer, 2015). Moreover, educators and preceptors who do not have positive attitudes towards older people may unknowingly affect nursing students' intention and willingness to work in GN settings after graduation (Blais, Mikolaj, Jedlicka, Strayer, & Stanek, 2006; Carlson and Idvall, 2015; Holroyd et al., 2009; Shen and Xiao, 2012).

These studies identify the factors affecting nursing students' willingness to work in GN after graduation. Additionally, nursing students' willingness and preference for working with older people might be determined by their background, culture, intention, and education, which affect their attitudes towards GN. GN education and clinical practice also play an important role in nursing students' willingness to work in GN in future. These findings raise an important question on whether Macao nursing students' willingness and preference to work in GN after graduation are affected by the same factors.

2.3 Attitudes towards Older People

Attitude plays an important role in the quality of care provided by nurses and other healthcare professionals (Bleijenberg et al., 2012; Lambrinou, Sourtzi,

Kalokerinou, & Lemonidou, 2009; Liu, Norman, & While, 2013; Rathnayake, Athukorala, & Siop, 2016). Attitude could determine people's interests towards specific situations and population. Attitude is defined as an individual's feelings, belief, and experiences related to a person, situation, or thing (Cozort, 2008). It is cultivated by the individual's previous experiences, and it influences his/her behavior or reactions (Hanson, 2014). Nurses are responsible for providing quality care in healthcare settings. Therefore, nurses' attitudes affect the quality of care offered to patients, especially to older people (Cozort, 2008; Hanson, 2014). Several studies have revealed that nursing students hold negative attitudes towards older people (Abreu and Caldevilla, 2015; Celik, Kapucu, Tuna, & Akkus, 2010; Ferrarioa, Fremana, Nelletta, & Scheel, 2007; Holroyd et al., 2009; Lovell, 2006; Ryan and McCauley, 2004).

Holding negative attitude towards older people is an obstacle for nursing students' interest in working in GN after graduation. Nursing students' negative attitudes were associated with chronic conditions and the level of disability in older people (Henderson et al., 2008). As a consequence of their negative attitudes towards older people, nursing students were found to avoid working in gerontological settings (Flood and Clark, 2009; Neville, 2015a). Factors influencing nursing students' attitudes towards older people have been identified and concluded in previous studies that provided information to this study.

2.3.1 Factors influencing nursing students' attitudes towards older people

Many factors have been reported to affect nursing students' attitude towards older people, including their beliefs, culture, values, experiences (Lovell, 2006), and attitudes of other staffs or health work personnel in acute settings (Koh, 2012).

However, most studies have used a cross-sectional design to explore nursing students' attitudes towards older people and GN at one point in time (Abreu and

Caldevilla, 2015; Celik et al., 2010; Eltantawy, 2013; Evers et al., 2011; Flood and Clark, 2009; Gonçalves et al., 2011; Henderson et al., 2008; Holroyd et al., 2009; Hweidi and Al-Obeisat, 2006; Lambrinou et al., 2009; McKinley and Cowan, 2003; McLafferty, 2005; Pan et al., 2009; Potter et al., 2013; Rodgers and Jean, 2011; Viliporn Runkawatt, Gustafsson, & Engström, 2013; Ryan and McCauley, 2004; Söderhamn, Lindencrona, & Gustavsson, 2001; Türgay et al., 2015; Usta, Demir, Yönder, & Yildiz, 2012; Walsh, Chen, Hacker, & Broschard, 2008; Zverev, 2013). Out of the variables found to affect nursing students' attitudes towards older people, demographic variables (gender, age, and education level) have been most frequently identified as significant predictors; however, there is a lack of consensus regarding this (Liu et al., 2013). The experience of living with older people and the intention to live with older people were reported to improve nursing students' attitudes towards aging (Holroyd et al., 2009; Liu et al., 2013). The experience and intention with older people would be important factors among nursing students' attitudes towards older people.

Nursing students might perceive older people to be dependent and weak owing to cognitive impairment and limited mobility, which influence their attitudes towards older people. Therefore, Holroyd et al. (2009) suggested that it is important for nursing students to spend time with healthy older people to change their attitudes (Holroyd et al., 2009). Two studies used a longitudinal design to explore nursing students' attitudes towards older people (Bleijenberg et al., 2012; Williams, Anderson, & Day, 2007). Findings suggested that Year IV nursing students had more knowledge after attending a stand-alone course in GN, which led to more positive attitudes towards older people as compared to those they had in Year I (Bleijenberg et al., 2012). Another study did not involve a stand-alone GN course and found that there was no significant difference in nursing students' attitudes towards older people over time (Williams et al., 2007).

Thus, a stand-alone GN course seems to be an effective method of improving nursing students' attitudes towards older people.

Three quasi-experimental pre-post-test studies suggested that a gerontological course had significant effects in decreasing negative attitudes and feelings among nursing students towards older people (Chen and Walsh, 2009; Lee, Shin, & Greiner, 2015; Walsh et al., 2008). Specifically, GN courses combined with creative intervention (a Creative-Bonding Intervention (CBI) related to art-making activities) led to better improvement in students' positive attitudes towards older people (Chen and Walsh, 2009; Walsh et al., 2008). Thus, it is evident that a GN course should include more active content to promote nursing students' interest, and educators can adopt several teaching methods to improve nursing students' learning experience in GN. In this context, one qualitative study reported that nursing students did not prefer GN because they felt sorry for older adults as they were "confused" and "lonely," or they were "mistreated" by their own grandparents (Evers et al., 2011). Indeed, in addition to their educational experiences (GN course and clinical placements), these factors influence students' attitudes toward work in long-term care settings.

The above studies demonstrated that nursing students often lack adequate knowledge about aged care, which may affect their attitudes towards older adults. Stand-alone GN courses also appear to play an important role in equipping nursing students with appropriate knowledge, skills, and attitudes towards aged care. Nursing schools in Macao have offered a stand-alone GN course that includes theory and clinical practicum. Therefore, it is important to examine if Macao nursing students' attitudes towards older people and willingness to work in GN are affected by the same.

In sum, the extant literature suggests that nursing students' attitudes towards older people are affected by the following factors: demographic characteristics, cultural

factors, intention factors, and GN education factors.

2.3.2 Demographic characteristics

A few studies reported that male nursing students had more positive attitudes towards older people than females did (Ayoğlu, Kulakçı, Ayyıldız, Aslan, & Veren, 2014; Holroyd et al., 2009; Hweidi and Al-Obeisat, 2005, 2006) but others reported the opposite findings (Lambrinou et al., 2009; Pan et al., 2009; Shen and Xiao, 2012; Türgay et al., 2015; Usta et al., 2012) with female nursing students exhibiting more positive attitudes towards older people.

Senior nursing students are reported to have positive attitudes towards older people (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; Viliporn Runkawatt et al., 2013; Stewart, Gilesbc, Paterson, & Butlere, 2005; Usta et al., 2012; Williams et al., 2007). However, in contrast, Shen and Xiao (2012) reported that younger nursing students exhibited more positive attitudes toward older people during their first year of BSN studies (Shen and Xiao, 2012).

Studies have concluded that there were no differences in nursing students' attitudes towards older people based on living area (Hweidi and Al-Obeisat, 2006) and family income (Lambrinou et al., 2009). One study conducted in the USA concluded that Hispanic/Latino nursing students had more positive attitudes than African American nursing students did (Ryan and McCauley, 2004). However, this finding is related to a racial issue in the USA, and therefore, it might not be applicable to the present sample, as most of the Macao nursing students are Chinese.

Overall, previous studies report inconsistent findings on the impact of gender, age, and year of study on nursing students' attitude towards older people. As majority of the nursing students are female, the gender differences may have been observed.

However, these inconsistent findings revealed the need to explore Macao nursing students' demographic characteristics in the present study.

2.3.3 Cultural factors

Cultural factors have been found to play a significant role in attitudes toward older people (Mark and Charles, 2013), especially in the Chinese society (Pan et al., 2009). In the Chinese culture, most people respect older adults as being old is recognized as a symbol of honor, prestige (Lovell, 2006), and wisdom. Confucianism and a family-oriented culture are deep-rooted in people in East Asia, and filial piety is emphasized upon (Pan et al., 2009). Thus, older adults are respected and cared for by their family or by the younger generation. The core values of Confucianism emphasize on the responsibilities of care and respect for older people (Li and Buechel, 2007).

Research in some Western countries has indicated that aged care was not a popular career choice among nurses and nursing students (Henderson et al., 2008; McCann, Clark, & Lu, 2010). This may be related to the individualistic culture, owing to which older people prefer to live an independent life without being surrounded by their children and grandchildren. In such countries, nurses and nursing students do not have many opportunities to experience intergenerational interaction in the household (Li and Buechel, 2007), especially with older people. On the other hand, the Eastern culture emphasizes on “collectivistic” values and beliefs that focus on group achievements rather than on individuals (Li and Buechel, 2007). The younger generation is often raised in an intergenerational household and they have more opportunities to communicate and socialize with older people (Pan et al., 2009). It is possible that younger people in East Asia might have more positive attitudes toward older people because their families often include older members.

In China, the family has been the only source of support for older people (Wu,

Mao, & Zhong, 2009). Therefore, the care burden experienced by family caregivers may affect nursing students' perceptions about caring for older people. Nursing students' past experiences and relationships with older people, such as "having aged acquaintances and relatives", "having a good relationship with grandparents", and "having previously lived with or currently living with an older person" have been observed to lead to more positive attitudes toward older people (Evers et al., 2011; Gonçalves et al., 2011; Holroyd et al., 2009; Viliporn Runkawatt et al., 2013; Türgay et al., 2015; Usta et al., 2012). In the Far East, it is common for three generations to live together, and some members from the older generations play a significant role in taking care of their grandchildren. Therefore, nursing students who had feelings of "love, trust, affection, and happiness" toward their grandparents appeared to have a more positive attitude towards aged care (De Guzman et al., 2009).

One study compared Thai and Swedish nursing students' attitudes towards older people and found that both groups had positive attitudes towards older people despite their cultural differences. Thai students were younger and most had experiences with older people, such as grandparents, as compared with Swedish students. Possibly, Swedish students' higher age was related to more positive attitudes towards older people (Viliporn Runkawatt et al., 2013). Another study revealed that nursing students who had lived with older adults for longer had better attitudes towards older people (Usta et al., 2012). These conclusions show that nursing students who had experiences through direct contact with older people, who were raised by their grandparents, who were accustomed to visiting older relatives, and who interacted regularly with older people had lower negative biases regarding older people.

2.3.4 Intention factors

Some Eastern nursing studies concluded that "intention to live with older adults

in the family” was connected to more positive attitudes towards older adults (Pan et al., 2009; Türgay et al., 2015; Usta et al., 2012), while no Western research has reported such results. In Eastern countries, most people feel that caring for older family members, especially parents, is their traditional responsibility (Türgay et al., 2015). Therefore, nursing students might consider living with older family members as a part of their life. Consequently, they tend to have more positive attitudes towards older people.

According to the census, majority of the population in Macao is of Chinese ethnicity (93.1%), including Macanese, which is a mix of Portuguese and Chinese ancestry (Macao Statistics and Census Service, 2016a). This information was factored in while designing the present study, to examine the impact of this variable on nursing students in Macao.

2.3.5 Gerontological nursing education

Globally, to tackle the challenges pertaining to aging, there is an increasing trend in the provision of GN programs or courses in higher education settings (Majeski, Damond, & Stover, 2007). GN programs provide specific knowledge and skills for nurses and nursing students regarding aged care and risk reduction in aged care centers.

Studies have reported that attending a GN course had a positive correlation with better attitudes toward older people and willingness to work in gerontological settings (Blais et al., 2006; Deschodt and Milisen, 2010; Gonçalves et al., 2011; Koh, 2012). A longitudinal study revealed a positive change in nursing students’ attitudes toward older adults over the entire nursing program, and not just immediately after the gerontological nursing course (King et al., 2013). On the other hand, two studies reported that nursing students involved in didactic aged care courses did not exhibit substantial changes in attitudes toward older people (Chen, Kiersma, Yehle, & Plake, 2015; Gonçalves et al.,

2011). This suggests that GN courses should include more than one teaching method to promote students' interest.

GN education implemented as a part of other subjects in the 4 years of the BSN program, rather than a stand-alone course, did not have a significant impact on students' attitudes towards older people. Two other studies reported similar findings, with over half the nursing students reporting learning nothing on aged care when it was not implemented as a stand-alone subject, and it was even observed to have led to negative attitudes towards older people (Holroyd et al., 2009; Stevens, 2011). These findings suggest that GN should be taught as a separate subject to promote positive attitudes towards older people.

Studies suggest that all nursing undergraduates need to be prepared for providing quality care to older adults through a dedicated GN course (Xiao, Paterson, Henderson, & Kelton, 2008). A GN program can be delivered to nursing students as a stand-alone subject to promote nursing students' positive attitudes toward older people (King et al., 2013; Rodgers and Jean, 2011). A nursing program should include a compulsory gerontological nursing course that integrates both theoretical classes and clinical practicum (McGarry, Aubeeluck, Simpson, & Williams, 2009; Ryan and McCauley, 2004; Türgay et al., 2015) to promote students' interest in and willingness to work in gerontological care (McGarry et al., 2009). Prior studies have reported that nursing students lacked the knowledge and skills necessary for caring for older people in clinical settings, and that there was a lack of appropriate support from preceptors in GN clinical practice settings (Carlson and Idvall, 2015; Shen and Xiao, 2012). These factors led to anxiety towards working with older adults and negative attitudes towards gerontology (Cheng et al., 2015), which in turn affect nursing students' intention to choose GN as a future career.

Lack of knowledge about caring for older adults was reported to be strongly associated with negative attitudes towards older people (Holroyd et al., 2009; Ryan and McCauley, 2004). Holroyd et al. (2009) revealed that, in general, GN is not taught as a separate subject and it is often combined with other subjects in the four-year BSN program (Holroyd et al., 2009). They added that such courses focus on the care of older patients with illnesses or chronic diseases in hospitals or long-term care settings. Thus, such courses rarely provided information on aging and caring for older adults. Evidently, nursing students might not be adequately prepared and equipped with sufficient knowledge and skills for GN, and they may have negative attitudes towards aging (Ryan and McCauley, 2004).

(1) Gerontological nursing theory course

The GN course plays an important role in the promotion of nursing students' attitudes and willingness to work in GN. It is essential to improve GN education to encourage more nursing students to work in this specialty (Alabaster, 2007; McLafferty, 2005). Further, if better knowledge leads to more positive attitudes towards older people (Lambrinou et al., 2009), it would in turn influence the quality of care older people receive (Koh, 2012). Therefore, nursing faculty must develop an effective geriatric nursing curriculum that is beneficial to the current trends of our aging society. Nursing education is a continuous teaching and learning process; thus, each course needs to be developed appropriately and reviewed regularly to provide good learning experiences for nursing students.

As many nursing higher education institutions do not offer a separate GN course as a part of the nursing program, there is a lack of knowledge on “best” approaches and teaching strategies in gerontological nursing education. GN teaching methods should involve several teaching methods to promote nursing students' interest and attitudes in

aged care. A successful educational program would thus need to include various teaching and learning strategies that link with students' views, apply practical approaches, and integrate creativity and art into gerontological nursing (Chen and Walsh, 2009). The need to adopt educational strategies to meet the needs of older people, more emphasis should be placed on GN curricula. It is imperative to offer such courses in the BSN program. Therefore, nurse educators should restructure nursing curricula to integrate aspects related to aged care (Hweidi and Al-Obeisat, 2006).

Towner (2006) found that nursing students lacked the knowledge and understanding of older people and aging (Towner, 2006). Thus, a well-designed and tailor-made GN program will help improve nursing students' knowledge and skills pertaining to quality care for older people. The planning of a GN program should include experts in gerontology, and the clinical practice setting should be welcoming and supportive, such that students' attitudes can be improved and their willingness to work with older people after graduation can be increased (Brown et al., 2008).

It has been argued that educators' lack of experience and knowledge on GN, and their negative attitudes towards aging may lead nursing students to have negative attitudes towards aging (Runkawatt et al., 2013) and may lower their interest to work in GN settings. Thus, nursing schools and faculty need to evaluate the current GN programs and model of delivery taking into account students' feedback on the same. In order to promote nursing students' interest in GN, research has suggested that the content of GN education should be increased and modified to include goal-directed teaching and learning methods (Söderhamn et al., 2001). This, in turn, would strengthen teachers' expertise and would help them be role models at school and in clinical settings (Deschodt and Milisen, 2010). Further, the preparedness of faculty and preceptors with aged care experience in GN clinical settings are important to promote nursing students'

attitudes toward GN. Thus, a well-prepared GN curriculum is essential for delivering the necessary knowledge and skills to nursing students to promote positive attitudes towards older people and to improve their intention to work in GN settings.

(2) Gerontological nursing clinical practice

Clinical experience in GN has been reported to influence students' attitudes towards geriatric care and it is associated with dislike for GN (Evers et al., 2011; McKinley and Cowan, 2003). It has been argued that the practice environment is a critical influencing factor for students' intention to work in aged care settings (Brown et al., 2008), including long-term care facilities for older adults (Marsland and Hickey, 2003). Some nursing programs avoid using long-term care facilities for GN practice (Heise, Johnsen, Himes, & Wing, 2012). In a qualitative study, nursing students expressed that they did not know how to communicate with older people when they were placed in aged care settings because the GN curriculum focused on the acute care of older people (Duggan, Mitchell, & Moore, 2013). However, other studies have suggested that nursing students' clinical experiences with healthy, community-dwelling older people improved students' attitudes towards working in geriatric settings (Burbank, Dowling-Castronovo, Crowther, & Capezuti, 2006; Furze, Lohman, & Mu, 2008).

Studies indicate that nursing students' clinical placement in quality nursing home environments improved nursing students' attitudes towards older adults (Chen, Melcher, Witucki, & McKibben, 2002; Mueller, Goering, Talley, & Zaccagnini, 2011). Further, nursing students were reported to value the independent and person-centered nature of nursing experience in GN clinical placement (Carlson and Bengtsson, 2014). In contrast, one study reported that some students describe aged care as hopeless, stressful, and depressing owing to the work environment, and they explained that they

would not consider aged care as a career choice after graduation (Carlson and Bengtsson, 2014).

Clinical practice provides nursing students opportunities to learn and apply skills specific to gerontological care, such as ways to communicate with them. However, evidence suggests that exposure within clinical placements alone lacks efficacy in engendering positive attitudes and that careful consideration is required to prepare students for the GN experience (Gilliss, 2011). Quality clinical placement encourages nursing students to improve their attitudes towards older people.

A recent study concluded nursing students in China (N=916) chose GN as a future career owing to the personal interest and the clinical practice environment (Cheng et al., 2015). Nursing students in Sweden (N=183) found that a positive clinical placement environment increased students' positive attitudes, which encouraged them to consider it as a future career choice (Carlson and Idvall, 2015). Thus, the clinical experience in GN was associated with Chinese and Swedish nursing students' readiness to choose GN as their future career.

Nursing students also expressed that GN was not interesting (Henderson et al., 2008; Koh, 2012). Thus, students may not choose to work in GN setting in future owing to the negative attitudes towards older people, poor teamwork in gerontological settings, as experienced during practice (Abbey et al., 2006; Alabaster, 2007; McLafferty, 2005), low value and esteem (Abbey et al., 2006) and encountering only critical and terminal older patients (Abbey et al., 2006; Robinson and Cubit, 2007) in hospitals and long term care settings. These stereotypes exist across countries and affect health care providers' attitudes toward aged care.

These studies reveal the factors affecting nursing students' willingness to work in GN after graduation. Specifically, GN education and clinical practice were important

factors affecting nursing students' willingness to do so. These findings raise an important question on whether Macao nursing students would exhibit similar findings.

GN education and clinical practice are also known influence to nursing students' attitude towards older people (Rodgers and Jean, 2011; Runkawatt et al., 2013; Usta et al., 2012). However, there were inconsistent findings related to the impact of GN courses on nursing students' attitudes towards older people. Indeed, several studies have concluded that gerontological programs or training courses could help reduce negative attitudes and stereotypes in nursing students towards older people (Brown et al., 2008; Cozort, 2008; Holroyd et al., 2009; Neville and Dickie, 2014; Stevens, 2011; Tullo, Spencer, & Allan, 2010).

In summary, GN courses and clinical practice experiences are influential in changing nursing students' attitudes towards gerontological care. Indeed, the GN course plays a key role in promoting nursing students' attitudes towards older people.

2.4 Summary of the Findings and Gaps from the Literature Review

2.4.1 Summary

The literature review revealed inconsistent results pertaining to the factors related to nursing students' attitude towards GN. However, previous studies do provide important information and evidence from different places and across time. Most studies concluded that nursing students' positive attitudes towards older people were related to their willingness and preference for GN work after graduation. Indeed, attitudes cannot be changed easily, and it might be related to personal background, culture and past experience, and educational factors. Studies concluded that nursing students' reasons for preferring to work in hospitals rather than GN settings differed greatly.

Findings on the influence of demographic characteristics such as gender and

year of study were inconsistent. The gender issue needs to be elaborated further as more males are now entering the nursing profession in Macao (Macao Statistics and Census Service, 2014a). Additionally, nursing students' level of education was reported to affect their attitudes towards older people. Other variables related to demographic characteristics, such as religion and family status have not been explored in previous studies. Studies also confirmed that cultural factors have a strong relationship with nursing students' attitudes toward older people. These cultural factors include past experiences and relationships with older people, especially because "filial piety" is encouraged in Asia.

In addition to these background and cultural factors, nursing students' intention to work and live with older people was found to be affected by their GN education. Previous studies seemed to focus on a stand-alone GN course. Since 2008, nursing schools in Macao have offered a stand-alone GN course, including GN clinical practice, as a part of the BSN program. Therefore, it is important to examine Macao nursing students' attitudes towards older people and the factors affecting GN care.

The aging of the society is a global trend; existing studies have provided viewpoints on aging, revealing that experience with and attitude towards old people are essential factors that influence nursing students' choice of GN as a career in the future. Both qualitative and quantitative studies showed that nurses and nursing students' attitude towards older people varied, including positive, neutral, and negative attitudes (Liu et al., 2013), which might be related to their culture, knowledge of gerontological care, and other such factors. Several studies have examined nursing students' attitude towards gerontological nursing, but few have analyzed the related factors for working in the GN after graduation.

2.4.2 Gaps in existing studies

The existing studies have identified factors affecting nursing students' attitudes towards older people and their willingness to choose GN in future. However, these studies had the following theoretical and methodological limitations.

First, these studies examined only limited aspects of nursing students' attitudes towards older people; they did not report relationships between related factors. Moreover, the relationships among nursing students' attitudes towards older people and their willingness to engage in GN work after graduation were not confirmed.

Second, most of these studies used either quantitative or qualitative approaches to explore nursing students' views or attitudes regarding the aging society. They did not combine quantitative and qualitative methods to explore attitudes towards gerontological nursing holistically. Nursing students' views and thoughts regarding GN need to be explored further to help improve GN programs.

Third, most studies suggested that nursing education or educational strategies will benefit nursing students, but they did not explore nursing students' views on GN education. However, nursing students' views are important for designing appropriate GN educational strategies in future.

The extant literature reveals some important variables in relation to nursing students' attitudes towards GN. These variables were synthesized into a conceptual framework to guide the present study, which aimed to explore nursing students' attitudes, willingness, and preference towards working in GN in Macao.

Chapter 3: Research Methods

3.1 Introduction

This study is to examine the preparedness of nursing students for GN practice after graduation in Macao, including their attitudes towards older people, preference and willingness to work in GN after graduation, and factors affecting and contributing in GN education and future work. This chapter describes the research method used in this study, including the (1) research design, (2) sampling method, (3) instruments, (4) procedure of data collection, (5) data analysis and (6) ethical considerations. The research variables have been operationally defined and the relationships among them have been explored. Additionally, the chapter describes the survey design used in this study to explore Macao nursing students' attitudes towards GN and factors affecting the same.

3.2 Research Design

On the basis of the purpose in this study, this study used a survey questionnaire to collect, analyze, and integrate data, including perceptions and views of Macao nursing students' attitudes towards working in GN settings. To address the main objectives of this study, **a survey was conducted and some statistical techniques were applied for data analysis.** This survey also included a part that allowed the respondents to give open-ended comments. The main function of this “qualitative” part of this study is to enrich the understandings of the subjective perceptions and views (Creswell, 2014) of Macao nursing students towards GN education and working in GN after graduation.

A questionnaire is a low cost method that is used to gather personal information such as behavior, attitude, and personal traits, and it usually offers anonymity to participants (Polit and Beck, 2014). Survey research is highly flexible and is

particularly well suited for studying attitudes and orientations in populations of different sizes (Creswell, 2014). It focuses on extensive rather than intensive analysis. Therefore, it was suitable to use this method to explore nursing students' attitude towards older adult and the factors related to their willingness and preference to work in GN after graduation.

The quantitative method adopted in this study was non-experimental, descriptive, and correlational, to aid the exploration of the research problem. A descriptive correlational design explores and describes relationships among variables, which is consistent with the purposes of the present study, than establish a causal connection (Polit and Beck, 2014). This survey aimed to explore and understand the nature of the current situation of Macao nursing students' attitudes towards GN in 2015, as well as to explore if relationships existed among nursing students' demographic factors, cultural factors, intention factors, GN education, attitudes towards older people, and willingness/preference to work in gerontological nursing after graduation.

The following independent variables were included: (a) demographic factors; (b) cultural factors; (c) intention factors; and (d) GN education. The outcome (dependent) variables were as follows: (a) attitude towards older people; (b) willingness to work in GN after graduation; and (c) preference to work in GN after graduation (refer to Table 1 for details of the independent and outcome variables).

Table 1
Variables Included in the Present Study

Items	Variables	Type of data	Description
Demographic characteristics	Age	Continuous	Participant's age.
	Gender	Categorical	Male, female.
	Level of education	Categorical	BSN Year I to IV.
	Religion	Categorical	None, Buddhism, Taoism, Christianity, Catholicism, Islam, others.
	Family status	Categorical	Living with parents and siblings; living with grandparents, parents, and siblings; others.
Cultural factors	Living with older people (65 + years)	Categorical	No, yes.
	Time spent with older people (65 + years) within the past 5 years	Categorical	Never, rarely, occasionally, often, very often, everyday
	Being raised by older people (65 + years)	Categorical	No, yes.
	Having lived with older people (65 + years)	Categorical	No, yes.

Items	Variables	Type of data	Description
	Filial piety is important to my parents	Categorical	Strongly disagree, disagree, don't mind, agree, and strongly agree.
Intention factors	Having older neighbors (65 + years)	Categorical	No, yes.
	Getting along with older people (65 + years)	Categorical	Very poor, poor, fair, good, very good
	Like to spend time with older people (65 + years)	Categorical	Strongly disagree, disagree, don't mind, agree, and strongly agree.
	Intend to live with older people (65 + years) in the future	Categorical	Strongly disagree, disagree, don't mind, agree, and strongly agree.
	Nursing is the first study choice	Categorical	No, yes.
	Family member working in nursing	Categorical	No, yes.
GN education factors	Clinical practice with older people	Categorical	No, yes.
	Nature of experience of clinical practice	Categorical	Very poor, poor, fair, good, very good

Items	Variables	Type of data	Description
	with people aged 65 + years		
	Nature of experience of the GN theory course	Categorical	Not applicable, very poor, poor, fair, good, very good
	Nature of experience of GN clinical practice	Categorical	Not applicable, very poor, poor, fair, good, very good
Outcome (Dependent) Variables	Attitude towards older people (KAOP, KAOP-, KAOP+)	Continuous	Scores on KAOP, KAOP-, KAOP+
	Preference to work in GN in future	Categorical	Rated GN as the first to third favorite future career; rated GN as the fourth to twelfth future career choice.
	Willingness to work in GN	Categorical	Strongly disagree, disagree, don't mind, agree, and strongly agree.

As mentioned earlier, the present study also included self-report open-ended questions that intended to collect participants' views and thoughts (Polit and Beck, 2014; Creswell, 2014) towards gerontological nursing. It is hoped that open-ended questions would provide a deeper understanding of the phenomena in an in-depth and holistic way (Polit and Beck, 2014) through analyzing the narrative materials. Open-ended questions were adopted to explore and obtain more detailed views and thoughts of Macao nursing students towards GN and working in GN settings to substantiate discussion and analysis of quantitative data.

In this cross-sectional study, it was appropriate for the researcher to explore the status and situation of the specific topic during a specific data collection period for further studying the relationships among the study variables (Polit and Beck, 2014). In a cross-sectional study, all data are collected at one point in time or at several times during a short period of time (Polit and Beck, 2014). The advantage of a cross-sectional study is the simplicity of the data collection process. However, this design is limited in that it fails to account for participants' changes overtime (Polit and Beck, 2014). The present study employed a cross-sectional design by collecting data during a specific period during the 2014–2015 academic year, from Year I to IV BSN students. Additionally, it compared nursing students' attitudes in relation to the GN course they took. This study employed statistics analysis to examine the similarities and differences in nursing students at the same grade level to enable further comparisons of the relationships among variables.

The data collection and analysis methods used in this study aimed to describe the participants, to examine the independent and dependent variables, and to determine significant associations among the study variables.

3.3 Sample

This study adopted a non-probability convenience sampling procedure because random selection was not used. Instead, all Macao nursing students were invited and recruited to increase the likelihood of the participants to be representative of nursing students in Macao's BSN programs. Convenience sampling aims to select participants who are the most conveniently available and are atypical of the population (Polit and Beck, 2014). Macao has two schools which provide higher education in nursing. These schools provide 4-year BSN programmes and produce in 120-140 registered nurses every year. The participants of this study were recruited from BSN programs in Macao during the 2014–2015 academic year. All Year I to IV nursing students were invited to participate in this study.

There were 484 undergraduate nursing students registered in BSN programs in Macao during the 2014–2015 academic year. The study included all nursing students in Macao to enable a comprehensive exploration of their attitudes and factors affecting their willingness to work in GN in future. The characteristics of the sample and eligibility criteria for this study were: (a) being aged at least 18 years of age; and (b) being registered in a full-time nursing program and studying in a nursing school in Macao during the 2014–2015 academic year.

The setting for this study was held at two nursing schools in Macao. As this study aimed to focus on all Macao nursing students from Year I to IV, lecture halls and classrooms of nursing schools in Macao were used for data collection.

3.4 Instrument

The questionnaire used in this study comprised three parts.

Part One was a self-developed questionnaire based on the literature and

previous surveys on nursing students. It included items pertaining to the following aspects: (1) demographic characteristics, (2) cultural factors, (3) intention factors, (4) preferences of nursing work for one's future career, (5) nursing education, and (6) willingness to work in the GN setting after graduation. Part One consisted of continuous data (i.e., age) and categorical variables that were rated using a Likert-type scale to the measure level of agreement (Gerrish, Lathlean, & Cormack, 2015).

Part Two comprised the Kogan's Attitude towards Old People (KAOP) scale (Kogan, 1961) that includes continuous data.

Part Three used a qualitative approach, and comprised open-ended questions that explored the participants' views and thoughts on GN education and working in future work in GN settings.

Each part of the instrument has been described in the sections that follow.

3.4.1 Part One

Part One comprised the participants' demographic information. In addition, it yielded frequency and descriptive statistics of the participants' cultural factors, intention, nursing education, and willingness to work in GN settings.

(1) *Demographic characteristics.* Demographic information included continuous (age) and categorical (gender, level of education, religion, and family status) data.

(2) *Cultural factors.* This section included categorical items on "living with older people (65 + years)," "time spent with people aged 65 + years in the past 5 years," "being raised by people aged 65 + years when the participant was aged below 12 years", "having lived with people aged 65 + years," and "whether filial piety is important to the participants' parents."

(3) *Intention factors.* These included "having a neighbor aged 65 + years," "getting along with people aged 65 + years," "liking spending time with people aged 65 + years,"

“intention to live with people aged 65 + years in the future,” “nursing being the first study choice,” and “having a family member working in nursing.” Participants were asked to choose responses from a Likert-type scale including “strongly disagree,” “disagree,” “don’t mind,” “agree,” and “strongly agree.”

(4) *GN education.* Participants were asked about “engaging in clinical practice with older people,” “nature of experience of clinical practice with those aged 65 + years,” “nature of experience of a GN theory subject,” and “nature of experience of GN clinical practice.”

(5) *Preference for future work in gerontological nursing and factors affecting the same.* Participants were asked to order their preferences for a future career from 1 to 12 (1 being the most favorite preference and 12 being the least preferred future career), as well as to choose the most three important factors affecting their choice to work in GN settings from 1 to 3.

(6) *Willingness to work in gerontological nursing settings after graduation.* Participants were asked to rate their willingness to “work in GN after graduation” using a Likert-type scale with the following options: “strongly disagree,” “disagree,” “don’t mind,” “agree,” and “strongly agree”.

3.4.2 Part Two: Attitude towards older people

Part Two of the instrument used in this study aimed to assess Macao nursing students’ attitudes towards older people. This section was developed by reviewing and comparing questionnaires used in previous studies related to attitudes towards older people. Finally, a questionnaire was developed to explore nursing students’ attitude towards older people in Macao.

(1) *Questionnaires related to attitudes towards older people (rationale for choosing the KAOP for this study).*

Several questionnaires had been used in previous studies to evaluate nursing students' attitudes towards older people. This study reviewed the following 8 questionnaires to adopt a suitable validated instrument (Table 1): (a) Aging Semantic Differential (ASD); (b) Perspectives on Caring for Older Adult Patients Scale (PCOP); (c) Attitudes towards Hospitalized Older People (AHOP); (d) Ageism Attitude Scale (AAS); (e) Inventory of Attitude towards Aging (IAA); (f) The University of California Los Angeles Geriatrics Attitude (UCLA-GA), and (g) Kogan's Attitude towards Old People Scale (KAOP).

(a) The ASD, developed by Rosencranz and McNevin (1969) and refined by Polizzi (2003), comprises 32 items rated on a 7-point Likert scale from positive to negative. However, it refers to the specific age group of 70–85 years among older people, which limits its use (Matarese, Lommi, Pedone, Alvaro, & De Marinis, 2013).

(b) The PCOP, developed by Burbank, Burkholder, and McCool (2002), comprises 20 items that are rated on a 5-point Likert scale. It is used to examine perceptions regarding the care of an older patient. One study used this questionnaire and concluded that nursing students had more positive attitudes to older patients, and their attitudes were related to past work experience and GN knowledge (Flood & Clark, 2009).

(c) The AHOP was developed by McLaffery (2005). It is a 20-item tool using a 5-point Likert scale (strongly agree to strongly disagree), with higher scores indicating more positive attitudes toward hospitalized older adults. In one study, it was concluded that nursing and social work students had more positive attitudes towards working with hospitalized older people (Gonçalves et al., 2011).

(d) The AAS was developed by Vefikulucav (2008), and it focused on Turkish-culture specific aspects. One study used the AAS to explore Turkish nursing students'

attitudes towards ageism, and results concluded that nursing students who lived with older people for longer had more positive attitudes towards older people (Usta et al., 2012). However, as this instrument is based on the Turkish culture, it might not be suitable for use in studies conducted outside Turkey.

(e) The IAA was developed by Sheppard (1981) and revised to Portuguese by Neri (1986). It comprises the following four factors: 1) expectations from activities (11 items), 2) feeling towards aging (4 items), 3) expectations regarding satisfaction (3 items), and 4) anxiety about death (2 items) (Margarida Abreu & Nilza Caldevilla, 2015). One latest study used this tool and reported that Portuguese nursing students had negative attitudes towards aging and experienced poor satisfaction from activities related to older people (Abreu and Caldevilla, 2015).

(f) The UCLA-GA (Reuben et al., 1998) comprises 14 questions that are rated on a 5-point Likert scale. One Turkish study used this tool and reported that nursing students had a relatively positive attitude toward older people (Türgay et al., 2015).

(g) The KAOP (Kogan, 1961) is the most commonly used questionnaire for assessing attitudes towards older people. This tool was initially developed by Kogan (1961) to investigate college students' attitudes towards older people. The KAOP consists of 17 negatively worded items (KAOP-) and 17 items positively worded items (KAOP+). The reliability of the tool was also examined and reported by Kogan (1961) (the Cronbach's alpha was 0.66 to 0.77 for KAOP+ and 0.73 to 0.83 for KAOP-).

The KAOP has been used to investigate nurses and nursing students' attitudes towards older people (Bleijenberg et al., 2012; Chen & Walsh, 2009; Eltantawy, 2013; Erdemir, Kav, Citak, Hanoglu, & Karahan, 2011; Furlan, Craven, Ritchie, Coukos, & Fehlings, 2009; Gallagher and Bennett, 2006; Holroyd et al., 2009; Hweidi and Al-Obeisat, 2005, 2006; Lambrinou et al., 2009; Lee et al., 2015; Matarese et al., 2013;

Mellor, Chew, & Greenhill, 2007; Rodgers and Jean, 2011; Runkawatt et al., 2013; Ryan and McCauley, 2004; Söderhamn et al., 2001; Walsh et al., 2008; Wang et al., 2009; Wang et al., 2010; Wu et al., 2009; Zverev, 2013) in Western and Eastern settings.



Table 2
Comparison of Instruments to Assess Nursing Students' Attitudes towards Older People

Place	Author/s	Year	Instrument for measuring attitude	Reliability	Sample
Sweden	Söderhamn	2001	The Kogan's Attitude toward Old People Scale; KAOP (Kogan, 1961)	KAOP = 0.79 KAOP- = 0.82 KAOP+ = 0.65	151
UK	McKinlay	2003	Questionnaire	The validity of the vignettes was confirmed using the KAOP and FAQ	172
US	Ryan	2005	KAOP	KAOP = 0.63	55
UK	McLafferty	2005	Questionnaire	The first pilot study developed from 6 focus groups The second pilot study = 0.70	1. Nursing teachers = 59 2. First year sample = 55 3. Sample for the three- year nursing study = 55
Jordan	Hweidi	2006	KAOP	KAOP = 0.83	243
Canada	Williams	2007	Aging Semantic Differential (ASD) (Rosencranz & Manevin, 1969)	R = 0.89 to 0.95	Year I = 81 nursing students and three years later, Year IV = 54 nursing students
USA	Walsh	2008	Revision of Kogan's (1961) Attitude toward Old People	Pre-test: RKAOP = 0.80 Post-test: RKAOP	

Place	Author/s	Year	Instrument for measuring attitude	Reliability	Sample
			(RKAOP)	= 0.85	
Australia	Henderson	2008	A scale developed by Johnson (1992)	Not reported	262
Taiwan	Chen	2009	RKAOP	Pre-test: RKAOP = 0.86 Post-test: RKAOP = 0.88	
USA	Ferrario	2008	12 open-ended questions that explored students' views about aging and their own definitions of successful aging.	Not reported	117
Taiwan	Pan et al.	2009	Perceptions of Working with Older People (PWOP) by Nolan et al. (2001)	The Cronbach's alpha coefficient of the PWOP was 0.73	362
Greece	Lambrinou et al.	2009	KAOP	The Greek version of KAOP in 2005 = 0.80 KAOP- = 0.73 KAOP+ = 0.65	Year I = 121 Year IV = 106
USA	Flood et al.	2009	Perspectives on Caring for Older Adults Patients	Not reported	Nursing students = 53 Non-nursing students = 57

Place	Author/s	Year	Instrument for measuring attitude	Reliability	Sample
			Scale (PCOP) by Burbank et al. (2002)		
Canada	Holroyd et al.	2009	KAOP	KAOP = 0.796	197
Portugal	Gonçalves	2011	Attitudes towards hospitalized older people (McLafferty, 2005)	The Cronbach's alpha was 0.78– 0.84	460 students of nursing, social work, and psychology students.
New Zealand	Rogers et al	2011	KAOP	KAOP- = 0.88 KAOP+ = 0.92	N = 56
Turkey	Usta et al	2012	Ageism Attitude Scale (AAS)	The Cronbach's alpha of the AAS was 0.80.	Year I students = 55 Year II students = 37 Year III students = 17 Year IV students = 36
Netherlands	Bleijenberg	2012	1. KAOP 2. Aging Semantic Differential (ASD)	1. KAOP = 0.74 2. ASD internal consistency was tested by Beullens and Martens (2000); Cronbach's alpha = 0.87	Year I students = 113, three years later, Year IV students = 81
Italy	Matarese	2013	KAOP	1. CVI was 0.81 indicating adequate content validity (CVI > 0.80) 2. KAOP = 0.76– 0.78	1637

Place	Author/s	Year	Instrument for measuring attitude	Reliability	Sample
				KAOP- = 0.80 KAOP+ = 0.66	
Thailand and Sweden	Runkawatt	2013	KAOP	1. Thai version: KAOP = 0.75 KAOP- = 0.72 KAOP+ = 0.70 2. Swedish version: KAOP: 0.79 for the whole scale.	Thai = 241 Swedish = 299
Egypt	Eltantawy	2013	KAOP	Not reported	596
Malawi	Zverev	2013	KAOP	Not reported	305
Portugal	Abreu	2015	Inventory of Attitude toward Aging	Reliability was 0.88 and 0.98, and the test-retest coefficient ranged from 0.8 to 1 for all items.	140
Turkey	Turgay	2015	The Turkish version of the UCLA-GA scale	Not reported	931
USA	Lee et al.	2015	KAOP	1.Pre-test: KAOP- = 0.84 KAOP+ = 0.69 1.Post-test: KAOP- = 0.89 KAOP+ = 0.85	147

(2) Critique of the questionnaires assessing attitudes towards older people

After reviewing and comparing these 8 questionnaires assessing attitudes towards older people, this study concluded the following points:

(a) The PCOP, AHOP, and UCLA-GA are used to measure participants' attitudes towards older patients or hospitalized patients, which might not be generalizable to the normal changes in the aging society, as many older people in communities or households are living longer and are healthier. As these questionnaires focus on older adult patients, they may not be applicable to the present study because it aimed to explore nursing students' attitudes towards older people in the general population rather than those about older patients alone.

(b) The ASD focuses on the specific age group of 70–85 years. Therefore, researchers need to check the age group of the older population when applying the ASD in aged care related studies. The definition of older people in the present study was “being aged over 65 years”; thus, the ASD was not considered appropriate for use.

(c) The AAS has been designed based on the Turkish culture and it might present different findings when used in other countries, owing to culture differences. The researcher needs to study and redefine the original items in order to enable the use of the AAS in other countries. Though the Macao culture is a combination of the Chinese and Portuguese cultures, majority of the population follows the Chinese culture. These cultural differences are the main reason for not choosing the AAS for this study that was conducted in Macao.

(d) The above questionnaires were used in previous research but only a few were used to evaluate attitudes towards older people. However, this might not be adequate for applying and comparing the findings with other studies from different places.

(e) The KAOP (Kogan, 1961) assesses participants' attitudes toward older people aged over 65 years and has been used in many studies conducted in different countries, using translated versions to enable the comparison of results. In the present study, the KAOP was used because it intended to explore nursing students' overall attitudes towards older people in Macao.

(3) Rationale for using the Kogan's Attitude towards Old People scale in the present study

The KAOP has been widely used in previous studies. Most studies reported adequate to good reliability of the tool. Though some researchers have challenged utility of the KAOP since 1961, it is still the most commonly used questionnaire to examine attitudes towards older people, as its various translations have exhibited good content validity, construct validity, internal consistency, and stability reliability for both variants of the instrument (Erdemir et al., 2011).

The reliability and concurrent validity of the tool have been addressed by Kogan (1961), who reported item-total scale correlations among undergraduate American subjects in the range of 0.10–0.70. The Cronbach's alpha for the total scale was 0.87 for the Japanese version (Ogiwara, Inoue, & Koshizu, 2007), 0.80 for the Greek version (Lambrinou et al., 2009), 0.84 for the Turkish version (Erdemir et al., 2011) and 0.79 for the Swedish version (Söderhamn et al., 2001).

The Chinese version of the KAOP has been used in previous studies to report registered nurses' and nursing students' attitudes towards older people (Chen and Walsh, 2009; Wang et al., 2009; Wang et al., 2010; Wu et al., 2009), with stable validity and reliability. Yen et al. (2009) assessed the reliability and validity of the Chinese version of the KAOP among 275 medical and nursing students. The average content validity index (CVI) was 0.92 in the final version, indicating adequate content validity of > .80

(Polit & Beck, 2014). The Cronbach's alpha was 0.82 for the total scale (0.83 for KAOP- and 0.81 for KAOP+). Stability was 0.86 for KAOP- and 0.91 for KAOP+, and the Chinese version of the KAOP was considered appropriate for examining attitudes towards older people (Yen et al., 2009).

Though the KAOP has been applied in many studies to explore attitudes among nurses, nursing students, and health professionals, there is a lack of information related to the attitudes of Macao nursing students towards older people.

The Chinese version of the KAOP was therefore adopted in the present study, to explore nursing students' attitude towards older people in Macao. This scale was developed to assess attitudes towards older people (Kogan, 1961) with respect to norms and individual differences, stereotypes about older people, and misconceptions about them (Lee, 2009).

The results of the KAOP can be used to provide evidence for nursing educators and the management of educational institutions to revise GN programs to promote nursing students' attitudes and interests in GN. Though the translation of the Chinese version of the KAOP has reported to have stable validity and reliability, it has not been reported to be used in Macao.

3.4.3 Part Three

Part Three of the instrument contained the following five semi-structure and open-ended questions to explore nursing students' views and thoughts towards GN education and working in the GN settings after graduation: (a) What are your thoughts and suggestions about the GN theory subject? (b) What are your thoughts and suggestions about the GN clinical practice? (c) What are your thoughts about working in GN settings? (d) What factors affect your readiness to work in GN? (e) What suggestions would you provide to encourage more nurses to work in GN?

3.4.4 Reliability and validity of the instrument

Reliability and validity of the instrument are essential for any study. The degree of reliability and validity is related to the consistency and accuracy of the data gathered (Polit and Beck, 2014), and they confirm if the variables were measured correctly, without bias and distortion (Houser, 2015). This study was designed to integrate both quantitative and qualitative methods to confirm if the collected information was consistent and accurate, and without any bias (Creswell, 2014).

(1) Establishing content validity

Validity of the instrument is an important way to assess if the instrument measures the variables adequately, without any bias. The elements of the instrument used in this study were developed based on a literature review (Part One and Three) and it used an existing questionnaire (Part Two: KAOP). The content validity indicates that all items are an appropriate sample of items that can measure the variables appropriately, and construct validity shows how suitable the test is according to a set of theoretical assumptions (Houser, 2015; Polit and Beck, 2014). Content validity is assessed based on judgment by a group of experts who are familiar with the topic of study, and they assess whether the items of the instrument are appropriate and adequate.

This study adopted the content validity index (CVI) as the indicator of validity. Content validity is demonstrated if all items in the instrument sample the complete range of the attribute under study (DeVon et al., 2007). Polit and Beck (2014) suggested that CVI values of 0.90 and above indicate excellent content validity. A panel of five experts (Appendix A) with over ten years' experience in clinical practice, work in long-term care centers, and GN education in Macao were invited to review the items and validate the questionnaire.

Each item in the translated version of the instrument was examined for

appropriateness (Appendix B). The content validity index (CVI) evaluation was based on Lynn's (1986) four-point scale (4=very relevant, 3=relevant, 2=somewhat relevant, 1=not relevant) (DeVon et al., 2007). A suggestion column was also provided for the panel experts to enter their comments or suggestions on each item of the questionnaire.

The Item-level Content Validity Index (I-CVI) was calculated by the rating scores of the experts. The I-CVI provides information to guide researchers to revise, delete, or substitute the items of the questionnaire. For this analysis, the experts' rating scores of 3 and 4 were coded as "1," while scores of 1 and 2 were scored as "0." The score for each item was calculated based on the mean ratings of the five experts.

Scale-level Content Validity Index (S-CVI) is defined as "the proportion of items rated as quite/very relevant by the raters involved" (Waltz, Strickland, & Lenz, 2005, p. 155) and "the proportion of items given a rating of 3 or 4 by the raters involved" (Waltz et al., 2005, p. 71). In this study, the S-CVI was computed by counting the total number of 1-rated items by all experts and then dividing it by the total number of ratings.

The content validity index (CVI) of the instrument-Results of the I-CVI and S-CVI

This study used the following criteria: minimum I-CVI of 0.78 and average S-CVI of 0.90 or higher (Polit and Beck, 2014). For the present instrument, the I-CVI was 0.988 and S-CVI was 0.993, which represent optimal and stable content validity (Table 3).

According to the comments and suggestions of the experts, the questionnaire items were revised for better understanding. Two questions to evaluate the GN theory course and clinical practice were suggested and added to the questionnaire.

Table 3

Content Validity Index

Questionnaire	I-CVI	S-CVI
Content Validity	0.988	0.993

(2) Reliability of the instrument

Reliability is related to the stability, consistency, and accuracy of the measurement of the study variables. In this study, reliability was assessed with reference to internal consistency and stability (test- retest reliability) (Polit and Beck, 2014). Internal consistency is the most commonly used method to assess reliability. Stability (test-retest reliability) also refers to external consistency, and it involves using the same instrument with the same participants twice, at separate times, to examine if similar scores are obtained (Polit and Beck, 2014). Additionally, the present study involved a pilot study to test the instrument used and to improve the quality and reliability of main study.

The pilot study was conducted on a small sample of the population in the same manner as the main study. The pilot study provides information on whether the respondents understand the questions as intended, if all questions are relevant, and if all the instructions are clear to the respondents (Polit and Beck, 2014). The reliability of the questionnaire was checked at the pilot study stage. The pilot study can help identify any questions that the participants find difficult to understand or objectionable, or which they are reluctant to answer. The researcher can administer the questionnaire to identify items that the participants find unclear or misleading. Moreover, the pilot study was used to estimate the likely duration of the interviews in the main study. It provided an opportunity for the researcher to make adjustments in the study. Data were collected using the validated questionnaire and the procedure has been reported in Appendix C. In this pilot study (n=30), the Cronbach's alpha was used to estimate the internal consistency reliability. Stability was assessed at a 2-week interval, using the Pearson's correlation test.

(a) Reliability: internal consistency of the KAOP

The internal consistency and stability of KAOP were determined. The Cronbach's alpha was used to estimate the internal consistency reliability. The Cronbach's' alpha was 0.86 for the total scale (Table 4), which indicates good internal consistency reliability because coefficients of 0.80 or greater are considered highly desirable.

Table 4
The Internal Consistency of the KAOP

Item	Cronbach's alpha
Total KAOP	0.86
KAOP-	0.68
KAOP+	0.87

(b) External reliability: Stability (test-retest reliability) of the KAOP

In order to determine the stability reliability of the KAOP, it was administered again on the 30 nursing students who participated in the pilot study, two weeks after the first administration. The correlation between the first test and the retest (two weeks later) was examined using a Pearson's correlation analysis. The correlation for the total score was $r = 0.73$, at a significance of $p < 0.01$. A Pearson's r of .70 is considered to indicate high correlation as perfect correlations (+ 1.00 and - 1.00) are rare (Polit & Beck, 2014). Thus, the stability of the KAOP was found to be adequate.

The results of the pilot study suggested that the instrument has adequate reliability, feasibility, and appropriateness for use in the main study. From these findings, the investigator finalized the questionnaire for the main study.

3.4.5 Trustworthiness of the qualitative data

The trustworthiness of the context and findings of the qualitative data from

open-ended questions were examined in the present study. The following four criteria represent parallels to the positivists' criteria of internal validity (Polit and Beck, 2014):

(1) Credibility

Credibility refers to confidence in the truth of the data and interpretations of them (Polit and Beck, 2014). This research established credibility by using open-ended questions and considering the contexts of nursing students in the study.

In order to achieve “credibility” and to ensure that the results of the study are believable, this study coded all answers into a single text and compared it with the original documents to check if it represents the true meanings of what the nursing students in Macao expressed. The results were checked by the investigator and supervisors to determine if all findings represented the true experiences of nursing students in Macao.

(2) Dependability

All coded data and results were discussed by the investigator and her supervisors to double-check if the results represented the true meanings of the Macao nursing students' perspectives.

(3) Confirmability

Confirmability is the potential for congruence between two or more participants about the data's accuracy, relevance, or meaning (Polit and Beck, 2014). The present findings reflected the participants' voice and conditions of the inquiry to achieve this. A group of participants **was** invited to confirm if results (codes and categories) of open-ended questions related to their answers. Those participants confirmed results were relevant with their answers towards five open-ended questions.

3.5 Procedure of Data Collection

On the basis of the research purpose, the investigator applied to the institution

review board (IRB) through The Education University of Hong Kong and gained approval for data collection in Macao (Appendix D). As this study aimed to survey all nursing students' attitudes and views towards working in GN settings, two nursing schools in Macao were contacted and permissions were sought from their respective IRBs for data collections (Appendix E–F).

Since the validity and reliability of the instrument have been confirmed, the questionnaire set included a cover letter that addressed the purpose and importance of the study and an informed consent form for participation in the main study (Appendix G). Two nursing schools in Macao provided the investigator a list of cooperating faculty members. All faculty members were contacted by email and telephone to make arrangements for data collection by fixing the time and venue in each nursing school. The data were collected from the first to third week in March 2015, before any major examination in two nursing schools in Macao. The venues for data collection were provided by two nursing schools, to ensure that it was convenient and familiar for the participants. All participants were enrolled in March 2015.

The investigator arranged to meet the nursing students in locations (classes and lecture hall) provided by two nursing schools in March 2015. The questionnaires were distributed to Macao nursing students in-person by the investigator, to increase the number of completed questionnaires and to allow the researcher to clarify any possible misunderstandings and problems (Polit and Beck, 2014). The investigator provided information to nursing students about the purpose of the study, procedure of data collection, and data management process. In addition to providing information verbally the investigator provided potential participants a printed information sheet with the consent form outlining the purpose, procedure, and risk–benefits of the study. Subsequently, interested students signed the informed consent form and the survey

instruments were distributed and completed. The investigator informed them that there were no right or wrong answers and that they should respond based on what they think and feel about the survey items. All participants were encouraged to ask questions and withdraw from the study at any point during the study. Participants were reminded that five open-ended questions involved in Part three for their views and thoughts. No participant asked any question and most questionnaires were completed and returned. Participants were informed not to identify their identities on any page of questionnaire. Participants' anonymity was assured and guaranteed during data collection.

All surveys were completed within one hour. Participation was voluntary and had no effect on grades; however, a four-color ballpoint pen was gifted to each nursing student as an incentive for completing the survey. A four-color ballpoint pen is very popular and widely used among nursing students during studying and clinical practice in BSN. Each questionnaire returned by the participants was numerically coded to ensure anonymity. All data collection tools and returned questionnaires were kept in a locked cabinet at the investigator's office.

3.6 Data Analysis

Data were checked, coded, and keyed into the computer file for data analysis using the SPSS program (version 22). Missing data of below 10% were computed using the SPSS function of replacing missing values for the mean score on the same item.

3.6.1 Quantitative data

(1) Descriptive data

Descriptive statistics provide information about the characteristics of the participants and the phenomena being studied (Polit and Beck, 2014). In the present

study, the frequency distribution (percentage of sample), central tendency (mean), and dispersion or variability (standard deviation) were used to examine the categorical data such as demographic factors, cultural factors, intention factors, GN education, preferences for future career, and willingness to work in GN after graduation; and continuous data such as age and KAOP scores.

(2) Correlation analysis

To explore the relationships between variables, the following analyses were conducted. The Pearson's correlation coefficient (r) was used to determine the strength and direction of relationship between continuous variables (Heavey, 2015; Polit and Beck, 2014). The Pearson's correlation coefficient (r) was also used to examine the stability of the study questionnaire through the test-retest reliability procedure.

The chi-square test was used to examine the distribution of frequencies and the association between categorical variables. The independent t-test was adopted to test the presence of significant differences in the mean scores of a continuous variable between two groups of participants (Gerrish, Lathlean, & Cormack, 2015; Heavey, 2015; Polit and Beck, 2014) and an analysis of variance (ANOVA) was used to examine the same for one categorical independent variable in three or more groups and a continuous dependent variable (Polit and Beck, 2014).

In addition, the KAOP was coded according to the directions provided by Kogan (1961). The tool comprises 34 items that are rated on a 6-point Likert-scale ranging from 1 to 7 (strongly disagree to strongly agree). The items are scored 1 to 7, respectively, with a score of 4 assigned for no response to an item (Kogan, 1961). The 17 negatively-worded items were reverse scored. The total score on the KAOP ranges between 34 and 238, with higher scores indicating more positive attitudes. Means and standard deviations were calculated and compared. The Pearson's correlation test was

used to measure the association of KAOP scores within groups. The independent t-test and ANOVA were used to examine the presence of statistically significant differences in mean KAOP scores among categorical variables. For all tests, the significance was set at $p < 0.05$. Moreover, the ordinal scales in the questionnaire were used to assess nursing students' cultural factors, intention factors, GN education, preferences for future career, and willingness to work in GN after graduation. The relationships between these variables were tested and the presence of significant differences was determined.

(3) Logistic regression

The relationships between demographic factors, cultural factors, intention factors, GN education, and KAOP were examined using correlation analysis. The correlations were further examined using a logistic regression analysis to identify predictors and to building a model to explain the three outcome variables of KAOP, preference for GN as a future career, and willingness to work in GN after graduation. All statistical tests were two-sided and a p value < 0.05 was considered statistically significant.

A logistic regression is conducted when the dependent variable (outcome variable) is dichotomous (binary). The logistic regression, like all regression analyses, is a predictive analysis that is used to describe data and to explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval, or ratio-level independent variables. A logistic regression transforms the probability of occurrence of an event into odds. After further transformations, the relationship of predictor variables to the transformed outcome variable is examined. For each predictor variable, the logistic regression yields an odds ratio (OR) that represents the odds of change in the variable for each unit of change in the predictors, after controlling for

other predictors. The logistic regression analysis also yields CIs around the ORs.

In the present study, the ORs of the final logistic regression model were assessed to determine the magnitude of the odds of nursing students' preferences and willingness to work in GN. The OR was calculated as the exponential of the coefficient estimate. An OR compares whether the probability of an event is the same for two groups. The OR was considered to be statistically significant at a p-value of 0.05 or less.

3.6.2 Qualitative data analysis

Direct content analysis was used to analyze the data collected from the five open-ended questions answered by the nursing students (Polit and Beck, 2014). As the survey questionnaire was designed in a bilingual version (Appendix G), participants answered open-ended questions **in either** Chinese or English. The investigator reviewed each answer, and keyed-in all texts into an excel file with original language (Chinese or English) answered by participants. The investigator translated Chinese answers into English version and validated by a Chinese-English translator.

The investigator read and re-read to become familiar with the data and to gain a generic understanding of the participants' perspectives on GN education and their future work choices. The codes or meaningful units were compared for differences and similarities, and similar codes were merged to create categories. The student investigator finalized the codes and categories after discussion with supervisors. A group of participants **was** invited to confirm if results (codes and categories) of open-ended questions were related to their answers. Those participants confirmed that results were relevant with their answers towards five open-ended questions. These categories were further examined and merged into themes. The analysis of the qualitative data from the open-ended questions was expected to include themes that represent the views and thoughts of nursing students in Macao. The themes were synthesized into strategies,

to provide suggestions and strategies for the future revision of the GN education in Macao.

3.7 Ethical Considerations

This study was approved by The Hong Kong Institute of Education and two nursing schools in Macao. Informed consent was obtained from all participants after briefing them about the aim and procedure of this study. Participants were informed that they could withdraw at any time, without any negative consequences. All participants' name and personal data were kept confidential and were 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 (answered questionnaires) were locked at a secure place.

3.7.1 Data storage

All study data will be maintained for three years, in a locked cabinet in the investigator's home office and on a password-protected computer. After three years, paper surveys and interview notes will be shredded and computer files will be deleted. Only the investigator and the dissertation committee members can access the data.

3.7.2 Confidentiality

All responses were kept confidential. Participants' personal information was coded for use in this dissertation and future publication. Participants were informed that they did not have to answer anything they did not want to in the self-administered questionnaire. All files were locked in a secured cabinet at investigator's office. Data will be destroyed three years after the completion of this study. All data and files will be kept confidential, and only investigator and supervisors have the right to access the data.

3.8 Summary of the Chapter Three

This chapter explained and discussed the methods used in this study. This study included both quantitative and qualitative methods. To summarize, this correlation study employed a descriptive design. With reference to the study purpose, the independent and dependent variables were operationally defined. The detailed method of development of the study instrument was presented, including the validation of the questionnaire. The data collection procedure was explained to ensure the quality of data in this study. The validity and reliability of the outcome measures were discussed. The results indicated that measures of the dependent variables were within acceptable levels for data collection. A pilot study was conducted prior to the implementation of the main study. The results of the pilot study suggested the feasibility and appropriateness of the study procedure.

Chapter 4: Results

4.1 Introduction

This chapter presents the results of the study which examined Macao nursing students' attitudes and factors toward Gerontological Nursing (GN). The factors are related to working in GN setting among Macao nursing students. The results provide evidence-based data for a better understanding of nursing students' attitudes, preferences and willingness in working in GN, as well as nursing students' **views and thoughts** were gathered from this study.

4.2 Sample Description

During the data collection period in 2014-2015 academic-year, 484 student nurses in Macao met the inclusion criteria were recruited for the study, of which 30 participants were excluded because they were included into pilot study.

In total 454 sets of questionnaire were distributed to eligible Macao nursing students in March 2015. A few nursing students did not return back the questionnaires (n=77). Ultimately, a total sample of 377 nursing students were included in the study as they completed questionnaires. The return rate in this study was 83.04%. The recruitment process is illustrated in Figure 2.

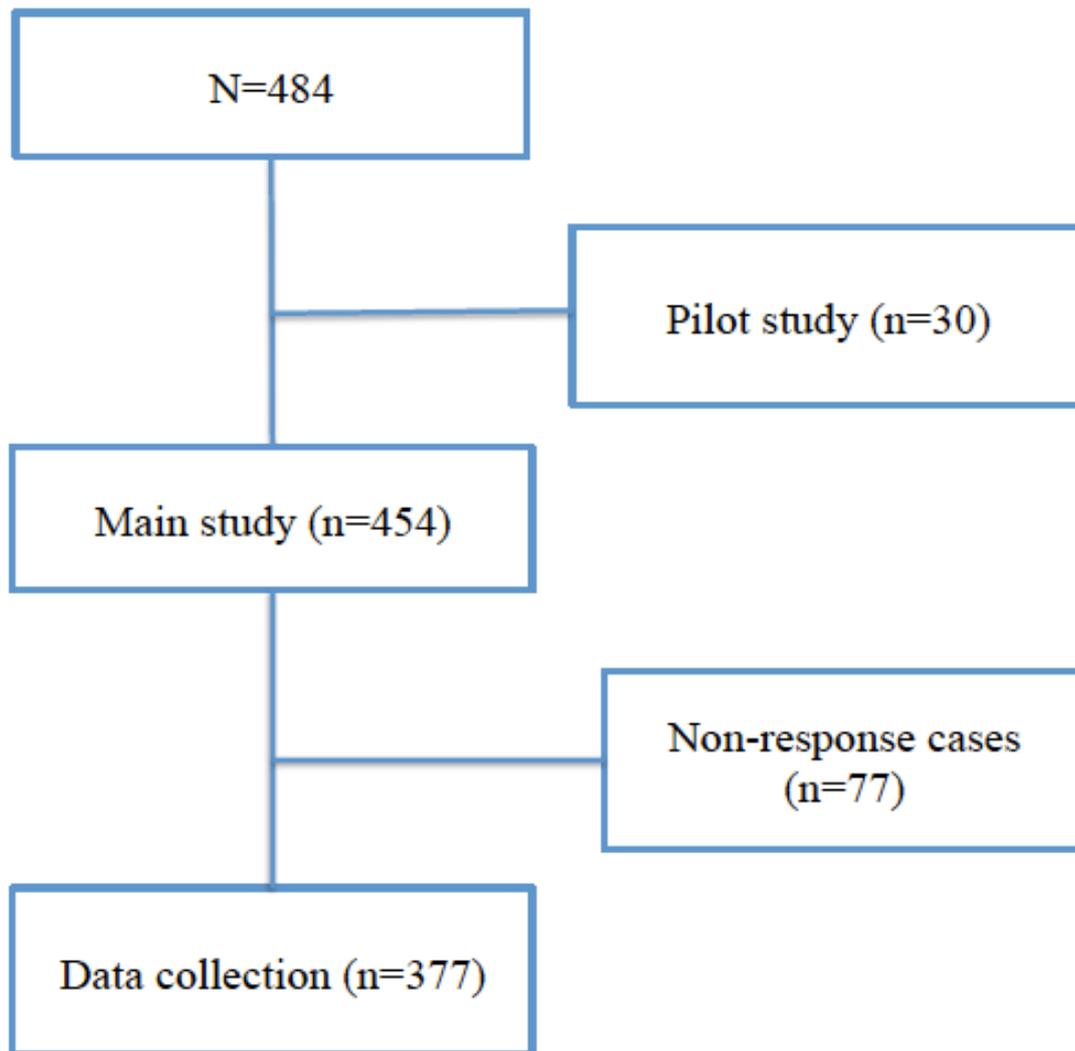


Figure 2. The recruitment process.

4.3 Descriptive Data for this Study

4.3.1 Demographic characteristics for participants

The demographic data of the total participants (n=377) is summarized in Table 5. There were 321 (85.1%) female and 56 (14.9%) male nursing students. Their mean age was 21.32 with a range from 18 to 30 years. Participants included BSN I to IV. Over 77% (n=293) of participants reported “no religion”. Most participants reported “living with parents and siblings” (n=334, 88.6%).

Table 5
Demographic Characteristics of Participants (N=377)

Variable	n (%)
Age	21.3 (1.6) ^a
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)
Buddist	37 (9.8)
Taoism	8 (2.1)
Christian	8 (2.1)
Catholic	29 (7.7)
Muslim	2 (0.5)
Family status	
Nuclear	334 (88.6)
Three generation	30 (8.0)
Others	13 (3.4)

^a mean(SD)

Correlation between demographic characteristics

The chi-square analysis and spearman coefficients were performed to examine correlations among categorical variables of demographic characteristics (Table 6). There was a correlation between “gender” and “level of education” ($X^2=8.135$, $r=.105$,

p=.043). According to Table 7, there were higher ratio for female student in BSN I (88.6%) and II (91%) than BSN III (77%) and IV (81.7%) in this study.

Table 6
Correlation between demographic characteristics (N=377)

Variables	Gender	Level of education	Religion	Family status
Gender	Nil	X ² =8.135 r=.105 p=.043*	X ² =5.724 r=-.048 p=.334	X ² =1.221 r=-.056 p=.543
Level of education	X ² =8.135 r=.105 p=.043*	Nil	X ² =18.220 r=-.038 p=.251	X ² =7.531 r=-.096 p=.275
Religion	X ² =5.724 r=-.048 p=.334	X ² =18.220 r=-.038 p=.251	Nil	X ² =6.043 r=.012 p=.812
Family status	X ² =1.221 r=-.056 p=.543	X ² =7.531 r=-.096 p=.275	X ² =6.043 r=.012 p=.812	Nil

* Significant when p<.05

** Significant when p<.01

Table 7
Ratio in Gender and Level of Education

	BSN I (%)	BSN II (%)	BSN III (%)	BSN IV (%)	Total (%)
Male	12 (11.4)	9(9)	18(23)	17(18.3)	56(14.9)
Female	93(88.6)	90 (91)	62(77)	76(81.7)	321(85.1)
Total	105	99	80	93	377

4.3.2 Culture factors

According to Table 8, most participants answered “no” for “living with older people (65+)”(n=319, 84.6%) and “Occasionally (1-3 times a year)” for “time with older people within 5 years” (n=114, 30.2%), followed by “rarely (less than once a year)” (n=60, 15.9%) and “none” (n=59, 15.6%). Some participants answered “yes” in “raised up by older people” when they were below 12 years (n=140, 37.1%). Most participants answered “yes” in “lived with 65+ before” (n=203, 53.8%). Most participants answered “agree” (n=185, 49.1%) and “strongly agree” (n=163, 43.2%) in “filial piety is important to parents”.

Table 8
Culture Factors (N=377)

Variable	n (%)
Living with older people (65+)	
No	319 (84.6)
Yes	57 (15.1)
Missing	1 (0.3)
Time with 65+ within 5 years	
No	59 (15.6)
Rarely (less than once a year)	60 (15.9)
Occasionally(1-3 times a year)	114 (30.2)
Frequency(once a month)	55 (14.6)
Very frequently(1-2 times a week)	47 (12.5)
Every day	34 (9)
Missing	8 (2.1)
Raised up by 65+	
No	237 (62.9)
Yes	140 (37.1)
Lived with 65+	
No	171 (45.4)
Yes	203 (53.8)
Missing	3 (0.8)
Filial piety is important to parents	
Strongly disagree	4 (1.1)
Disagree	5 (1.3)
Don't mind	20 (5.3)
Agree	185 (49.1)
Strongly agree	163 (43.2)

Correlation between culture factors

The chi-square analysis was performed to analyze correlations among categorical variables of culture factors (Table 9). There were correlations between “living with 65+” and “time with 65+” ($X^2=156.3$, $p=.000$); “living with 65+” and “raised up by 65+” ($X^2=7.07$, $p=.008$); “living with 65+” and “lived with 65+” ($X^2=30.53$, $p=.000$); “time with 65+” and “raised up by 65+” ($X^2=16.30$, $p=.006$); “time with 65+” and “lived up by 65+” ($X^2=37.95$, $p=.000$); “raised up by 65+” and “lived with 65+” ($X^2=101.67$, $p=.000$).

In this study, “filial piety” is not associated with “living with 65+”, “time with

65+”, “raised up by 65+”, and “lived with 65+”. Of 92.3% participants chose “agree (49.1%)” and “strongly agree (43.2%) in “filial piety is important to parents”.

Table 9
Correlation between Culture Factors (N=377)

Variables	Living with 65+	Time with 65+	Raised up by 65+	Lived with 65+	Filial piety
Living with 65+	Nil	X ² =156.30 p=.000**	X ² =7.07 p=.008**	X ² =30.53 p=.000**	X ² =1.2 p=.872
Time with 65+	X ² =156.30 p=.000**	Nil	X ² =16.30 p=.006**	X ² =37.95 p=.000**	X ² =23.81 p=.251
Raised up by 65+	X ² =7.07 p=.008**	X ² =16.30 p=.006**	Nil	X ² =101.67 p=.000**	X ² =7.01 p=.136
Lived with 65+	X ² =30.53 p=.000**	X ² =37.95 p=.000**	X ² =101.67 p=.000**	Nil	X ² =6.26 p=.180
Filial piety	X ² =1.2 p=.872	X ² =23.81 p=.251	X ² =7.01 p=.136	X ² =6.264 p=.180	Nil

* Significant when p<.05

** Significant when p<.01

4.3.3 Intention factors

In the following Table 10, most participants answered “no” for “neighbour with 65+” (n=185, 49.1%). The majority participants expressed “fair” (n=119, 31.6%) and “good” (n=155, 41.1%) in “getting along with 65+”. Most participants addressed “don’t mind” (n=164, 43.5%) and “agree” (n=157, 41.6%) in “like to spend time with 65+”. Participants also answered “don’t mind” (n=177, 46.9%) and “agree” (n=139, 36.9%) in “intention to live with 65+”. Most participants addressed “no” in “nursing as the first study choice” (n=286, 75.9%) and “family working in nursing” (n=286, 75.9%).

Table 10
Intention Factors (N=377)

Variable	n (%)
Neighbour with 65+	
No	234 (62.1)
Yes	142 (37.7)
Missing	1 (0.3)
Getting along with 65+	
Very poor	3 (0.8)
Poor	6 (1.6)
Fair	119 (31.6)
Good	155 (41.1)
Very good	94 (24.9)
Like to spend time with 65+	
Strongly disagree	1 (0.3)
Disagree	5 (1.3)
Don't mind	164 (43.5)
Agree	157 (41.6)
Strongly agree	50 (13.3)
To live with 65+ in the future	
Disagree	33 (8.8)
Don't mind	177 (46.9)
Agree	139 (36.9)
Strongly agree	27 (7.2)
Missing	1 (0.3)
Nursing as the first study choice	
No	102 (27.1)
Yes	275 (72.9)
Family working in nursing	
No	286 (75.9)
Yes related to GN	7 (1.9)
Yes not related to GN	81 (21.5)
Missing	3 (0.8)

Correlation between intention factors

The chi-square analysis was performed to examine correlations among categorical variables of intention factors (Table 11). There were correlations between “getting along with 65+” and “like to spend time with 65+” ($X^2=288.83$, $p=.000$); “getting along with 65+” and “want to live with 65+” ($X^2=81.11$, $p=.000$); “like to

spend time with 65+” and “want to live with 65+” ($X^2=211.77$, $p=.000$). There were no correlations in “neighbor with 65+”, “nursing as the first study choice” (75.9%) and “family working in nursing”.

Table 11
Correlation between intention factors (N=377)

Variables	Neighbor with 65+	Getting along with 65+	Like to spend time with 65+	To live with 65+	Nursing as the first study choice	Family working in nursing
Neighbor 65+	Nil	$X^2=.58$ $p=.965$	$X^2=1.81$ $p=.771$	$X^2=3.32$ $p=.345$	$X^2=.01$ $p=.909$	$X^2=.41$ $p=.816$
Getting along with 65+	$X^2=.58$ $p=.965$	Nil	$X^2=288.83$ $p=.000^{**}$	$X^2=81.11$ $p=.000^{**}$	$X^2=7.56$ $p=.109$	$X^2=5.45$ $p=.709$
Like to spend time with 65+	$X^2=1.81$ $p=.771$	$X^2=288.83$ $p=.000^{**}$	Nil	$X^2=211.77$ $p=.000^{**}$	$X^2=1.56$ $p=.816$	$X^2=5.94$ $p=.654$
To live with 65+	$X^2=3.32$ $p=.345$	$X^2=81.11$ $p=.000^{**}$	$X^2=211.77$ $p=.000^{**}$	Nil	$X^2=5.16$ $p=.160$	$X^2=9.04$ $p=.171$
Nursing as the first choice	$X^2=.01$ $p=.909$	$X^2=7.56$ $p=.109$	$X^2=1.56$ $p=.816$	$X^2=5.16$ $p=.160$	Nil	$X^2=.004$ $p=.948$
Family working in nursing	$X^2=.41$ $p=.816$	$X^2=5.45$ $p=.709$	$X^2=5.94$ $p=.654$	$X^2=9.04$ $p=.171$	$X^2=.004$ $p=.948$	Nil

* Significant when $p<.05$

** Significant when $p<.01$

4.3.4 GN education

According to table 12, most participants who have taken GN course answered “fair” ($n=99$, 26.3%) and “good” ($n=52$, 13.8%) in “GN taught education” while “fair” ($n=99$, 26.3%) and “good” ($n=59$, 15.6%) in “GN practice”. Most participants reported “yes” in “clinical practice with 65+ ($n=307$, 81.4%)”, as well as “fair ($n=121$, 32.1%)” and “good ($n=201$, 53.3%)” in “experience of clinical practice with 65+”.

Table 12
GN Education (N=377)

Variable	n (%)
Experience of GN taught subject	
Not applicable	204 (54.1)
Very poor	3 (0.8)
Poor	19 (5)
Fair	98 (26.0)
Good	52 (13.8)
Very good	1 (0.3)
Experience of GN clinical practice	
Not applicable	204 (54.1)
Very poor	2 (0.5)
Poor	10 (2.7)
Fair	99 (26.3)
Good	59 (15.6)
Very good	3 (0.8)
Clinical practice with 65+	
No	70 (18.6)
Yes	307 (81.4)
Experience of clinical practice with 65+	
No	28 (7.4)
Very poor	1 (0.3)
Poor	3 (0.8)
Fair	121 (32.1)
Good	201 (53.3)
Very good	23 (6.1)

Correlation between GN education factors

The chi-square analysis was performed to exam correlations among categorical variables of GN education factors (Table 13). There were correlations between “clinical practice with 65+” and “experience of clinical practice with 65+” ($X^2=49.94$, $p=.000$); “clinical practice with 65+” and “experience of GN taught subject” ($X^2=66.56$, $p=.000$); “clinical practice with 65+” and “experience of GN clinical practice” ($X^2=66.82$, $p=.000$); “experience of clinical practice with 65+” and “experience of GN taught subject” ($X^2=24.96$, $p=.015$); “experience of clinical practice with 65+” and “experience of GN clinical practice” ($X^2=23.26$, $p=.026$); “experience of GN taught

subject” and “experience of GN clinical practice” ($X^2=377.0$, $p=.000$).

Table 13
Correlation between GN Education Factors (N=377)

Variables	Clinical practice with 65+	Experience of clinical practice with 65+	Experience of GN taught subject	Experience of GN clinical practice
Clinical practice with 65+	Nil	$X^2=49.942$ $p=.000^{**}$	$X^2=66.558$ $p=.000^{**}$	$X^2=65.821$ $p=.000^{**}$
Experience of clinical practice with 65+	$X^2=49.94$ $p=.000^{**}$	Nil	$X^2=24.962$ $p=.015^*$	$X^2=23.258$ $p=.026^*$
Experience of GN taught subject	$X^2=66.56$ $p=.000^{**}$	$X^2=24.96$ $p=.015^*$	Nil	$X^2=523.807$ $p=.000^{**}$
Experience of GN clinical practice	$X^2=65.82$ $p=.000^{**}$	$X^2=23.26$ $p=.026^*$	$X^2=523.807$ $p=.000^{**}$	Nil

* Significant when $p<.05$

** Significant when $p<.01$

4.3.5 Willingness towards working in GN settings

In Table 14, most participants answered “don’t mind” ($n=233$, 61.8%) in “willingness toward working in GN settings” while 52 participants (13.8%) for “disagree and strongly disagree” as well as only 92 participants for “agree and strongly agree” (24.4%).

Table 14
Willingness towards Working in GN Settings (N=377)

Variable	n (%)
Willingness working in GN	
Strongly disagree	4 (1.1)
Disagree	48 (12.7)
Don't mind	233 (61.8)
Agree	80 (21.2)
Strongly agree	12 (3.2)

4.3.6 Preference of future career

Participants arranged 1-12 for their preference for future work, which is summarized in Table 15.

The first preference future nursing work arranged by participants included “Community and Public health nursing (n=66, 17.5%)” and “ER Nursing” (n=66, 17.5%). Four participants (1.1%) selected “Aged care” as “the first preference future nursing work”.

The second choice for future nursing work was “Paediatric nursing (n=57, 15.1%)” followed by “Medical & Surgical nursing (n=53, 14.1%)”. 16 participants (4.2%) selected “Aged care” as “the second preference future nursing work”. The third choice for future nursing work was “Midwifery (n=63, 13.7%)” followed by “Psychiatric nursing (n=43, 11.4%)”. 16 participants (4.2%) selected “Aged care” as “the third preference future nursing work”. “Aged care” in this study was arranged at “the ninth preference future nursing work” by participants (n=49, 13%).

Table 15
Preference of Future Career (N=377)

Variable	N (%)
The first preference future nursing work	
Community and Public health nursing	66 (17.5)
ER Nursing	66 (17.5)
Medical & Surgical Nursing	55 (14.6)
Pediatric nursing	45 (11.9)
Midwifery	44 (11.7)
OR nursing	33 (8.8)
Psychiatric nursing	24 (6.4)
Critical care nursing	17(4.5)
Others	13 (3.4)
Anesthetist nursing	5 (1.3)
Oncology nursing	5 (1.3)
Aged care	4 (1.1)
The second preference future nursing work	
Pediatric nursing	57 (15.1)
Medical & Surgical Nursing	53 (14.1)
ER Nursing	40 (10.6)
Midwifery	39 (10.3)
Critical Care Nursing	37 (9.8)
Community and Public health nursing	36 (9.5)
Psychiatric nursing	26 (6.9)
Anesthetist nursing	25 (6.6)
OR nursing	23 (6.1)
Aged care	16 (4.2)
Others	15 (4.0)
Oncology nursing	10 (2.7)
The third preference future nursing work	
Midwifery	63 (13.7)
Psychiatric nursing	42 (11.1)
Medical & Surgical Nursing	41 (10.9)
Pediatric nursing	38 (10.1)

Variable	N (%)
Community and Public health nursing	37 (9.8)
Critical Care Nursing	32 (8.5)
Anesthetist nursing	28 (7.4)
ER Nursing	27 (7.2)
OR nursing	21 (5.6)
Oncology nursing	20 (5.3)
Aged care	16 (4.2)
Others	12 (3.2)

The fourth preference future nursing work

Medical & Surgical Nursing	43 (11.4)
Pediatric nursing	43 (11.4)
Anesthetist Nursing	39 (10.3)
OR Nursing	34 (9)
Aged Care	32 (8.5)
Community and Public health nursing	32 (8.5)
Midwifery	32 (8.5)
ER Nursing	31 (8.2)
Critical Care Nursing	29 (7.7)
Oncology nursing	27 (7.2)
Psychiatric nursing	27 (7.2)
Others	8 (2.1)

The fifth preference future nursing work

OR Nursing	43 (11.4)
Anesthetist Nursing	42 (11.1)
Aged Care	38 (10.1)
Midwifery	37 (9.8)
Community and Public health nursing	35 (9.3)
Psychiatric nursing	32 (8.5)
Medical & Surgical Nursing	31 (8.2)
Pediatric nursing	31 (8.2)
ER Nursing	31 (8.2)
Oncology nursing	29 (7.7)

Variable	N (%)
Critical Care Nursing	17 (4.5)
Others	11 (2.9)

The sixth preference future nursing work

Anesthetist Nursing	59 (15.6)
Aged Care	43 (11.4)
Oncology Nursing	38 (10.1)
Midwifery	35 (9.3)
OR Nursing	33 (8.8)
Pediatric nursing	31 (8.2)
Psychiatric nursing	29 (7.7)
Medical & Surgical Nursing	28 (7.4)
Critical Care Nursing	27 (7.2)
Community and Public health nursing	21 (5.6)
ER Nursing	21 (5.6)
Others	12 (3.2)

The seventh preference future nursing work

Oncology Nursing	55 (14.6)
Anesthetist Nursing	44 (11.7)
Psychiatric Nursing	38 (10.1)
Aged Care	37 (9.8)
Pediatric Nursing	33 (8.8)
Community and Public health nursing	32 (8.5)
Medical & Surgical Nursing	30 (8.0)
OR Nursing	30 (8.0)
Critical Care Nursing	26 (6.9)
ER Nursing	25 (6.6)
Midwifery	18 (4.8)
Others	9 (2.4)

The eighth preference future nursing work

Oncology Nursing	55 (14.6)
Anesthetist Nursing	47 (12.5)
Aged Care	41 (10.9)

Variable	N (%)
OR Nursing	40 (10.6)
Psychiatric Nursing	39 (10.3)
Critical Care Nursing	35 (9.3)
Medical & Surgical Nursing	27 (7.2)
Pediatric Nursing	22 (5.8)
ER Nursing	19 (5.0)
Midwifery	18 (4.8)
Others	18 (4.8)
Community and Public health nursing	16 (4.2)

The ninth preference future nursing work

Aged Care	49 (13)
Oncology Nursing	47 (12.5)
OR Nursing	41 (10.9)
Psychiatric Nursing	35 (9.3)
Anesthetist Nursing	31 (8.2)
Critical Care Nursing	30 (8.0)
Medical & Surgical Nursing	29 (7.7)
Midwifery	28 (7.4)
Community and Public health nursing	27 (7.2)
ER Nursing	23 (6.1)
Pediatric Nursing	19 (5.0)
Others	18 (4.8)

The tenth preference future nursing work

Critical Care Nursing	50 (13.3)
Aged Care	43 (11.4)
Oncology Nursing	38 (10.1)
OR Nursing	37 (9.8)
Psychiatric Nursing	36 (9.5)
Anesthetist Nursing	31 (8.2)
Community and Public health nursing	31 (8.2)
ER Nursing	31 (8.2)
Others	23 (6.1)

Variable	N (%)
Pediatric Nursing	21 (5.6)
Medical & Surgical Nursing	19 (5.0)
Midwifery	17 (4.5)
The eleventh preference future nursing work	
Critical Care Nursing	44 (11.7)
Aged Care	42 (11.1)
ER Nursing	40 (10.3)
Community and Public health nursing	39 (7.2)
Oncology Nursing	34 (9.0)
OR Nursing	33(8.8)
Psychiatric Nursing	31 (8.2)
Others	31 (8.2)
Midwifery	25 (6.6)
Pediatric Nursing	25 (6.6)
Anesthetist Nursing	21 (5.6)
Medical & Surgical Nursing	11 (2.9)
The twelfth preference future nursing work	
Others	208 (55.2)
Critical Care Nursing	32 (8.5)
ER Nursing	23 (6.1)
Midwifery	20 (5.3)
Oncology Nursing	18 (4.8)
Psychiatric Nursing	18 (4.8)
Aged Care	16 (4.2)
OR Nursing	12 (3.2)
Pediatric Nursing	9 (2.4)
Medical & Surgical Nursing	8 (2.1)
Community and Public health nursing	7 (1.9)
Anesthetist Nursing	6 (1.6)

Participants chose “aged care” as their future work from the first choice to the twelfth choice showed at Table 16. Only four participants (n=4, 1.1%) chose “aged care” as their first preference future career, 9.5% (n=36) of participants chose “aged care” as their 1st to 3rd preference future career (more preference). According to the cumulative percentage, only 9.5% participants (n=36) chose “aged care” as their 1st to 3rd preference future career (more preference) while 90.5% (n=341) participants ranking “aged care” as their 4th to 12th preference future career (less preference).

Table 16
Preference GN as Future Career (N=377)

GN Choice	n (%)	Cumulative Percentage (%)
The 1 st preference	4 (1.1)	1.1
The 2 nd preference	16 (4.2)	5.3
The 3 rd preference	16 (4.2)	9.5
The 4 th preference	32 (8.5)	18.0
The 5 th preference	38 (10.1)	28.1
The 6 th preference	43 (11.4)	39.5
The 7 th preference	37 (9.8)	49.3
The 8 th preference	41 (10.9)	60.2
The 9 th preference	49 (13.0)	73.2
The 10 th preference	43 (11.4)	84.6
The 11 th preference	42 (11.1)	95.8
The 12 th preference	16 (4.2)	100.0

4.3.7 Contributors towards working in GN

Participants rated the important factors for choosing GN as future career at Table 17. Most participants chose “personal interest” as “the first important factor for choosing GN as future career” (n=139, 36.9%) followed by “past experiences with 65+” (n=61, 16.2%) and “GN practice experience” (n=43, 11.4%).

“The second important factor for choosing GN as future career” ranked by most participants was “working environment” (n=89, 23.6%) followed by “salary” (n=60, 15.9%) and “personal interest” (n=58, 15.4%). “Working environment”, “salary”, and “society factor and social values” were ranked (n=67, 17.8%) by participant “the third important factor for choosing GN as future career”.

Table 17
Choices of the Contributors in Gerontological Nursing (N=377)

The first important factor	n	%	The second important factor	n	%	The third important factor	n	%
Personal interest	139	36.9	Working environment	89	23.6	Working environment	67	17.8
Past experience with 65+	61	16.2	Salary	60	15.9	Salary	67	17.8
GN practice experience	43	11.4	Personal interest	58	15.4	Society factor and social values	67	17.8
Working environment	42	11.1	GN practice experience	55	14.6	GN practice experience	48	12.7
Salary	38	10.1	Past experience with 65+	44	11.7	Personal interest	35	9.3
Society factor and social value	23	6.1	Role model	22	5.8	Past experience with 65+	31	8.2
GN teaching method	12	3.2	Society factor and social value	19	5.0	Role model	27	7.2
Role model	11	2.9	GN teaching method	11	2.9	GN teaching method	16	4.2
Suggestion by parents and family	5	1.3	Suggestion by parents and family	10	2.7	Peer group	11	2.9
Peer group	1	0.3	Peer group	8	2.1	Suggestion by parents and family	6	1.6
Other	1	0.3				Other	1	0.3

4.3.8 Attitudes toward older people among participants

In Table 18, the results of Macao nursing students' attitudes towards older people (using the KAOP instrument) were shown as below. There are 34-item questions in the KAOP questionnaire including 17 positive questions (KAOP+) and 17 negative questions (KAOP-). The possible score ranges from 34 – 238 for 34 items questions (KAOP), and a higher score indicates a more positive attitude towards older people. The Cronbach's alpha in this study for participants' attitude towards older adults in total scores of KAOP was 0.873 while 0.816 in KAOP- and 0.850 in KAOP+ in this study.

Participants shown positive attitudes towards older adults in total mean score of KAOP was 168.44 (SD \pm 18.38). The mean score in 17 positive items (KAOP+) was 85.22 (SD \pm 10.48) while in 17 negative items (KAOP-) was 83.22 (SD \pm 11.28). In item question, participants were less positive in "Older adults have excessive demands for love" for the lowest mean score (2.5 ± 1.2), and more positive in "Older adults need no more love than others" for the highest score (6.0 ± 1.0).

Table 18
Attitude towards 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. 老年人應該居住於特殊的住所。	4.6 (1.6)
2N. Older adults are different. 老年人是不同的。	4.0 (1.6)
3N. Older adults are unable to change. 老年人是無法做出改變或讓步的。	5.0 (1.3)
4N. Older adults quit work when they become pensioners. 老年人一旦符合退休資格後便會離開職場。	5.2 (1.2)
5N. Older adults have shabby homes. 老年人的住所都是髒亂破舊不堪的。	5.8 (1.0)
6N. Wisdom does not come with advancing age. 年齡增長不代表比較有智慧。	3.9 (1.5)
7N. Older adults have too much influence in society. 在社會上，老年人有很大的影響力。	4.1 (1.3)
8N. Older adults make others feel ill at ease. 老年人容易讓別人感覺不舒服。	5.4 (1.2)
9N. Older adults bore others with their stories. 老年人總訴說著讓人容易感到無趣的陳年往事。	5.4 (1.4)
10N. Older adults are always prying into the affairs of others. 老年人總喜歡探聽別人的隱私。	5.5 (1.3)
11N. Older adults have irritating faults. 老年人容易因為一點小錯就發脾氣。	5.3 (1.3)
12N. Older adults have a negative influence on a neighborhood. 老年人容易對於街坊鄰居有不好的觀感。	5.5 (1.2)
13N. Older adults are much alike. 老年人都很像。	4.4 (1.6)
14N. Older adults are untidy. 老年人都不修邊幅，很邋遢。	5.8 (1.0)
15N. Older adults are irritable, grouchy and unpleasant. 老年人脾氣不好、愛抱怨，對人也總是不客氣。	5.5 (1.2)
16N. Older adults complain about the young. 老年人總看年輕人眼。	5.5 (1.3)
17N. Older adults have excessive demands for love. 老年人極度渴望被關愛。	2.5 (1.2)
1P. Older adults should live integrated with the young. 老年人應該與年輕人住在一個社區。	4.6 (1.2)
2P. Older adults are no different from anyone else. 老年人與所有人一樣，沒有不同。	4.9 (1.5)
3P. Older adults are capable of new adjustment. 老年人是有能力/可以作出調整及改變的。	5.3 (1.0)
4P. Older adults prefer to work as long as they can. 只要他們還有能力，老年人也希望能一直工作。	5.3 (1.1)
5P. Older adults have clean, attractive homes. 老年人的家通常乾淨舒適。	4.5 (1.2)

Variable	Mean (SD)
6P. Older adults grow wiser with advancing age. 老年人的智慧隨著年齡的增長而增加。	4.2 (1.3)
7P. Older adults should have more power in society. 老年人在社會上應該有較多的影響力。	4.5 (1.2)
8P. Older adults are relaxing to be with. 老年人是很容易相處的。	4.9 (1.1)
9P. It is nice when older adults speak about their past. 當老年人分享著他們過去的經歷時，是很棒的。	5.7 (0.9)
10P. Older adults mind their own business. 老年人很注意他們自己的本分與責任。	5.0 (1.2)
11P. Older adults have the same faults as the young. 老年人也會犯和年輕人一樣的錯誤。	5.5 (0.9)
12P. Neighborhoods are nice when integrated with older adults. 和老年人打成一片的街坊鄰居是很好的。	5.6 (1.0)
13P. Older adults are different from one another. 每一個老年人都是一個個體，沒有人是一模一樣的。	5.8 (1.0)
14P. Older adults are clean and neat. 老年人是乾淨的，是讓人感到舒服的。	4.7 (1.1)
15P. Older adults are cheerful, agreeable and good-humored. 老年人是樂觀的，好溝通的，也有好的幽默感。	4.8 (1.2)
16P. Older adults seldom complain about the young. 老年人很少對年輕人有所抱怨。	3.9 (1.3)
17P. Older adults need no more love than others. 老年人與一般人一樣，不需要特別多的關愛。	6.0 (1.0)

4.4 Applicable Results of Research Questions

Q1: Is there a relationship between attitude towards older people and independent variables including demographic characteristics, culture factors, intention factors, GN education factors among nursing students in Macao?

Null hypotheses: There will be no difference between nursing students' attitude towards older people (the mean scores of KAOP, KAOP-, and KAOP+) and independent variables including demographic characteristics, culture factors, intention factors, GN education factors.

DV: KAOP, KAOP-, and KAOP+

Independent t test and one-way ANOVA were applied to examine the differences in mean scores between independent variables and KAOP, KAOP-, and KAOP+. The findings shown in Table 19.

Table 19
Factors and Attitudes towards Older People (N=377)

Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Total scores	377(100)	168.44	-18.4			83.2	-11.3			85.2	-10.5		
<i>Demographic characteristics</i>													
Age	377(100)			-0.015 ^a	0.988			0.163 ^a	0.87			-0.202 ^a	0.84
Gender				0.596 ^a	0.553			0.062 ^a	0.951			-1.114 ^a	0.269
Male	56(14.9)	167.1	-17.8			83.3	-10.4			83.8	-10.1		
Female	321(85.1)	168.7	-18.5			83.2	-11.4			85.4	-10.5		
Year of study				1.135(3) ^b	0.335			0.578(3) ^b	0.63			1.712(3) ^b	0.164
BSN I	105	167.9	-20.9			82.3	-13.3			85.6	-11.6		0.164
BSN II	99	167.5	-17.5			83.2	-10.7			84.3	-10.4		
BSN III	80	166.9	-19.3			83.1	-11			83.8	-10.5		
BSN IV	93	171.4	-15.3			84.4	-9.5			87	-8.9		
Religion				2.338(5) ^b	.041*			1.088(5) ^b	0.366			2.753(5) ^b	.019*
No	293	167.4	-18.3			82.9	-11.2			84.5	-10.6		
Buddhist	37	173.7	-20.1			84.4	-11.6			89.3	-11		
Taoism	8	180.1	-13.4			88.5	-6.6			91.6	-9.5		
Christian	8	170.3	-13.4			85.5	-9.6			84.8	-10.7		
Catholic	29	170.8	-16.9			84.1	-11.8			86.7	-7		
Muslim	2	143.5	-16.3			70.5	-21.9			73	-5.7		
Family status				0.954(2) ^b	0.386			0.920(2) ^b	0.4			0.533(2) ^b	0.587
Nuclear	334	168.1	-18.1			83	-11.3			85.1	-10.1		
Three generation	30	172.8	-17.9			85.9	-9.9			86.9	-10.9		



Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Others	13	166.5	-26.2			82.9	-13.6			83.6	-17.1		
<i>Culture factors</i>													
Living with 65+				-0.679 ^a	0.499			-0.092 ^a	0.927			-1.124 ^a	0.264
No	319 (84.6)	168.1	18.4			83.2	11			85	10.5		
Yes	57 (15.1)	170	18.6			83.3	12.7			86.6	10.1		
Missing	1 (0.3)												
Time with 65+ within 5 years				.345(2) ^b	0.708			.278(2) ^b	0.758			.356(2) ^b	0.701
None	59 (15.6)	166.4	21.2			82.3	12.4			84.1	11.8		
Rare (below three times a year)	174 (46.2)	168.5	17.2			83.1	10.8			85.5	9.5		
Often (Once a month or above)	136 (36.1)	168.6	18.5			83.6	11.4			85.1	11.1		
Missing	8 (2.1)												
Raised up by 65+				-2.035 ^a	.043*			-1.912 ^a	0.057			-1.47 ^a	0.143
No	237(62.9)	167	18.3			82.4	11.1			84.6	10.4		
Yes	140(37.1)	170.9	18.2			84.7	11.5			86.3	10.6		
Lived with 65+				-1.850 ^a	0.065			-1.763 ^a	0.079			-1.348 ^a	0.178
No	171 (45.4)	166.6	18.8			82.2	10.9			84.4	10.7		
Yes	203 (53.8)	170.1	17.9			84.2	11.4			85.9	10.3		
Missing	3 (0.8)												



Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Filial piety to aging parents				5.574 (2) ^b	.004**			3.384 (2) ^b	.035*			4.754(2) ^b	.009**
Disagree	9 (2.4)	152.6	22.1			76.4	11			76.1	15		
Neutral	20 (5.3)	160.9	18.1			78.9	14.2			82	6.5		
Agree	348 (92.3)	169.3	18.1			83.7	11			85.6	10.4		
<i>Intention factors</i>													
Neighbor with 65+				0.956 ^a	0.34			1.542 ^a	0.124			-0.025 ^a	0.98
No	235 (62.1)	169.1	18			83.9	11			85.2	10		
Yes	142 (37.7)	167.3	19			82	12			85.2	11		
Missing	1 (0.3)												
Getting along with 65+				6.927(2) ^b	.001**			5.395(2) ^b	.005**			4.504(2) ^b	.012**
Poor	9 (2.4)	170.9	26			85.8	14			85.1	14		
Fair	119 (31.6)	163.3	19			80.5	12			82.9	10		
Good	249 (66)	170.8	17			84.5	11			86.4	10		
Like to spend time with 65+				16.55(2) ^b	.000**			12.49(2) ^b	.000**			10.53(2) ^b	.000**
Disagree	6 (1.6)	148.3	37			72.5	20			75.8	18		
Neutral	164 (43.5)	163.6	17			80.6	12			83	9.3		
Agree	207 (54.9)	172.9	18			85.6	10			87.3	11		
To live with 65+ in the future				26.667(2) ^b	.000**			12.306(2) ^b	.000**			26.612(2) ^b	.000**



Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Disagree	33 (8.8)	155.8	16			78.2	9.9			77.6	9.2		
Neutral	177 (47.1)	164.5	18			81.4	11			83.1	10		
Agree	166 (44.1)	175.3	17			86.2	11			89.1	9.7		
Missing	1 (0.3)												
Nursing is the first study choice				-1.524 ^a	0.13			-0.677 ^a	0.5			-1.904 ^a	0.059
No	102 (27.1)	166	19			82.6	11			83.4	12		
Yes	275 (72.9)	169.4	18			83.5	11			85.9	10		
Family working in nursing				-0.160 ^a	0.873			0.806 ^a	0.422			-1.203 ^a	0.231
No	286 (75.9)	168	18			83.5	11			84.8	10		
Yes	88 (23.3)	168.6	19			82.3	12			86.3	11		
Missing	3 (0.8)												
<i>GN education factors</i>													
Clinical Practice with 65+				-0.305 ^a	0.761			-0.092 ^a	0.93			-0.461 ^a	0.646
No	70 (18.6)	167.7	22			83.1	14.5			84.7	11.5		
Yes	307 (81.4)	168.6	17			83.3	10.4			85.4	10.2		
Clinical practice experience with 65+				7.002(3) ^b	.000**			3.584(3) ^b	0.007**			7.041(3) ^b	.000**
Not applicable	70 (18.6)	167.7	22			83.1	14.5			84.7	11.5		
Poor	1 (0.3)	157	-			83	-			74	-		



Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Fair	90 (23.9)	163.1	16.7			81.3	11			81.8	9.2		
Good	215 (57.1)	170.8	17			84	10.1			86.8	10.3		
Missing	1 (0.3)												
Experience of GN taught subject				3.092(3) ^b	.027*			1.266(3) ^b	.286			3.961(3) ^b	.008**
Not applicable	204 (54.1)	167.7	19.2			82.7	12.1			85	11		
Poor	22 (5.8)	158.8	17.8			80	11.6			78.8	9.5		
Fair	98 (26)	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		
Experience of GN clinical practice				1.881(3) ^b	.132			0.957(3) ^b	.413			2.032(3) ^b	.109
Not applicable	204 (54.1)	167.7	19.2			82.7	12.1			85	11		
Poor	12 (3.2)	171.7	16.5			85.8	10.2			85.9	9.3		
Fair	99 (26.32)	166.7	18.2			82.7	11			83.9	10.1		
Good	62 (16.4)	173.1	15.4			85.1	8.9			88	8.9		

^a Independent t test

^b One-Way ANOVA

* Significant when p<.05

** Significant when p<.01



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

4.4.1 Demographic characteristics

There were no significant differences in age, gender, year of study, and family status (Table 20). There were significant differences in religion with mean scores of KAOP and KAOP+, most participants who have religions have higher mean scores in KAOP $F(5, 377)=2.38, p<.05$, KAOP+ $F(5, 377)=2.75, p<.05$, except two participants with Muslim had lower score in KAOP, KAOP+, as well as KAOP-.

Table 20
Demographic Characteristics and Attitudes towards Older People (N=377)

Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		KAOP+		t ^a /F(df) ^b	p	
		Mean	(SD)			Mean	(SD)	Mean	(SD)			
Total scores	377(100)	168.44	-18.4			83.2	-11.3	85.2	-10.5			
<i>Demographic characteristics</i>												
Age	377(100)			-0.015 ^a	0.988			0.163 ^a	0.87		-0.202 ^a	0.84
Gender				0.596 ^a	0.553			0.062 ^a	0.951		-1.114 ^a	0.269
Male	56(14.9)	167.1	-17.8			83.3	-10.4	83.8	-10.1			
Female	321(85.1)	168.7	-18.5			83.2	-11.4	85.4	-10.5			
Year of study				1.135(3) ^b	0.335			0.578(3) ^b	0.63		1.712(3) ^b	0.164
BSN I	105	167.9	-20.9			82.3	-13.3	85.6	-11.6			0.164
BSN II	99	167.5	-17.5			83.2	-10.7	84.3	-10.4			
BSN III	80	166.9	-19.3			83.1	-11	83.8	-10.5			
BSN IV	93	171.4	-15.3			84.4	-9.5	87	-8.9			
Religion				2.338(5) ^b	.041*			1.088(5) ^b	0.366		2.753(5) ^b	.019*
No	293	167.4	-18.3			82.9	-11.2	84.5	-10.6			
Buddhist	37	173.7	-20.1			84.4	-11.6	89.3	-11			
Taoism	8	180.1	-13.4			88.5	-6.6	91.6	-9.5			
Christian	8	170.3	-13.4			85.5	-9.6	84.8	-10.7			
Catholic	29	170.8	-16.9			84.1	-11.8	86.7	-7			
Muslim	2	143.5	-16.3			70.5	-21.9	73	-5.7			
Family status				0.954(2) ^b	0.386			0.920(2) ^b	0.4		0.533(2) ^b	0.587
Nuclear	334	168.1	-18.1			83	-11.3	85.1	-10.1			
Three generation	30	172.8	-17.9			85.9	-9.9	86.9	-10.9			



Variable	n (%)	KAOP		KAOP-		KAOP+	
		Mean	(SD)	Mean	(SD)	Mean	(SD)
Others	13	166.5	-26.2	82.9	-13.6	83.6	-17.1

^a Independent t test

^b One-Way ANOVA

* Significant when $p < .05$

** Significant when $p < .01$



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

4.4.2 Culture factors

An independent t test indicated that mean scores of KAOP were significant higher for “yes” in “raised up by 65+” ($M=170.9$, $SD=18.2$) than for “no” ($M=167.0$, $SD=18.3$), $t(377) = 2.04$, $p < 0.05$. The “filial piety to aging parents” grouped into “strongly disagree” into “disagree”, “neutral”, and “strongly agree” to “agree”. One-way ANOVA was applied to compare the means.

There were significant differences in mean scores of KAOP $F(2, 377) = 5.57$, $p < .01$, KAOP- $F(2, 377) = 3.38$, $p < .05$, KAOP+ $F(2, 377) = 4.75$, $p < .01$. Participants who grouped into “agree” in “filial piety to aging parents” have higher scores in mean scores of KAOP, KAOP-, and KAOP+ (Table 21).

Table 21
Culture Factors and Attitudes towards Older People (N=377)

Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Total scores	377(100)	168.44	-18.4			83.2	-11.3			85.2	-10.5		
<i>Culture factors</i>													
Living with 65+				-0.679 ^a	0.499			-0.092 ^a	0.927			-1.124 ^a	0.264
No	319 (84.6)	168.1	18.4			83.2	11			85	10.5		
Yes	57 (15.1)	170	18.6			83.3	12.7			86.6	10.1		
Missing	1 (0.3)												
Time with 65+ within 5 years				.345(2) ^b	0.708			.278(2) ^b	0.758			.356(2) ^b	0.701
None	59 (15.6)	166.4	21.2			82.3	12.4			84.1	11.8		
Rare (below three times a year)	174 (46.2)	168.5	17.2			83.1	10.8			85.5	9.5		
Often (Once a month or above)	136 (36.1)	168.6	18.5			83.6	11.4			85.1	11.1		
Missing	8 (2.1)												
Raised up by 65+				-2.035 ^a	.043*			-1.912 ^a	0.057			-1.47 ^a	0.143
No	237(62.9)	167	18.3			82.4	11.1			84.6	10.4		
Yes	140(37.1)	170.9	18.2			84.7	11.5			86.3	10.6		
Lived with 65+				-1.850 ^a	0.065			-1.763 ^a	0.079			-1.348 ^a	0.178
No	171 (45.4)	166.6	18.8			82.2	10.9			84.4	10.7		



Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Yes	203 (53.8)	170.1	17.9			84.2	11.4			85.9	10.3		
Missing	3 (0.8)												
Filial piety to aging parents				5.574 (2) ^b	.004**			3.384 (2) ^b	.035*			4.754(2) ^b	.009**
Disagree	9 (2.4)	152.6	22.1			76.4	11			76.1	15		
Neutral	20 (5.3)	160.9	18.1			78.9	14.2			82	6.5		
Agree	348 (92.3)	169.3	18.1			83.7	11			85.6	10.4		

^a Independent t test

^b One-Way ANOVA

* Significant when p<.05

** Significant when p<.01



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

4.4.3 Intention factors

One-way ANOVA showed there were significant differences in mean scores of KAOP in “getting along with 65+”(F(2,377)=6.93, $p<.01$), KAOP- in “getting along with 65+”(F(2,377)=5.4, $p<.01$), and KAOP+ in “getting along with 65+”(F(2,377)=4.50, $p<.05$). Those participants rated “good” in “getting along with 65+” have higher mean scores than “fair” in KAOP, KAOP-, and KAOP+ (Table 22).

One-way ANOVA showed there were significant differences in attitudes scores in “like to spend time with 65+”. Participants answered “agree” in “like to spend time with 65+”, their mean scores were higher than those who answered “neutral” and “disagree” in KAOP (F(2,377)=16.6, $p<.01$), (KAOP-, F(2,377)=12.5, $p<.01$), and KAOP+ (F(2,377)=10.5, $p<.01$). There were significant differences in attitudes scores in “to live with 65+ in the future”. Participants were “agree” in “to live with 65+ in the future”, their mean scores were higher than those who answered for “neutral” and “disagree” in KAOP (F(2,377)=26.7, $p<.01$), KAOP-(F(2, 377)=12.3, $p<.01$), and KAOP+(F(2,377)=26.6, $p<.01$).

Table 22

Intention Factors and Attitudes towards Older People (N=377)

Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		KAOP+		t ^a /F(df) ^b	p	
		Mean	(SD)			Mean	(SD)	Mean	(SD)			
Total scores	377(100)	168.44	-18.4			83.2	-11.3	85.2	-10.5			
<i>Intention factors</i>												
Neighbor with 65+				0.956 ^a	0.34			1.542 ^a	0.124		-0.025 ^a	0.98
No	235 (62.1)	169.1	18			83.9	11	85.2	10			
Yes	142 (37.7)	167.3	19			82	12	85.2	11			
Missing	1 (0.3)											
Getting along with 65+				6.927(2) ^b	.001**			5.395(2) ^b	.005**		4.504(2) ^b	.012**
Poor	9 (2.4)	170.9	26			85.8	14	85.1	14			
Fair	119 (31.6)	163.3	19			80.5	12	82.9	10			
Good	249 (66)	170.8	17			84.5	11	86.4	10			
Like to spend time with 65+				16.55(2) ^b	.000**			12.49(2) ^b	.000**		10.53(2) ^b	.000**
Disagree	6 (1.6)	148.3	37			72.5	20	75.8	18			
Neutral	164 (43.5)	163.6	17			80.6	12	83	9.3			
Agree	207 (54.9)	172.9	18			85.6	10	87.3	11			
To live with 65+ in the future				26.667(2) ^b	.000**			12.306(2) ^b	.000**		26.612(2) ^b	.000**
Disagree	33 (8.8)	155.8	16			78.2	9.9	77.6	9.2			
Neutral	177 (47.1)	164.5	18			81.4	11	83.1	10			
Agree	166 (44.1)	175.3	17			86.2	11	89.1	9.7			



Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Missing	1 (0.3)												
Nursing is the first study choice				-1.524 ^a	0.13			-0.677 ^a	0.5			-1.904 ^a	0.059
No	102 (27.1)	166	19			82.6	11			83.4	12		
Yes	275 (72.9)	169.4	18			83.5	11			85.9	10		
Family working in nursing				-0.160 ^a	0.873			0.806 ^a	0.422			-1.203 ^a	0.231
No	286 (75.9)	168	18			83.5	11			84.8	10		
Yes	88 (23.3)	168.6	19			82.3	12			86.3	11		
Missing	3 (0.8)												

^a Independent t test

^b One-Way ANOVA

* Significant when p<.05

** Significant when p<.01



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

4.4.4 GN education factors

Independent t tests were used to compare the mean scores of KAOP, KAOP-, KAOP+ and items (Table 23). Of 307 participants answered “yes” for “clinical practice with 65+”. There were significant differences for the mean scores of KAOP ($F(3)=7.002, p=.000$), KAOP- ($F(3)=3.584, p=.007$), and KAOP+ ($F(3)=7.041, p=.000$), those participants answered “good” in “clinical practice experience with 65+” had higher mean scores than those who answered “fair” and “poor”. There were significant differences in “experience of GN taught subject” for mean scores of KAOP ($F(3)=3.092, p=.027$) and KAOP+ ($F(3)=3.961, p<.01$). Participants answered “good” in “experience of GN taught subject” had higher mean scores than those who answered “fair” and “poor” ($p<.01$).

Table 23
GN Education Factors and Attitudes towards Older People (N=377)

Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Total scores	377(100)	168.44	-18.4			83.2	-11.3			85.2	-10.5		
<i>GN education factors</i>													
Clinical Practice with 65+				-0.305 ^a	0.761			-0.092 ^a	0.93			-0.461 ^a	0.646
No	70 (18.6)	167.7	22			83.1	14.5			84.7	11.5		
Yes	307 (81.4)	168.6	17			83.3	10.4			85.4	10.2		
Clinical practice experience with 65+				7.002(3) ^b	.000**			3.584(3) ^b	0.007**			7.041(3) ^b	.000**
Not applicable	70 (18.6)	167.7	22			83.1	14.5			84.7	11.5		
Poor	1 (0.3)	157	-			83	-			74	-		
Fair	90 (23.9)	163.1	16.7			81.3	11			81.8	9.2		
Good	215 (57.1)	170.8	17			84	10.1			86.8	10.3		
Missing	1 (0.3)												
Experience of GN taught subject				3.092(3) ^b	.027*			1.266(3) ^b	.286			3.961(3) ^b	.008**
Not applicable	204 (54.1)	167.7	19.2			82.7	12.1			85	11		
Poor	22 (5.8)	158.8	17.8			80	11.6			78.8	9.5		
Fair	98 (26)	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		
Experience of GN clinical practice				1.881(3) ^b	.132			0.957(3) ^b	.413			2.032(3) ^b	.109



Variable	n (%)	KAOP		t ^a /F(df) ^b	p	KAOP-		t ^a /F(df) ^b	p	KAOP+		t ^a /F(df) ^b	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Not applicable	204 (54.1)	167.7	19.2			82.7	12.1			85	11		
Poor	12 (3.2)	171.7	16.5			85.8	10.2			85.9	9.3		
Fair	99 (26.32)	166.7	18.2			82.7	11			83.9	10.1		
Good	62 (16.4)	173.1	15.4			85.1	8.9			88	8.9		

^a Independent t test

^b One-Way ANOVA

* Significant when p<.05

** Significant when p<.01



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

In summary, participants' attitudes towards older people were associated with demographic characteristics (religion, $p < .05$), culture factors (Filial piety, $p < .01$), intention factors (getting along with 65+, like to spend time with 65+, to live with 65+, $p < .01$), and GN education (clinical practice with 65+, $p < .01$; GN taught, $p < .05$). The relationships between attitudes towards older people (KAOP) and factors of nursing students were shown at Fig. 3.

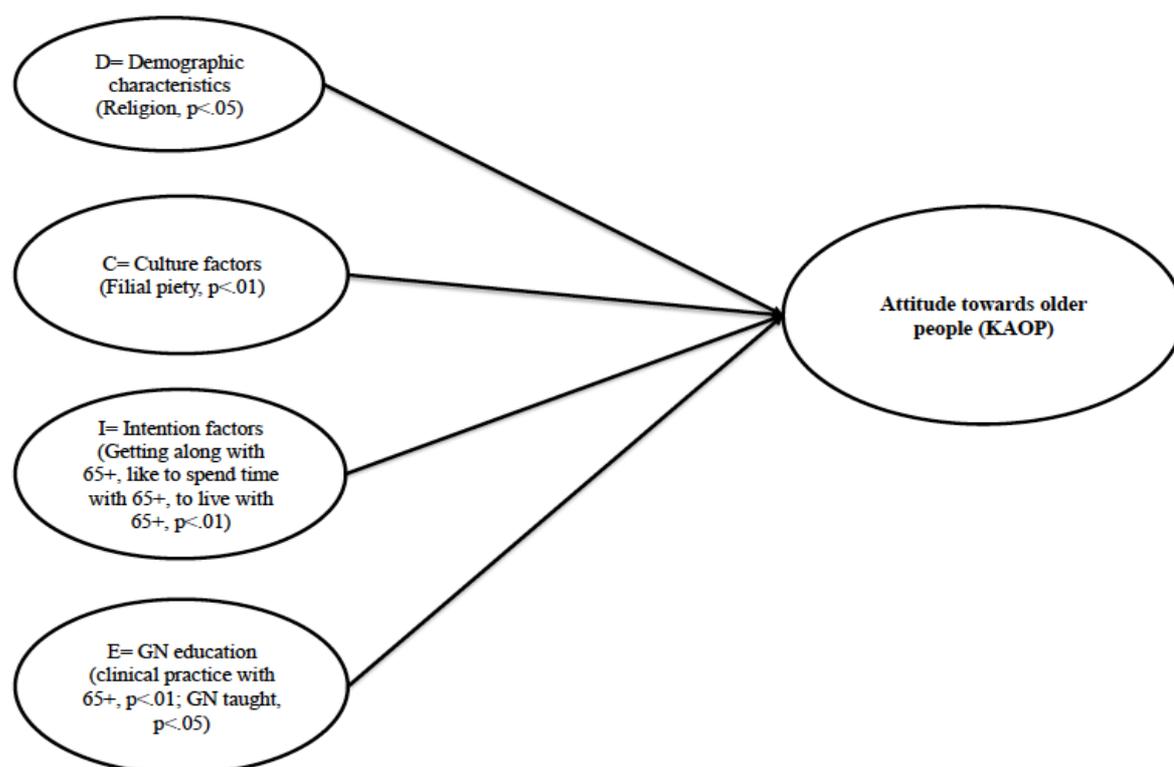


Figure 3. Factors and attitude towards older people.

Q2: *Are there relationships between preference GN as future work and independent variables including demographic characteristics, culture factors, intention factors, GN education factors among nursing students in Macao?*

Null hypotheses: *There will be no relationship between preference GN as future work and independent variables including demographic characteristics, culture factors, intention factors, GN education factors.*

Dependent variable: preference GN as future work

As participants rated their future career preference from the most preference (the 1st) to less preference (the 12th), participants' choices GN as future work were further categorized into- prefer GN as the 1st to 3rd (most preference) and prefer GN as the 4th to 12th (less preference). Independent t-test was used to examine the relationship between “age” and “preference GN as future work”, there was no significant between these two variables (Table 24).

Chi-square test was used to examine the relationship between “preference GN as future work” and other independent categorical variables. There was no relationship between demographic characteristics and preference GN as future work. In culture factor, participants' “raised up by 65+” ($X^2(1, N=377)=4.172, p=0.041$) was associated with “preference GN as future work”. Those participants who answered “yes” in “raised up by 65+” were 13.6% among participants who ranked GN as the 1st to 3rd preference future work while others ranked GN as the 4th to 12th preference future work. Those participants who answered “no” in “raised up by 65+” were 7.2% among participants ranked GN as the 1st to 3rd preference future work while others ranked GN as the 4th to 12th preference future work.

In intention factors, participants' “neighbour with 65+” ($X^2(1, N=377)=5.361, p=0.021$), “like to spend time with 65+” ($X^2(4, N=377)=34.886, p=0.000$), and “to live

with 65+ in the future” ($\chi^2(3, N=377)=18.267, p=0.021$) were associated with “preference GN as future work”. Participants who answered “yes” in “neighbor with 65+” (55.6%), “agree and strongly agree” in “like to spend time with 65+” (72.2%), and “agree and strongly agree” in “to live with 65+ in the future” (69.4%) were associated in ranking GN as the 1st to 3rd preference future work.

In GN education factors, participants’ “experience of clinical practice with 65+” ($\chi^2(3, N=377)=14.695, p=0.005$) was associated with “preference GN as future work”. Participants who ranked “good” and “very good” in “experiences of clinical practice with 65+” (80.5%) were associated in ranking GN as the 1st to 3rd preference future work.

Table 24
Factors and Preference GN as Future Work (N=377)

	Preference GN as future work		X ² (df)/t ^a	p
	The 1st- 3rd (most preference) n=36 (n,%)	The 4th- 12 (less preference) n=341 (n,%)		
<i>Demographic characteristics</i>				
Age	23.8 (1.4) ^b	23.3 (1.6) ^b	-1.733 ^a	.084
Gender			0.026(1)	.864
Female	31 (86.1)	290(85)		
Male	5 (13.9)	51(15)		
Education			0.901(3)	.825
BSN I	8 (22.2)	97 (28.4)		
BSN II	9 (25)	90 (26.4)		
BSN III	9 (25)	71 (20.8)		
BSN IV	10 (27.8)	83 (24.3)		
Religion			0.483(5)	.993
None	28 (77.8)	265 (77.7)		
Buddhist	3 (8.3)	34 (10)		
Taoism	1 (2.8)	7 (2.1)		
Christian	1 (2.8)	7 (2.1)		
Catholic	3 (8.3)	26 (7.6)		
Muslim	0	2 (0.6)		
Family status			1.936(2)	.380
Nuclear family	30 (83.3)	304 (89.1)		
Three generations	5 (13.9)	25 (7.3)		
Other	1 (2.8)	12 (3.5)		
<i>Culture factors</i>				
Living with 65+			1.565(1)	.211
No	28 (77.8)	292 (85.6)		
Yes	8 (22.2)	49 (14.4)		
Time with 65+			4.956(5)	.421
None	3 (8.3)	56 (16.8)		
Rarely	5 (13.9)	55 (16.5)		
Occasionally	9 (25)	105 (31.5)		
Frequency	7 (19.4)	48 (14.4)		
Very frequently	7 (19.4)	40 (12)		
Every day	5 (13.9)	29 (8.7)		
Raised up by 65+			4.172(1)	.041*
No	17 (47.2)	220 (64.5)		
Yes	19 (52.8)	121 (35.5)		
Lived with 65+			2.632(1)	.105
No	12 (33.3)	162 (47.5)		
Yes	24 (66.7)	179 (52.5)		

	Preference GN as future work		X ² (df)/t ^a	p
	The 1st- 3rd (most preference) n=36 (n,%)	The 4th- 12 (less preference) n=341 (n,%)		
Filial piety to ageing parents			7.365(4)	.118
Strongly Disagree	0	4 (1.2)		
Disagree	0	5 (1.5)		
Don't mind	1 (2.8)	19 (5.6)		
Agree	12 (33.3)	173 (50.7)		
Strongly agree	23 (63.9)	140 (41.1)		
<i>Intention factors</i>				
Neighbour with 65+			5.361 (1)	.021*
No	16 (44.4)	218 (64.1)		
Yes	20 (55.6)	122 (35.9)		
Getting along with 65+			9.010 (4)	.061
Very poor	0	3 (0.9)		
Poor	1 (2.8)	5 (1.5)		
Fair	9 (25)	110 (32.3)		
Good	10 (27.8)	145 (42.5)		
Very good	16 (44.4)	78 (22.9)		
Like to spend time with 65+			34.886 (4)	.000**
Strongly disagree	0	1 (0.3)		
Disagree	1 (2.8)	4 (1.2)		
Don't mind	9 (25)	155 (45.5)		
Agree	10 (27.8)	147 (43.1)		
Strongly Agree	16 (44.4)	34 (10)		
To live with 65+ in the future			18.267 (3)	.000**
Disagree	2 (5.6)	31 (9.1)		
Don't mind	9 (25)	168 (49.4)		
Agree	17 (47.2)	122 (35.9)		
Strongly Agree	8 (22.2)	19 (5.6)		
Nursing is my first study choice			2.177 (1)	.140
No	6 (16.7)	96 (28.2)		
Yes	30 (83.3)	245 (71.8)		
Family working in nursing			.267 (1)	.605
No	28 (80)	258 (76.1)		
Yes	7 (20)	81 (23.9)		
<i>GN education factors</i>				
Clinical practice with 65+			.576(1)	.448

	Preference GN as future work		X ² (df)/t ^a	p
	The 1st- 3rd (most preference) n=36 (n,%)	The 4th- 12 (less preference) n=341 (n,%)		
No	5 (13.9)	65 (19.1)		
Yes	31 (86.1)	276 (80.9)		
Experience of clinical practice with 65+			14.695 (5)	.005**
None	1 (2.8)	27 (7.9)		
Very poor	0	1 (0.3)		
Poor	0	3 (0.9)		
Fair	6 (16.7)	115 (33.7)		
Good	22 (61.1)	179 (52.5)		
Very good	7 (19.4)	16 (4.7)		
Experience of GN taught subject			3.274 (5)	.658
NA	17 (47.2)	187 (54.8)		
Very poor	0	3 (0.9)		
Poor	1 (2.8)	18 (5.3)		
Fair	10 (27.8)	88 (25.8)		
Good	8 (22.2)	44 (12.9)		
Very good	0	1 (0.3)		
Experience of GN clinical practice			3.127 (5)	.680
NA	17 (47.2)	187 (54.8)		
Very poor	0	2 (0.6)		
Poor	1 (2.8)	9 (2.6)		
Fair	9 (25.0)	90 (26.4)		
Good	9 (25.0)	50 (14.7)		
Very good	0	3 (0.9)		

^a Independent t test

^b mean(SD)

* Significant when p<.05

** Significant when p<.01

In summary, there are relationships in culture factors (raised up by 65+, $p < .05$), intention factors (neighbour with 65+, $p < .05$; like to spend time with 65+, to live with 65+, $p < .01$), GN education (clinical practice with 65+, $p < .01$) with preference GN as future work (Fig. 4).

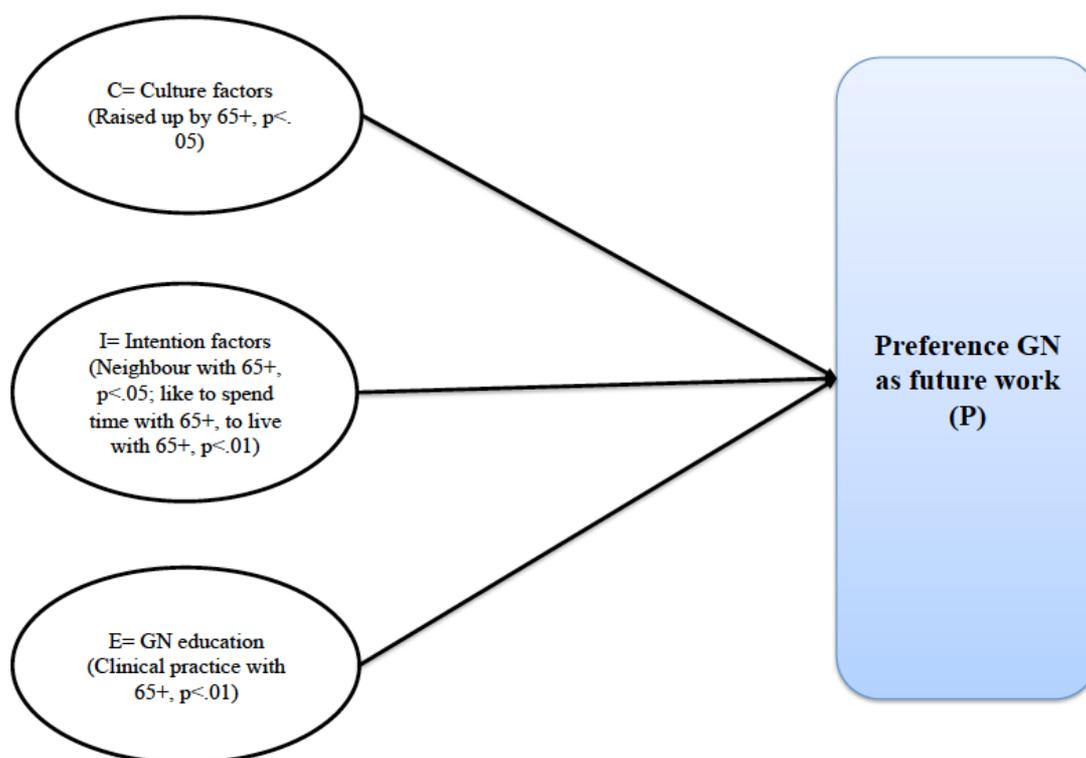


Figure 4. Factors and preference GN as future work.

Q3: *Are there relationships between willingness to work at GN and independent variables including demographic characteristics, culture factors, intention factors, GN education factors among nursing students in Macao?*

Null hypotheses: *There will be no relationship between willingness to work at GN and independent variables including demographic characteristics, culture factors, intention factors, GN education factors among nursing students in Macao.*

Dependent variable: Willingness to work at GN

The willingness to work at GN among participants was further categorized into other (strongly disagree, disagree, don't mind) and agree (agree and strongly agree) (Table 25). 92 participants were categorized into "agree and strongly agree" (24.4%) in "willingness to work at GN after graduation".

Independent t-test was used to examine the relationship between "age" and "willingness to work at GN", there was no significant difference between these two variables. Chi-square test was used to examine the relationship between "willingness to work at GN" and other independent categorical variables. There was no relationship between demographic characteristics and "willingness to work at GN".

In culture factors, participants answered "agree" (35.9%) and "strongly agree" (58.7%) in "filial piety to ageing parents" ($X^2(4, N=377)=12.062, p=0.017$) were associated with "agree" in "willingness to work at GN".

In intention factors, participants answered "agree" (41.3%) and "strongly agree" (22.8%) in "like to spend time with 65+" ($X^2(4, N=377)=15.235, p=0.004$) were associated with "agree" in "willingness to work at GN". Participants answered "agree" (48.9%) and "strongly agree" (14.1%) in "to live with 65+ in the future" ($X^2(3, N=377)=21.030, p=0.000$) were associated with "agree" in "willingness to work at GN".

In GN education factors, participants answered "good" (58.7%) and "very good"

(12%) in “experience of clinical practice with 65+” ($X^2(5, N=377)=12.875, p=0.012$) were associated with “agree” in “willingness to work at GN”.

Table 25
Factors and Willingness to Work at GN (N=377)

	Willingness to work at GN		X ² (df)/t ^a	p
	Others (n=285)	Agree (n=92)		
<i>Demographic characteristics</i>				
Age	23.3 (1.5) ^b	23.5 (1.8) ^b	-.878 ^a	.380
Gender			3.649 (1)	.056
Female	237 (83.2)	84 (91.3)		
Male	48 (16.8)	8 (8.7)		
Education			0.576 (3)	.902
BSN I	79 (27.7)	26 (28.3)		
BSN II	74 (26)	25 (27.2)		
BSN III	63 (22.1)	17 (18.5)		
BSN IV	69 (24.2)	24 (26.1)		
Religion			11.046 (5)	.050
None	227 (79.6)	66 (71.7)		
Buddist	30 (10.5)	7 (7.6)		
Taoism	6 (2.1)	2 (2.2)		
Christian	3 (1.1)	5 (5.4)		
Catholic	18 (6.3)	11 (12)		
Muslim	1 (0.4)	1 (1.1)		
Family status			0.308 (2)	.857
Nuclear family	253 (88.8)	81 (88)		
Three generations	23 (8.1)	7 (7.6)		
Other	9 (3.2)	4 (4.3)		
<i>Culture factors</i>				
Living with 65+			0.409(1)	.523
No	240 (84.2)	80 (87)		
Yes	45 (15.8)	12 (13)		
Time with 65+			1.547(5)	.908
None	43 (15.5)	16 (17.4)		
Rarely	44 (15.9)	16 (17.4)		
Occasionally	90 (32.5)	24 (26.1)		
Frequency	40 (14.4)	15 (16.3)		
Very frequently	34 (12.3)	13 (14.1)		
Every day	26 (9.4)	8 (8.7)		
Raised up by 65+			0.617(1)	.432
No	176 (61.8)	61 (66.3)		
Yes	109 (38.2)	31 (33.7)		
Lived with 65+			0.724(1)	.395
No	128 (44.9)	46 (50)		
Yes	157 (55.1)	46 (50)		

	Willingness to work at GN		X ² (df)/t ^a	p
	Others (n=285)	Agree (n=92)		
Filial piety to ageing parents			12.062(4)	.017*
Strongly Disagree	3 (1.1)	3 (1.1)		
Disagree	4 (1.4)	3 (1.1)		
Don't mind	17 (6)	3 (3.3)		
Agree	152 (53.3)	33 (35.9)		
Strongly agree	109 (38.2)	54 (58.7)		
Intention factors				
Neighbour with 65+			1.109 (1)	.292
No	181 (63.7)	53 (57.6)		
Yes	103 (36.3)	39 (42.4)		
Getting along with 65+			2.498 (4)	.645
Very poor	2 (0.7)	1 (1.1)		
Poor	4 (1.4)	2 (2.2)		
Fair	95 (33.3)	24 (26.1)		
Good	117 (41.1)	38 (41.3)		
Very good	67 (23.5)	27 (29.3)		
Like to spend time with 65+			15.2346 (4)	.004**
Strongly disagree	0	1 (1.1)		
Disagree	5 (1.8)	0		
Don't mind	132 (46.3)	32 (34.8)		
Agree	119 (41.8)	38 (41.3)		
Strongly Agree	29 (10.2)	21 (22.8)		
To live with 65+ in the future			21.030 (3)	.000**
Disagree	29 (10.2)	4 (4.3)		
Don't mind	147 (51.8)	30 (32.6)		
Agree	94 (33.1)	45 (48.9)		
Strongly Agree	14 (4.9)	13 (14.1)		
Nursing is my first study choice			2.529 (1)	.112
No	83 (29.1)	19 (20.7)		
Yes	202 (70.9)	73 (79.3)		
Family working in nursing			.204 (1)	.652
No	218 (77)	68 (74.7)		
Yes	65 (23)	23 (25.3)		
GN education factors				
Clinical practice with 65+			.412 (1)	.521
No	55 (19.3)	15 (16.3)		

	Willingness to work at GN		X ² (df)/t ^a	p
	Others (n=285)	Agree (n=92)		
Yes	230 (80.7)	77 (83.7)		
Experience of clinical practice with 65+			12.875 (5)	.012*
None	21 (7.4)	7 (7.6)		
Very poor	1 (0.4)	0		
Poor	3 (1.1)	0		
Fair	101 (35.4)	20 (21.7)		
Good	147 (51.6)	54 (58.7)		
Very good	12 (4.2)	11 (12.0)		
Experience of GN taught subject			6.405 (5)	.269
NA	153 (53.7)	51 (55.4)		
Very poor	2 (0.7)	1 (1.1)		
Poor	18 (6.3)	1 (1.1)		
Fair	76 (26.7)	22 (23.9)		
Good	35 (12.3)	17 (18.5)		
Very good	1 (0.4)	0		
Experience of GN clinical practice			2.314 (5)	.804
NA	153 (53.7)	51 (55.4)		
Very poor	2 (0.7)	0		
Poor	7 (2.5)	3 (3.3)		
Fair	77 (27)	22 (23.9)		
Good	43 (15.1)	16 (17.4)		
Very good	3 (1.1)	0		

^a Independent t test

^b mean(SD)

* Significant when p<.05

** Significant when p<.01

In summary, there are relationships in culture factors (filial piety, $p < .05$), intention factors (like to spend time with 65+, to live with 65+, $p < .01$), GN education (clinical practice with 65+, $p < .01$) with willingness to work at GN (Fig. 5).

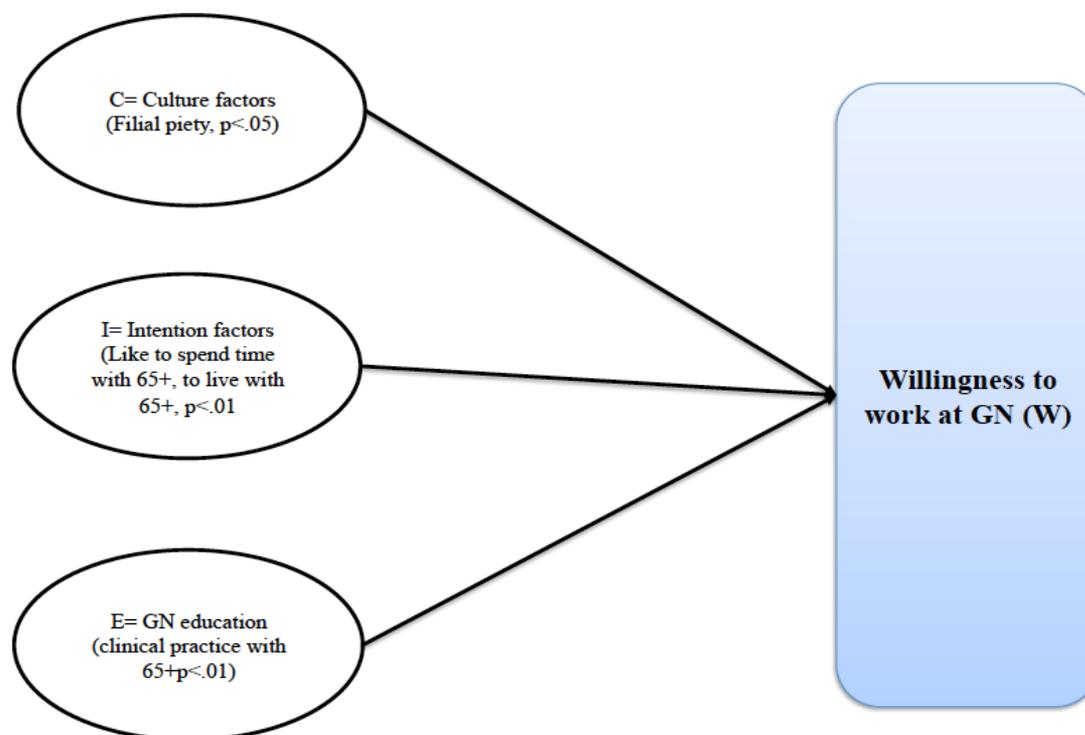


Figure 5. Factors and willingness to work at GN.

Q4: *Is there a relationship between attitudes towards older people and preference GN as future career among nursing students in Macao?*

Null hypotheses: *There will be no difference between students' attitudes towards older people (mean scores of KAOP, KAOP-, KAOP+) and preference GN as future career.*

One-way ANOVA was used to compare means among participants for the differences between “GN as future work” and “KAOP, “KAOP-“, and “KAOP+”. There were significant differences in “preference GN as future work” and KAOP ($F(11, 377) = 2.554, p = 0.04$), as well as “preference GN as future work” and KAOP+ ($F(11, 377) = 2.883, p = 0.01$). Participants had lower scores if they chose GN as less preference (10th ~12th) future work (Table 26) which indicated less positive attitudes towards older people.

Table 26

Preference GN as Future Work and Attitudes towards Older People (N=377)

	N (%)	KAOP		F (df)	p	KAOP-		F (df)	p	KAOP+		F (df)	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Preference GN as future career				2.554	.004**			1.478	.137			2.883	.001**
				(11)				(11)				(11)	
The 1 st (most preference)	4 (1.1)	167.0	34.2			79.5	21.9			87.5	13.3		
The 2 nd	16 (4.2)	178.0	18.7			86.3	9.2			91.7	11.4		
The 3 rd	16 (4.2)	172.1	14.4			87.9	9.4			84.1	9.1		
The 4 th	32 (8.5)	171.6	21.9			83.5	14.0			88.1	12.2		
The 5 th	38 (10.1)	168.0	17.5			82.5	10.6			85.5	10.3		
The 6 th	43 (11.4)	174.1	15.0			85.4	9.6			88.7	7.9		
The 7 th	37 (9.8)	167.6	14.2			82.7	8.5			84.8	8.2		
The 8 th	41 (10.9)	173.9	17.3			86.3	11.3			87.6	10.1		
The 9 th	49 (13)	166.0	17.5			81.8	11.9			84.2	9.5		
The 10 th	43 (11.4)	164.9	19.2			82.7	11.2			82.2	10.3		
The 11 th	42 (11.1)	160.9	20.3			80.2	12.1			80.7	12.5		
The 12 th (less preference)	16 (4.2)	159.8	16.7			78.4	11.2			81.3	9.7		
Total	377	168.4	18.4			83.2	11.3			85.2	10.5		

* Significant when $p < .05$

** Significant when $p < .01$



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

Q5: Is there a relationship between attitudes towards older people and willingness to work in GN among nursing students in Macao?

Null hypotheses: *There will be no difference between students' attitudes towards older people (mean scores of KAOP, KAOP-, KAOP+) and willingness to work at GN.*

Those participants who answered “agree” in “willingness to work in GN” had higher mean scores in KAOP, KAOP-, and KAOP+ (Table 27) that indicated more positive attitudes towards older people. There were significant differences in participants' willingness to work in GN and attitudes towards older people for KAOP ($F(2)=8.410, p<.01$), KAOP- ($F(2)=4.642, p<.01$), and KAOP+ ($F(2)=6.288, p<.01$).

Table 27

Willingness to Work in GN and Attitudes towards Older People (N=377)

Variable	n (%)	KAOP		t/F(df)	p	KAOP-		F(df) ^b	p	KAOP+		F(df)	p
		Mean	(SD)			Mean	(SD)			Mean	(SD)		
Willingness working in GN after graduation				8.410(2) ^b	0.000**			4.642(2) ^b	0.010**			7.925(2) ^b	0.000**
Disagree	52	164.0	21			81.9	12			82.1	12		
Neutral	233	166.9	17			82.3	11			84.6	9.8		
Agree	90	175.0	18			86.4	12			88.7	11		

^a Independent t test^b One-Way ANOVA* Significant when $p < .05$ ** Significant when $p < .01$ 

The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

Correlations between “preference GN as future work” and “willingness to work in GN after graduation”

The relationships between “preference GN as future work” and “willingness to work in GN after graduation” were further tested (Table 28). The Chi-square results showed that there were significant correlations on “preference GN as future work” and “willingness to work in GN after graduation” ($X^2(1, N=377)=24.838, p<0.000$) (Fig. 6).

In this study, odds was applied to calculate the ratio of participant in preference GN as 1-3 more or 4-12 less favourite future work incurring “willingness to work in GN after graduation” to the number of participants who do not agree.

The odds of preference GN as 1-3 more favourite future work in “willingness to work in GN after graduation” = $21/15=1.4$.

The odds of preference GN as 4-12 less favourite future work odds in “willingness to work in GN after graduation” = $71/270=0.26$

Odds Ratio (OR) represented the ratio of the odds in “agree” of “willingness to work in GN after graduation” in participants with the preference GN as 1-3 more favourite future work divided by the odds in “agree” of “willingness to work in GN after graduation” being exposed in preference GN as 4-12 less favourite future work.

The odds ratio of “preference GN as future work” in “willingness to work GN after graduation” = odds of preference GN as 1-3 more favourite future work/odds of preference GN as 4-12 more favourite future work = $1.4/0.26=5.38$. This result showed those nursing students ranked preference GN as 1-3 more favourite future work were more likely to work in GN after graduation than those ranked GN as 4-12 more favourite future work.

Table 28

Correlations between “Preference GN as Future Work” and “Willingness to Work in GN after Graduation” (N=377)

	Willingness to work in GN after graduation		X ² (df)	p
	Others	Agree		
Preference GN as future work			24.838 (1)	.000**
GN as 4-12 less favorite	270	71		
GN as 1-3 more favorite	15	21		

** Significant when $p < .01$

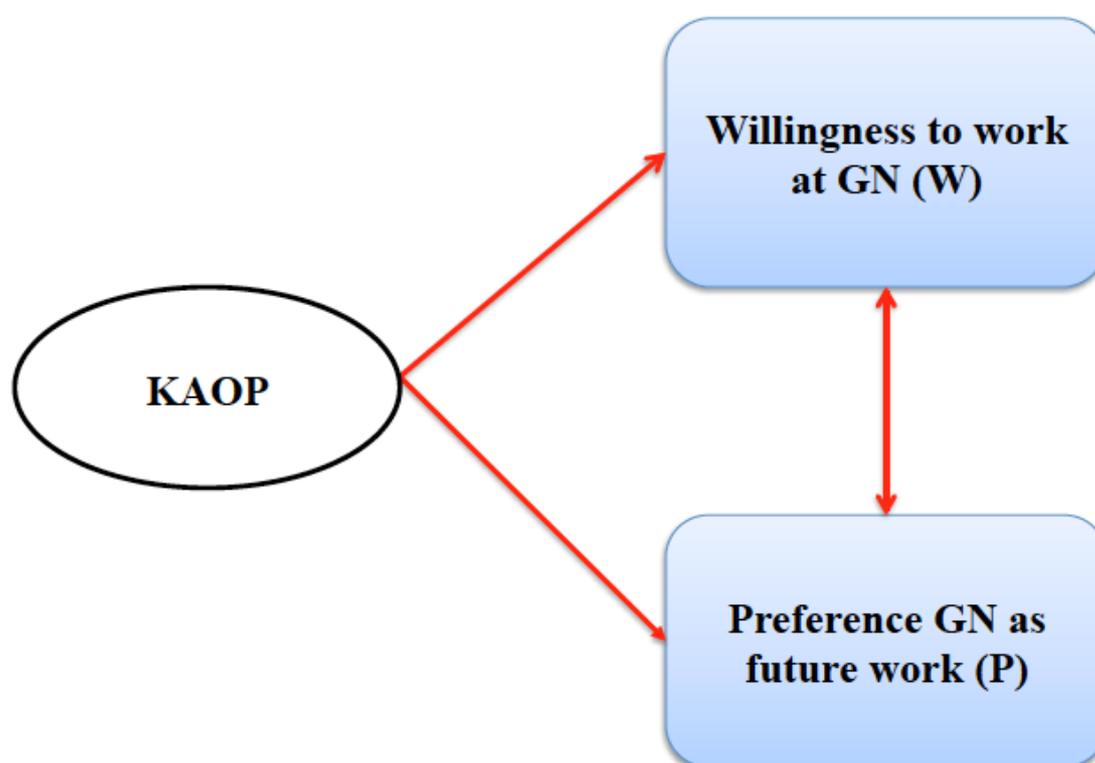


Figure 6. Relations among KAOP, preference and willingness GN as future work.

4.5 Logistic Regression Analysis

The relationships among independent variables (demographic characteristics, culture factors, intention factors, GN education) with dependent variables (KAOP, preference GN as future work, and willingness to work at GN) have been tested and confirmed. This study used binary logistic regression to explore predictors of

preference GN as future work (categorical dependent variable), and willingness to work GN after graduation (categorical dependent variable), as well as to build a model among Macao nursing students towards GN. Those independent variables that represented correlations with dependent variables were chosen into logistic regression analysis. Most categorical variables were treated as dichotomous variables except “level of education” (see Table 29). The outcome variables of logistic regression analysis in this study were “preference GN as future work” and “Willingness to work GN after graduation”.

Table 29
Variables for Logistic Regression Analysis

Items	Variables	Categories and Coding
<i>Demographic characteristics</i>	Gender	0= Male 1= Female
	Level of education	1= Year I 2= Year II 3= Year III 4= Year IV
	Religion	0= No religion 1= Have religion
<i>Culture factors</i>	Living with older people (65+)	0= No 1= Yes
	Time with older people (65+) within 5 years	0= Never, rarely, occasionally 1= Often, very often, everyday
	Raised up by older people (65+)	0= No 1= Yes
	Lived with older people (65+)	0= No 1= Yes
	Filial piety is important to parents	0= Strongly disagree, disagree, don't mind 1= Agree, strongly Agree
<i>Intention factors</i>	Getting along with older people (65+)	0= Very poor, poor, fair 1= Good, very good
	Like to spend time with older people (65+)	0= Strongly disagree, disagree, don't mind 1= Agree, strongly Agree
	To live with older people (65+) in the future	0= Strongly disagree, disagree, don't mind 1= Agree, strongly Agree
<i>GN education factors</i>	Clinical practice with older people	0= No 1= Yes
	Experience of clinical practice with 65+	0= Not applicable, very poor, poor, fair 1= Good, very good
	Experience of GN taught subject	0= Not applicable, very poor, poor, fair 1= Good, very good
	Experience of GN clinical practice	0= Not applicable, very poor, poor, fair 1= Good, very good
<i>Outcome (Dependent) Variable</i>	Preference GN as future work	1= Rated GN as the first to third favourite future career 0= Rated GN as the fourth to twelfth future career choice.
	Willingness to work GN after graduation	0= Strongly disagree, disagree, don't mind 1= Agree, strongly Agree

4.5.1 Predictors of preference GN as future work

Outcome variable: Preference GN as future work

As participants have rated their future career preferences, their future career preferences were further categorized into dichotomous variables: 1= Rated GN as the first to third favourite future career (more favourite); 0= Rated GN as the fourth to twelfth future career choice (less favourite). Binary logistic regression was used to examine the predictor of “preference GN as future work”.

The following independent variables were chosen for binary logistic regression to test predictors of “preference GN as future work”:

- (1) Demographic characteristics: gender;
- (2) Culture factors: “filial piety”;
- (3) Intention factors: “to live with 65+ in the future”;
- (4) GN education: “experience of clinical practice with 65+”, and
- (5) KAOP.

Odds ratio (O.R.) and “95% C.I. for O.R.” provide information in positive or negative impact in this study. The results (Table 30) showed “to live with 65+ in the future” and “experience of clinical practice with 65+” were predictors of “GN as the first to third favourite future career”. Those participants who wanted “to live with 65+ in the future” had the higher possibility to rank “GN as the first to third future career choice” for the O.R. in 2.546 (95% CI: 1.156~5.607) than “GN as the fourth to twelfth future career choice”. Those participants who had good experiences of clinical practice with 65+ had the higher possibility to rank “GN as the first to third future career choice” for the O.R. 2.515 (95% CI: 1.050~6.025) than “GN as the fourth to twelfth future career choice”.

In summary, those nursing students who wanted to live with 65+ and had good experiences of clinical practice with 65+ are more likely to rank GN as the first to third preference future work.

Table 30
Predictors of Preference GN as Future Work (N=377)

	B	S.E.	Wald	p	O. R.	95% C.I. for O. R.	
						Lower	Upper
Gender	-0.123	0.517	0.056	0.813	0.885	0.321	2.438
Filial piety	0.546	1.056	0.268	0.605	1.727	0.218	13.693
To live with 65+	0.935	0.403	5.386	0.020*	2.546	1.156	5.607
Experience of clinical practice with 65+	0.922	0.446	4.282	0.039*	2.515	1.050	6.025
KAOP	0.007	0.011	0.471	0.493	1.007	0.986	1.029
Constant	-5.187	2.081	6.523	0.011	0.006		
Ominibus test: $X^2=16.995$, $p=.005^{**}$							

* Significant when $p < .05$

** Significant when $p < .01$

4.5.2 Predictors of willingness to work in GN after graduation

Outcome variable: Willingness to work in GN after graduation

“Willingness to work in GN after graduation” was further categorized into dichotomous variables: 0= others (strongly disagree, disagree, and don’t mind); 1= agree (agree, strongly agree).

The following independent variables were chosen into binary logistic regression for the predictors of “willingness to work in GN after graduation”:

- (1) Demographic characteristics: gender;
- (2) Culture factors: “filial piety”;
- (3) Intention factors: “to live with 65+ in the future”;
- (4) GN education: “experience of clinical practice with 65+”, and
- (5) KAOP.

The results (Table 31) showed “to live with 65+” and “KAOP” were predictors of “willingness to work in GN after graduation”. Those participants who “wanted to live with 65+ in the future” have the higher possibility for “agree” in “willingness to work in GN after graduation” (O.R.:2.1462, 95% CI: 1.270~3.612) than “not agree” in “willingness to work in GN after graduation”. KAOP was confirmed as a predictor of “willingness to work in GN after graduation” for the odds ratio 1.018 (95% CI: 1.003~1.034).

In summary, those nursing students who wanted to live with 65+ in the future and had higher mean scores of KAOP are more likely to work in GN after graduation.

Table 31
Predictors of Willingness to Work in GN after Graduation (N=377)

	B	S.E.	Wald	p	O. R.	95% C.I. for O. R.	
						Lower	Upper
Gender	-0.791	0.414	3.658	0.056	0.453	0.202	1.020
Filial piety	-0.045	0.536	0.007	0.932	0.956	0.334	2.734
To live with 65+	0.762	0.267	8.116	0.004**	2.142	1.270	3.612
Experience of clinical practice with 65+	0.486	0.273	3.181	0.074	1.626	0.953	2.774
KAOP	0.018	0.008	5.641	0.018*	1.018	1.003	1.034
Constant	-4.392	1.335	12.879	0.000**	0.008		

Ominibus test: $X^2=32.015$, $p=.000^{**}$

* Significant when $p<.05$

** Significant when $p<.01$

4.5.3 Summary of logistic regression analysis

Binary logistic regression analysis was adopted to study predictors of “preference GN as future work” and “willingness to work in GN after graduation”. Two predictors among participants in this study towards “preference GN as future work” in this study were confirmed including “intention to live with 65+” and “the good experience of clinical practice with 65+”. Nursing students in Macao who have intentions to live with 65+ in the future or the good experience of clinical practice with 65+ are more likely to choose GN as preference (the first to third choice) future career.

Also there were two predictors confirmed towards “willingness to work in GN after graduation” including “to live with 65+” and “KAOP score”. Nursing students in Macao who have intention to live with 65+ in the future or higher mean scores in KAOP are associated with “willingness to work in GN after graduation”.

4.6 Summary of the Findings in Quantitative Data

377 nursing students in Macao returned and answered survey questionnaires in relations to dependent variables- “attitudes towards older people”, “preference GN as future work”, and “willingness to work at GN after graduation”. This study concluded:

4.6.1 Attitude towards older people (KAOP)

Participants’ mean scores of KAOP, KAOP-, and KAOP+ were positive towards older people. Demographic characteristics, culture factor, intention factor, and education factor were associated with attitudes towards older people.

(1) Demographic characteristics: Participants’ age, gender and level of education did not have significant difference with KAOP. Participants who had religion were associated with higher mean scores of KAOP and more positive attitudes towards older people.

(2) Culture factor: Participants who agreed “filial piety is important to parents” were associated with higher mean scores of KAOP and more positive attitudes towards older people.

(3) Intention factors: Participants who answered “good” in “getting along with 65+”, “like to spend time with 65+”, “to live with 65+ in the future” were associated with higher mean scores of KAOP and more positive attitudes towards older people.

(4) GN education factors: Participants had good “experiences in clinical practice with 65+” and “experience in GN taught” were associated with higher scores of KAOP and more positive attitudes towards older peoples.

4.6.2 Preference GN as future work

Only 9.5% participants chose GN as the first to third future work (most preference), 90.5% participants chose GN as the 4th to 12th (less preference) future work. Demographic characteristics were not associated with “preference GN as future work”.

Culture factor (raised up by 65+), intention factors (had “neighbours with 65+”, “liked to spend time with 65+”, and “to live with 65+ in the future”), and GN education factor (good experience of clinical practice with 65+) were associated with preference GN as future work. GN taught and clinical practice were not associated with preference GN as future work.

4.6.3 Willingness to work at GN

There were 92 participants (24.4%) “agree and strongly agree” in willingness to work at GN after graduation. Demographic characteristics were not associated with “willingness to work at GN”. Culture factor (filial piety), intention factors (“liked to spend time with 65+”, and “to live with 65+ in the future”), and GN education factor (good experience of clinical practice with 65+) were associated with willingness to work at GN after graduation. GN taught and clinical practice were not associated with preference GN as future work.

4.6.4 Predictors

This study confirmed the following from binary logistic regression analysis:

- (1) “To live with 65+ in the future” (intention factor), and “good experience of clinical practice with 65+” (GN education factor) independent variables were predictors of “preference GN as future work”;
- (2) “To live with 65+ in the future” (intention) and “KAOP” were predictors of “willingness to work at GN after graduation”.

Moreover, this study also confirmed Macao nursing students’ attitudes towards older people were associate with their “willingness to work at GN after graduation” and “preference GN as future work”.

The model of this study in outcome variables (attitudes towards older people,

willingness to work at GN, and preference GN as future work) among Macao nursing students was summarized at figure 7.

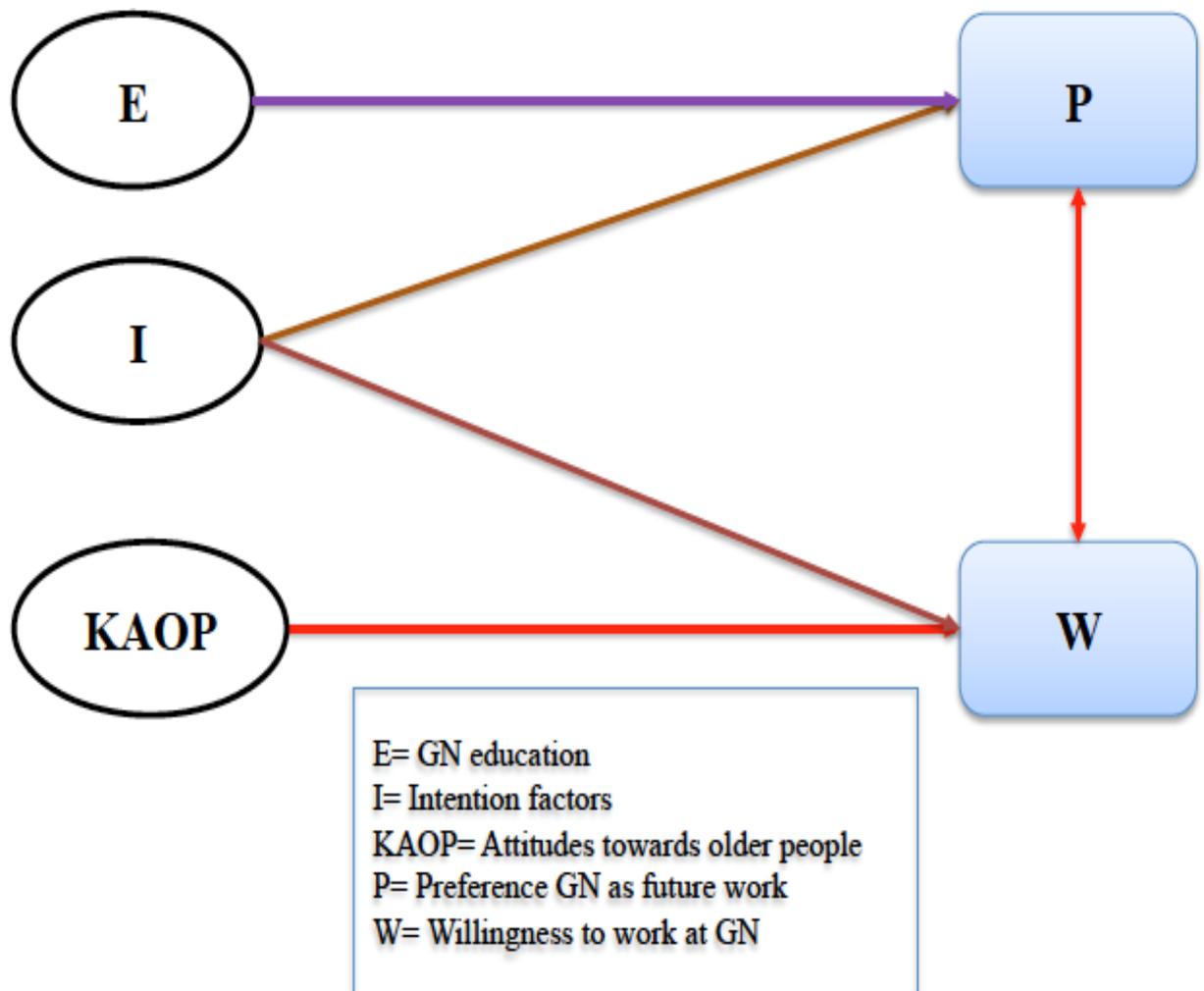


Figure 7. The Model of PW among Nursing Students in Macao.

4.7 Findings of Open-Ended Questions

There were five open-ended questions to explore Macao nursing students' views and thoughts towards GN issues. Content analysis was used to analyze answers from participants. All answers were gathered and keyed into excel file, read and read by researcher for several times to gain the meaningful sense for codes. All codes were assigned to several categories to answer the question "what?". A group of participants was invited to confirm if results (codes and categories) of open-ended questions related to their answers. Those participants confirmed that results were relevant with their answers towards five open-ended questions.

The summary of answers from participant showed at Table 32. The response rates in question 1 & 2 were only 50.7% and 63.1% respectively. These two questions were aimed to be answered by BSN III (n=80, 21.2%) and IV (n=93, 24.7%) participants for their views and thoughts towards GN education (taught subject and clinical practice).

Table 32
Summary of Answers for Open-ended Questions (N=377)

Item	Number of participants (n)	Response rate (%)	Codes	Categories
Question 1	191	50.7	210	10
Question 2	238	63.1	256	11
Question 3	310	82.2	308	6
Question 4	353	93.6	665	14
Question 5	270	71.6	361	12

4.7.1 Question 1- What are your thoughts and suggestions about GN taught course?

Of 191 participants in this study replied this question (response rate=50.7%). There were 220 meaningful units into codes, and 10 categories were confirmed at Table 33. These 10 categories were including content of GN, activities, GN clinical practice, importance of GN, teaching and learning methods, people to class, lab classes, time

issue, assignment issue, and suggestion.

(1) Content of GN (78 codes)

Of 78 (40.8%) participants' answers were coded and categorized into "content". According to participants' answers, the contents of GN should include the following issues: communication skills with older people (n=26); diversity, more interesting and in-depth GN topics (n=21); mental issues of older people (n=12); as well as real social situations (n=5) and more clinical examples in Macao (n=9). Participants also suggested that teaching materials of GN subject should not overlap with Medical-Surgical Nursing subject (n=4).

(2) Activities (32 codes)

32 participants (16.8%) suggested GN course should include more activities for visiting older people and institutions (n=20); more interactions with older people (n=6); more time with older people for positive thoughts towards older people (n=6).

(3) GN clinical practice (n=28 codes)

28 (14.7%) participants' thoughts were related to GN clinical practice though this question aimed to explore meaningful words related to GN course. 25 participants suggested it is important for the extension of GN clinical practice, and three participants suggested to practice at GN settings rather than at ward in the hospital.

(4) Others

Participants also expressed meaningful words were categorized into "importance of GN (n=27, 14.1%)", "teaching and learning method (n=18, 9.4%)", "people to class (n=12, 6.3%)", "lab class (n=8, 4.2%)", "time issue (n=7, 3.7%)", "assignment issue (n=5, 2.6%), and "suggestion (n=5, 2.6%).

In summary, participants' views and suggestions in GN course were related to older people centered contents (40.8%) including mental issues, communication skills,

and real GN situation in Macao. Activities (16.8%) such as visiting living alone older people were suggested by participants to improve learning experiences and understanding towards older people in GN taught subject. Participants suggested to have more time for interaction with older people for GN taught subject. Participants also expressed that the importance of GN as older life is inevitable in the future. Participants suggested that GN should improve teaching and learning methods, include more lab classes with simulation set applied, and invite people (older people and GN nurses) to classes for better understanding and learning. Moreover, reasonable assignments and not enough time in GN taught classes were gathered from participants' answers.

Table 33
Codes and Category for Question 1 (N=191)

No	Categories	Codes
1	Activities (n=32)	Increase interactions with older people (n=6, No.1094, 1099, 2428,1042,1080,1084). More time with older people for the positive thought (n=6, No.1113, 2139,1145,1146,2432,2437) as no experience with older people would feel bored. More activities such as visiting living-alone older adults, institutions (n=20, No.2306, 2321,2128,2338,2112,1104,1105,1106,2406,1081,1088,2401,2421, 1005,1017,1026,1149,1178,1181,1189).
2	Assignment issue (n=5)	Topics of assignment were not interesting; students should decide topics by themselves (n=3, No. 1010,1144,1120). More relevant to GN. Workload from assignment (n=2, No.1012, 2142).
3	Content (n=78)	Mental issues of older people(n=12, No.2120,1034,2328,2153,2214,1035,1087,1188,1092,1095,1096,236). Real society situation in Macao (n=5,No. 2419,1005,2318,2334,1016). Diversity, in-depth, interesting in GN. GN centered. (n=21, No.2301,2433,1119,1028,2339,2428,1015,1039,1112,1161,1165,1093,1032,2403,1099,1148,2415,1033,2230,2326,2340).

No	Categories	Codes
		Communication skills with older people (n=26, No.2320,2311,2319,2317,2205,2207,2407,2246,2247,1006,1019,1029,1035,1115,1118,1163,2324,2332,1049,1104,1076,2309,1134,1135,1004,2414).
		More clinical examples in GN taught subjects (n=9, No. 2215,1064,1133,2216,2420,2242,1114,2410,2147)
		Thanatology issue (n=1, No.2423).
		Overlapping with Medical-Surgical nursing (n=4, No. 1014,2335,2344,2339).
4	GN clinical practice (n=28)	Practice in the GN settings than ward and knowledge in the care of older people with orthopedic problems (n=3, No.1066, 2412, 2418).
		The extension of clinical hours in GN practice (n=25, No.2314,2335,2339,2330,2425,2426,2417,2435,2410,1008,1099,2317,1032,1033,1053,1055,1076,1078,1100,1160,1176,1177,1182,1046,1041).
5	Importance of GN (n=27)	Good and satisfy in GN taught (n=21, No. 2331,2438,2227,2336,2325,2154,2141,2203,2240,2413,2408,2439, 2232,2424,2430,1071,2303,2317,2332,2344,2421).
		Older life is inevitable (n=6, No. 1048,2316,1050,1110,2322,2324).
6	Lab classes (n=8)	Simulation set applied (n=2, No.2316,1012).
		More lab classes, such as role play as older people and experiential classes (n=6, No.2308,1001,1031,1105,1122,1140).
7	People to class (n=12)	Inviting older people to class (n=10, No. 2342,2343,2305,1022,1030,1103,1127,1156,1170,2309).
		GN nurses to classes for sharing (n=2, No.2223,1123).
8	Suggestion (n=5)	GN knowledge and clinical practice at Year I & II (n=5, No. 1085, 1089,1052,1108,2218).
9	Teaching and learning method (n=18)	Improving teaching methods as not interesting (n=10, No. 2404,2405,2409,1010,2129,1158,1122,1088,1018,1027).
		Multimedia and more activities involved in classes (n=4, No. 1019, 1162,1090,2407).
		GN experiences sharing and concrete (n=4, No, 2419,1043,1051,1126).
10	Time issue (n=7)	Not enough time and too intensive (n=7, No. 1063, 2313, 2310,2329,2434,2330,2401).

4.7.2 Question 2- What are your thoughts and suggestions about clinical practicum in GN?

Of 238 participants in this study replied this question (response rate=63.1%). There were 256 meaningful units into codes, and 11 categories were created at Table 34. Those categories were including time, settings, preparations before GN practice, good in GN practice, content, activities, benefits of GN clinical practice, comments and feelings, suggestions, teacher and preceptor, and assignment issues.

(1) Time

55(23.1%) participants' answers were categorized into "time", participants suggested that clinical practice hours could be extended (n=40) as high possibility to work at nursing home or GN settings after graduation (n=15).

(2) Settings

42(17.6%) Participants suggested that GN clinical practice should include hospital, nursing home, and community (n=38) rather than practice at the single place (n=4).

(3) Preparation before GN clinical practice

40(16.8%) participants suggested they should be prepared before GN clinical practice including communication skills with older people (n=22), GN specific comprehensive skills and knowledge (n=8), mental issues of older people (n=3), and GN taught subject (n=3) with more lab classes involved (n=3).

(4) Suggestion and opinions

Some participants (n=35) mentioned the GN clinical arrangements were good for the understanding of older people and GN work. Participants answered that GN practice enabled them to understand and think in older adults' way (n=16), while some participants (n=22) suggested more GN centered practice in assessments, skills, and

communications with older people.

5. Activities

Activities such as visiting living-alone older people and community centers were suggested by participants (n=17). Some participants also suggested GN centered skills and more demonstration from teachers and preceptors (n=3) to increase nursing students' interests in GN (n=11). "Too much assignment" was mentioned by two participants.

In summary, participants' views and suggestions in GN clinical practice were related to "time issue (23.1%)"- more time needed for GN clinical practice, more GN clinical practice settings (17.6%) involved, and the preparations before GN clinical practice among Macao nursing students. More importantly, participants (16.8%) suggested "the interests for GN" among nursing students should be promoted before GN clinical practice.



Table 34
Codes and Category for Question 2 (N=238)

No	Category	Code
1	Activities (n=17)	Visiting aged care centers (n=6, No. 2116,2428,2308,2312,2303,2418). Cooperating with community centers, and visiting living alone older people (n=11, No.2223,1001,1005,2432,1052,2437,1064,1101,2430,2432,1052).
2	Assignment issues (n=2)	Too much assignment (n=2, No.1126,2142).
3	Benefit of GN clinical practice (n=16)	Provide chances to connect with older people for understanding their thought and needs (n=9, No. 2322,2301,1072,1073,1100,1127,1130,1146,1161). To think in older adults' way. Chances for communication with older people (n=7, No.2120, 2147, 1002, 1004, 1061, 1088, 1062).
4	Comments and feeling (n=13)	Need more interests and patients in GN (n=6, No.2112, 1089, 1094, 1054, 2210, 2236). Be interested in GN but will consider other factors. To look forward to GN and to learn more communication skills with older people (n=7, No.2141, 2134, 2216, 2222, 2230, 1067, 2427).
5	Good in GN clinical practice (n=35)	Good and suitable in schedule (n=35, No. 2338,2131,2215,2219,2221,2413,2421,2242,2248,2237,2240,1003, 1007,1015,1017,1020,1021,1021,1022,1024,1028,1040,1063,1069, 1079,1080,1090,1091,1092,1112,1116,1117,1122,2333,2244,1076)
6	Practice content (n=22)	GN focused and centered, Macao situation issues involved, and more practice in healthier life of older people (n=14, No.2139,1034,1086,1043,1047,1048,1182,1110,1171,1175,1087,1123,2320,2428). More assessments, skills and communications with older people (n=6, No.2236, 2417, 2233, 2241,1029,1066). Understanding GN nurses more for the work and duty (n=1, No.1038). Learning outcome could be decided by students (n=1, No.1148).
7	Preparation before GN practice (n=40)	Increase communication skills (n=22, No.2301,2204,2119,2105,2311,2319,2317,2128,2207,2211,2214,1008,1011,1036,1113,1114,1115,1134,1135,1162,1165,1172). More mental issues of older people (n=3, No.1062, 2209, 2318). Students should finish GN taught then GN practice (n=3, No.2330, 2344, 2331).

No	Category	Code
		More nursing lab classes and equipment for GN (n=3, No.2404, 2314,2205). GN specific, practical and comprehensive skills and knowledge (n=8, No. 2153, 2208,2212,1018,1042,1149,1156,1178) To deal with death issue (n=1, No.1188).
8	Settings (n=42)	Settings should include hospital, nursing home, and community centers (n=38, No.1118,1120,1133,2316,2324,2302,2305,2326,2337,2340,2343,2218,2426,2441,2228,2245,2422,2424,1019,1030,1031,1032,1046,1145,1164,1176,1186,2341,2404,2405,2327,2440,1054,2438,1140,2419,2430,1001). 1. Nursing home did not provide enough nursing skills for practice so suggest to decrease practice hours. 2. Ortho ward did not provide chance for nursing records and handover (n=4, No.2412,2409,2407,2415).
9	Suggestion (n=11)	Provide more GN learning chances- an elective course of GN in summer recess (n=1, No. 2201). Good for Year I and II in clinical practice arrangement (n=5, No.2203,1026,1085,1059,1108). Clinical practice outside of Macao (n=2, No. 2411,2342) To skip basic nursing skills (change diapers and position) instead of more wound care and emotional support to older people (n=1, No. 1012). Do not restrain older people on the bed for the dignity and human right (n=1, No.1082). Yr. I & II should not practice at nursing home as lack of knowledge (n=1, No.2154).
10	Teacher and preceptor (n=3)	More experiences in GN and demonstrations with older people; only one preceptor is not enough (n=3, No.1106, 1108, 1163).
11	Time issues (n=55)	More time at nursing home as high possibility to work at GN settings after graduation (n=15, No.2313,2306,2323,2321,2329,2328,2339,2213,2416,2414,2401,2410,2420,2403,2432). The extension of GN clinical practice hours (n=40, No.2310,2440,2309,2333,2244,2335,2345,2325,1044,2434,2406,2408,2402,2439,2246,2247,1009,1013,1016,1027,1035,1039,1045,1050,1051,1071,1081,1084,1103,1104,1121,1177,1181,1189,1052,1033,2342,2438,1140).

4.7.3 Question 3- What are your thoughts about working in "Gerontological nursing"?

Of 310 participants replied this question (response rate=82.2%). There were 308 meaningful units into codes, and 4 categories were created at Table 35. Four categories were including positive, negative, neutral, and suggestion from participants' views and thoughts.

(1) Positive

Of 107 (34.5%) participants' answers were categorized into "positive". They mentioned working in GN settings as an acceptable and good choice to practice skills and communication with older people (n=75); a chance to contact with older people (n=21); not a heavy work (n=8), though a challenging work but still fine for it (n=3).

(2) Negative

Of 75 (24.2%) participants have negative views in working in GN settings. 46 participants don't want to work at GN as a routine and boring work. Participants mentioned workload and stress from lack of staff (n=8) and too much work (n=8); salary issue (n=6); no experience and don't want to deal with death issues (n=3); communication issue and life style for working in GN (n=3).

(3) Neutral

64 (20.6%) participants' answers were categorized into "neutral" as they were considering GN as their future job. Participants addressed GN is not the first working choice for them but they will consider to work in GN as ageing society in Macao.

(4) Suggestion

62 (20%) participants suggested that experiences with older people and GN clinical practice are important for GN work. The supports from government for GN training, salary, and working environment would be contributed more nursing students

working in GN after graduation.

In summary for this question, 34.5% participants had “positive” views in working at GN, while 24.2% were “negative” views to work at GN in the future. 20.6% participants were “neutral” for their future career. Participants’ suggestions and views provided some information for GN as future work among nursing students in Macao.

Table 35
Codes and Category for Question 3 (N=310)

No	Category	Code
1	Negative (n=75)	<p>GN is like a routine work and boring, hospital work has more challenges (n=6, No.2435,1043,1014,2116,2201, 1158).</p> <p>Lack of staffs in GN as the consequence to increase workload and stress (n=8, No.2318,1038,1021,2239,2430,2205,1010,1144).</p> <p>Hard work as fall prevention, bed sore issues and bedridden in older people (n=8, No.1045,2230,1129,1171,1072,1073,1079,1098)</p> <p>Not enough salary compared with hospital (n=6, No.2220,1027,2402,1052,1107,2429).</p> <p>Temporary (n=1, No.2220).</p> <p>GN work is ok but have to deal with death issues as older people might pass away(n=2,No.2235,1056,1149).</p> <p>Lack of experience with older people thus might have communication problems (n=1, No. 1029).</p> <p>Not good life style and need patient for GN (n=2, No.1128,1134).</p> <p>Don't want to work at GN as working environment. GN work is like a routing work.(n=38, No=2125,2319,2131,2129,2135,2221,2132,2433,2409,2136, 2243,1015,1022,1025,1030,1034,1047,1061,1065,1076,108 4,1087,1088,1090,1093,1109,1114,1118,1122,1125,1127,11 55,1162,1163,1178,1180,1189,1148).</p> <p>Like GYN work more (n=1, No2311).</p> <p>ER for me (n=1, No 2248).</p>
2	Neutral (n=64)	<p>Considering as a future job (n=52, No.1151,2144,2133,2316,2320,2317,2345,2340,2333,2325, 2154,2142,2155,2153,2134,2148,2210,2214,2223,2224,214 9,2417,2412,2440,2232,2231,2241,2422,1003,1005,1012,10 13,1028,1032,1053,1067,1082,1096,1103,1116,1133,1142,1 150,1152,1154,1165,1166,1167,2328,1049,1075,1110,2222, 2427).</p> <p>Not the first career choice. As ageing society, may work at GN in the future (n=12, No.2301,2322,2305,2327,2141,2152,2208,2225,2404,1147, 1173,1174).</p>

No	Category	Code
3	Positive (n=107)	<p>Acceptable and good chances in GN to promote nursing skills, communication, caring and support, a good profession. Working environment, arrangement ,and workload are important thus any place is ok for me (n=75, No.1176,2114,2110,2106,2118,2122,2115,2103,2112,21052,127,2119,2302,2306,2307,2321,2335,2326,2434,2426,2405,2413,2408,2236,2229,1009,1011,2128,1026,1054,1055,1058,1059,1060,1182,1186,1040,1046,1048,2415,2401,2245,2244,1068,1006,1071,1077,1078,1081,1089,1064,1104,1108,1111,1119,1124,1131,1132,1136,1138,1139,1143,1153,1156,1157,1161,1168,1172,1181,2344,2204,2242,2226).</p> <p>Working at GN would provide chances to connect with older people and learn more in GN (n=21, No.2121,2109,2120,2203,2215,2218,2332,2146,2202,2212,2213,2420,2403,2237,1050,1069,1083,1099,1101,1102,1170).</p> <p>Not heavy work then would have more time for family(n=8, No.2329,2147,2307,2423, 2246,1018,1033,1063).</p> <p>GN work is ok but have to deal with death issues as older people might pass away (n=1, No.2228).</p> <p>A challenging work and GN requires better communication skills with older people (n=2, No.1016,1097).</p>
4	Suggestion (n=62)	<p>The experiences with older people and GN clinical practice are important (n=6, No.2111,2113,2247,2438,2324,2309).</p> <p>More resources from government and GN specific training (n=8, No.2312,2308,2407,2334,1105,1066,1085,2303).</p> <p>More patient and caring needed (n=18, No.2310,1140,1160,2342,2343,2219,2209,2211,2432,2437,2341,2406,1004,1007,1008,1017,1020,1091).</p> <p>Workload (manpower), salary, working environment (n=30, No.2314,2138,2313,2339,2330,2336,2216,2428,2418,2421,2411,2419,1019,1039,1042,1062,1086,1092,1094,1100,1120,1123,1135,1164,1175,1177,1185,1187,1188).</p>

4.7.4 Question 4- What are your thoughts about "any factors that would be contributors for working at GN in the future"?

Of 353 participants answered this question (response rate=93.6%). There were 665 meaning units into codes, and 14 categories were created at Table 36. 14 categories were including salary and benefit, setting and environment, personal interest, experience, society need, career future, resources and supports, workload, affected by others, working hours, coworker, education, manpower, and location.

(1) Salary and benefit

183(51.8%) participants answered “salary and benefit” is the most important factors for working in GN.

(2) Setting and environment

152 (43.1%) participants addressed that “setting and environment” would affect them to work at GN.

(3) Personal interest

54 (15.3%) participants mentioned personal factors and interests would be the contributors to work at GN in the future.

(4) Experience

46 (13.0%) participants suggested that “past experiences with older people (n=22)”, “GN clinical experience (n=21)”, and “activities (n=3)” would be important for the choices in GN work.

(5) Other categories

Participants’ answers were related to “society need (n=45,12.7%)”, “career future (n=38,10.8%)”, “resources and support (n=28, 7.9%)”, “workload (n=27, 7.6%)”, “affected by others (n=22; 6.2%)”, “co-workers (n=17, 4.8%)”, “GN education (n=17, 4.8%)”, “manpower (n=9, 2.5%)”, and “location of GN work (n=6, 1.7%)”.

In summary, “salary and benefit” is the most important factor among participants (51.8%) to work in the GN. “Setting and environment” is the second important factor to affect participants (43.1%) to work in GN. “Personal interest” is the 3rd important factor to affect participants (15.3%) towards working in GN. Of 13% participants addressed “past experiences” would be the factor to contribute them for working in GN. “Personal interest” and “past experiences” should be taken into account in GN education for preparing nursing students for GN career.



Table 36
Codes and Category for Question 4 (N=353)

No	Category	Code
1	Affected by others (n=22)	Peer group (n=6, No.2114,2211,2212,2404,1022,2344). Teacher and preceptor (n=8, No.1049,1068,1002,1003,1112,1113,1115,2138). Family suggestion (n=8, No.2138,2152,2404,1084,1102,1111,1127,1139).
2	Career future (n=38)	Promotion (n=21, No.2116,2414,2411,2302,2321,2220,2224,2433,1072,1078,108,1119,1123,1126,1144,2236,2237,1151,1176,1188). GN future (n=17, No. 2313,2310,2329,2327,2338,2150,2206,2423,2402,2416,2419,1003,1018,1030,1042,1071,1087).
3	Coworker (n=17)	Relationships with colleagues (n=17, No.2203,2207,2132,2414,2421,2245,2241,2422,1010,1036,1043,1069,1136,1149,1161,1165,1167).
4	Education (n=17)	GN specific knowledge (communication skills), and advanced GN course (n=17, No. 1043,2127,2317,2204,2209,2224,2404,2247,2228,1008,1029,1057,1064,1098,1125,1139,1147).
5	Experience (n=46)	Activities such as volunteer work (n=2, No.2126,2235). Experiences shared from GN nurse (n=1, No.2102). Past experience with older people (n=22, No.2306,2307,2308,2333,2215,2242,2236,2226,1004,1009,1011,1015,1058,1064,1121,1150,1131,1132,1181,2113,2101,2122). Good experience from GN clinical practice (n=21, No.2152,2150,2201,2205,2208,2226,2240,1045,1156,2113,2115,2340,1057,1059,1061,1067,1068,1076,1095,1112,1007).
6	Location (n=6)	Location (n=6, No.2109,2203,2428,2416,2401,1167).
7	Manpower (n=9)	Enough manpower (n=9, No. 2320,2312,2331,2410,2226,2244,1034,2221,1133).
8	Personal interest (n=54)	Personal factors and interests (n=, No.2115,2103,2125,2127,2319,2326,2339,2333,2340,2153,2134,2150,2144,2133,2202,2209,2213,2149,2413,1001,1024,1037,1040,1048,1049,1006,1008,1014,1061,1071,1075,1051,1056,1060,1015,1097,1102,1104,1109,1128,1130,1161,1180,1181,1083). More chances and time with older people (n=7, No.2112,2107,2117,2430,2146,1023,1170). Practicing myself (n=2, No.2341,2426).
9	Resources and supports (n=28)	More GN resources from government (manpower, facilities, settings, and materials) (n=28).

No	Category	Code
10	Salary and benefit (n=183)	Salary and benefit.
11	Setting and environment (n=152)	Hospice in GN setting (n=1, No.1033). Working environment (n=151).
12	Society need (n=45)	Ageing society and demands (n=43).
13	Working hours (n=21)	Fixed and reasonable working hours (n=18, No.1035,2116,2313,2310,2131,2220,2224,2132,2134,2438,2416,2411,2233,2244,1054,1119,1168,2327). No shifting work (n=3, No.1160,2118,1063).
14	Workload (n=27)	Duty, the ratio between nurse and older people in GN settings(n=27, 2113,2118,2119,2326,2142,2155,2207,2213,2214,2218,2427,2417, 2412,2402,2416,2233,2231,1026,1027,1041,1047,1094,1120,1138, 1176,1189,2316).

4.7.5 Question 5- What are your suggestion about professional development to encourage more nurses working in GN?

Of 270 participants answered this question (response rate=71.6%). There were 361 meaning units into code, and 12 categories were created at Table 37. 12 categories were including salary and benefit, setting and environment, chance of APN in GN, resources and supports, training and continuing education, career future, society need and promotion, GN education, manpower, workload adjustments, working hours, and activities.

(1) Salary and benefit

85 (31.5%) participants suggested “good salary and benefit” would encourage more nurses working in GN.

(2) Setting and environment

59 (21.9%) participants emphasized “good working environment and equipment” are important.

(3) Chances of GN APN

51(18.9%) participants replied “chances of GN Advanced Practice Nurse (GN APN)” position would promote more nurses to work at GN.

(4) Resources and supports

38 (14.1%) participants replied more supports from government would be important such as public nursing homes or aged care centers to encourage more nurses to work at GN.

(5) Participants also suggested “training and continuing education (CE) (n=27, 10%)”, “career future (n=26, 9.6%)”, “society need (n=23,8.5%)”, “GN education (n=22,8.1%)”, “manpower (n=15,5.6%)”, “workload (n=8, 3%)”, “more activities (n=4,1.5%)”, and “stable working hours (n=3, 1.1%) would be related to professional

development for promoting more nurses working in GN.

In summary, “salary and benefit (31.5%)”, “setting (21.9%)”, “chance of GN APN (18.9%)”, and “resources and supports from government (14.1%)” from participants in this study would be important contributors in professional development to encourage more nurses working in GN.



Table 37
Codes and Category for Question 5 (N=270)

No	Category	Code
1	Activities involved (n=4)	More volunteer work opportunities and visiting older people (n=3, No.1011,2241,1034). More chances to get along with older people (n=1, No.1130).
2	Career future (n=26)	Future of GN and promotion (n=26, No. 2427, 2111,2103,2122,1072,1078,2137,1063,1127, 1142,2422,2238,1166,2318,1005,1064,1094,2228,2149,1175, 1176,1056,2203,1122,1181,2337).
3	Chances of GN APN (n=51)	GN Advance Practice Nurses (APN) needed (n=51).
4	GN education (n=22)	GN training (theory course and clinical practice) (n=10, No. 2113,1053,1185,1085,1015,1102,2308,1057,1108,2219). Promote GN through seminar (n=3, No.1131,1124,2314). GN content in more specific and detail topics (such as mental issue and DM of GN) (n=9, No.2430,1110,1058,2242,2148,1030,2210,1132,2202).
5	Manpower (n=15)	More GN nurses needed (n=10, No.2427,1067,2220,1151,1045,1189,2320,2332,1055,2105). Social worker and physiotherapy involved (n=2, No.2432,2435). More nursing assistants in GN settings(n=3, 1172,2207,2230).
6	Resources and support (n=38)	More resources and support in GN from government, such as public nursing home and aged care centers (n=38).
7	Salary and Benefit (n=85)	Salary and benefit (n=85).
8	Setting and environment (n=59)	Institution (public and private), good environment and equipment.
9	Society need and promotion (n=23)	Ageing society and demands (n=15, No. 2311,1032,1072,1170,2401,1033, 1039,2141,2152,1059,1121,2338,2335,1126,1014). Improve society environment (n=2, No. 1041,2404). To change stereotype to older people in community or society (n=6, No.1148,1107,1099,2154,2313,2426).
10	Training and CE (n=27)	Training outside of Macao and international conference attendance (n=3, No.2437, 2313,1005). More GN practice and more interaction with older people to promote positive attitudes towards older people (n=2, No.2112,1189).

No	Category	Code
		Continued education and more training in PE, ageing society, community care (n=16, No.1016,2127,2401,2212,2301,1004,1079,1136,2218, 2341,1007,1049,1154,2147,1050,2343). Seminar and series of training course (n=4, No.2342,2406,2344,2233). Hospice related training (n=1, No.1089). GN research and education (n=1, no.2209).
11	Working hours (n=3)	Reasonable working hours (n=3, no.2434,2228,2209).
12	Workload adjustment (n=8)	Good ratio between nurse and older people (n=2, No.2437,2122). Decrease the paper work (n=2, No.2437,2432). Reduce the workload (n=4, No.2115,2228,1138,1139).

4.8 Summary of the Findings in Open-Ended Questions

The results from five open-ended questions were further analyzed to answer two research questions as the following.

Research question 1 for qualitative part: *What are the views of nursing students towards GN taught course and GN clinical practice?*

From the results of open-ended questions 1-2, there were 21 categories containing 366 meaningful units (codes) from 238 participants for the views and thought towards GN education (taught course and clinical practice). The views and thoughts toward GN education were further classified into three sub-themes: GN (taught course+ clinical practice), GN taught course, and GN clinical practice. Each sub-theme included 5 categories as shown at Fig. 7.

The categories were analyzed from participants' answers. Those answers were analyzed into codes and suggestions at Table 38. Participants' views and thoughts in GN (taught course + clinical practice) were including "more activities to visit older people", "reasonable assignment", "the communication skill with older people", "GN knowledge or training delivered in Year I and II", and "practice outside of Macao". Participants' views in "communication skill with older people" and "mental issues of older people" should be adopted into GN taught course before GN clinical practice for better understanding and practice.

Participants also suggested more lab classes related to GN such as "role-play" and "simulation to experience older people's life". Inviting older people and GN nurses to classes were suggested to improve participants' better understanding in GN. Moreover, "teaching methods in GN" should be more interesting to promote students' learning experiences. Participants addressed that teachers and preceptors play very important roles to improve learning experiences in GN. Participant suggested that the

practice hours in GN setting should be extended for more understanding and interaction with older people.

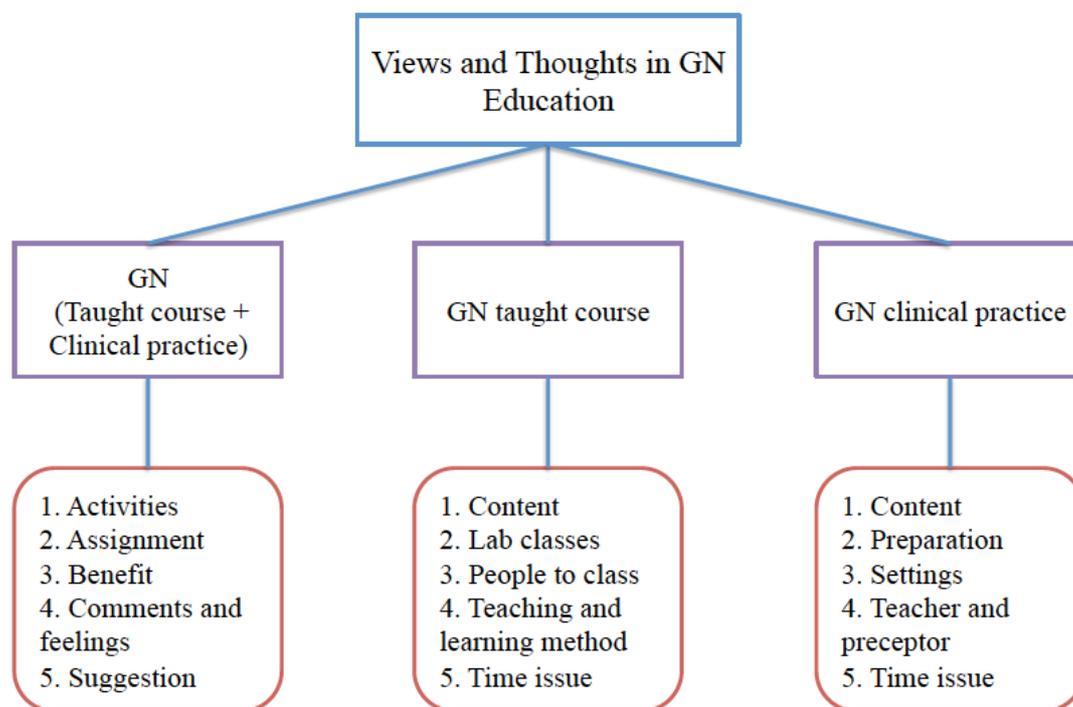


Figure 8. Views and thoughts in GN education among Macao nursing students.

Table 38
Participants' Views and Thoughts in GN Education

Sub-theme	Category	Codes and suggestions	Sub-theme	Category	Codes and suggestions	Sub-theme	Category	Codes and suggestions
GN taught course and practice	1.Activities	1. Increase interaction and more time with older people for the positive thoughts and attitudes. 2. Visiting elder centers and living-alone older people.	GN taught course	1.Contents	1. To add mental issues of older people. 2. To include the content related to real society situation in Macao. 3. Diversity, in-depth, interesting in GN and GN centered and specific topics. 4. More communication skills with older people. 5. More clinical examples in GN 6. Thanatology should be involved.	GN clinical practice	1.Contents	1. Assessment skills and communication to older people 2. More practice for healthier life 3. GN focus and centered, Macao situation. 4. Learning outcomes could be decided by students. 5. More understanding GN nurses job and duty.
	2.Assignment issue	1. The assignment should be not too much. 2. Topics of GN should be interesting and relevant to GN.		2.Lab classes	1. More lab classes neede, such as role play to be older people and experiential classes. 2. Using simulation sets to understand the daily life and feelings of older people.		2.Preparation before GN practice	1. Increase communication skills. 2. Mental issues of older people. 3. Students should finish GN taught then GN practice. 4. Improving GN specific, practical and comprehensive skills and knowledge. 5. Nursing lab classes are important. 6. To deal with death issue.



Sub-theme	Category	Codes and suggestions	Sub-theme	Category	Codes and suggestions	Sub-theme	Category	Codes and suggestions
	3.Benefit of GN	1. Understanding older people's thoughts and needs. 2. Chances for communications and interactions with older people. 3. Older life is inevitable.		3.People to class	1. Inviting older people to class for more interactions. 2. Inviting GN nurses to classes for sharing their experiences.		3.Settings	1. Setting should include hospital, nursing home, and community. 2. More GN clinical practice settings are wanted.
	4.Comments and feeling	1. GN needs more interest and patient in GN. 2. To learn communication skill with older people.		4.Teaching and learning method	1. Improving teaching methods to be more interesting. 2. Multimedia and more activities involved in classes. 3. More GN experiences sharing at classes.		4.Teacher and preceptor	1. More experiences in GN and demonstration with older people. 2. More than one preceptor for GN clinical practice is suggested.
	5.Suggestion	1. Applied GN knowledge and clinical practice at Year I & II. 2. Year I & II should not practice at nursing home as lack of knowledge. 3. Another elective course of GN at summer to provide more learning opportunities to students. 4. Chance for clinical practice outside of Macao.		5.Time issue	Reasonable time schedule arrangement pf GN taught subject.		5.Time issue	1. Extension clinical practice hours. 2. More time for clinical practice at nursing home as high possibility to work there after graduation.



Research question 2 for qualitative part: *What are factors to affect nursing students' future career choices towards GN in Macao?*

Factors towards working in GN settings were generated from 353 participants' answers to open-ended question four. The theme was generated as “factors towards working in GN settings”, factors were **classified** into 14 categories at Table 39. “Salary and benefit” is the most important factor among participant, followed by “setting and environment” then “personal interest”. “Past experiences” such as clinical practice with older people were also important towards working in GN settings. Participants also suggested government might put more resources in GN such as public nursing homes for better career.

Apart from “salary and benefit” and “setting and environments”, “personal interest” would be the 3rd important factors towards working in GN. Participants addressed “personal interests” and “more time with older people” will contribute them to work in GN after graduation. The 4th factor categorized- experience was related to “past experiences with older people”, “experiences shared from GN nurses”, “good experiences from GN clinical practice”. Participants' answers were important and providing information in relation to promoting more nursing students' future career choices in GN. Nursing educators might adopt more teaching methods to encourage nursing students' interests in GN.

Table 39
Factors towards Working in GN Settings

Theme	Category	Code	n
Factors towards working in GN settings	1. Salary and benefit	Salary and benefit.	183
	2. Setting and environment	1. The working environment is important. 2. Hospice in GN setting.	152
	3. Personal interest	1. Personal factors and interests. 2. More chances and time with older people. 3. Practicing myself.	54
	4. Experience	1. Activities such as volunteer work. 2. Experiences shared from GN nurses. 3. Past experience with older people. 4. Good experience from GN clinical practice.	46
	5. Society need	Ageing society and demands.	45
	6. Career future	Promotion and future of the work.	38
	7. Resources and support	More GN resources from government (manpower, facilities, settings, and materials).	28
	8. Workload	Working duty and ratio between nurses and older people.	27
	9. Affected by others	1. Peer group. 2. Teacher and preceptor. 3. Family.	22
	10. Working hours	1. Fixed and reasonable working hours. 2. No shifting work.	21
	11. Co-worker	Relationships with colleagues.	17
	12. Education	GN specific knowledge (communication skills), and advanced GN course.	17
	13. Manpower	Enough manpower.	9
	14. Location	Location.	6

Participants' answers for open-ended questions were analyzed to codes and generate as suggestions. Codes were categorized as categories in order to improve GN education in Macao and promote more nursing students to work in GN after graduation.

In summary, two themes were concluded in this study- "participants' views and thoughts in GN education", and "factors towards working in GN settings" from participants' answers towards open-ended questions. This research confirmed open-ended questions is suitable to collect the views and thoughts for the specific topic from a group of participants.

4.8.1 Participants' views and thoughts in GN education

GN education (taught and clinical practice) has been applied in BSN programme since 2008 in Macao. Participants' views and thoughts would be benefit to GN education in content of GN education. More activities involved in GN taught and clinical practice were suggested from participants in this study. The contents of GN education from nursing students' views should be focused on the communication, interaction with older people, as well as older adults' mental health assessment. Activities should be adopted in GN programme including visiting of older people or institutions, inviting people to classes (older people, GN nurses) to promote nursing students' interests in GN.

4.8.2 Factors towards working in GN settings

Apart from salary and setting, personal interest and experiences play important factors towards working in GN. Personal interest from participants' views will be promoted if they have more time with older people. Moreover, good "experiences" with older people among participants will be contributed for their future career choice towards GN.

The findings also enriched this study to include opinions and suggestion from

nursing students in Macao that provided supplements to the current understanding and aspects towards GN education and future work in GN.

Chapter 5: Discussion

5.1 Introduction

This study adopted a survey to examine all Macao nursing students' attitudes, and preference/willingness to work in GN after graduation during the study periods 2014 to 2015, as well as their views and thoughts towards GN education and working in GN setting were explored by open-ended questions.

This research aimed to answer the research questions listed on Chapter 1. This chapter concluded the findings from Chapter 4 and interpreted the findings in attitudes towards older people among Macao nursing students, their preference for future career, and willingness to work in GN after graduation. Suggestions and limitations of this study were also reported in this chapter.

The response rate of 83.04% was suitable for this study as almost represented all nursing students in Macao in 2015. Also, the homogeneity of the sample was expected as participants have the common demographics characteristics (speak and read Chinese, studying BSN program in Macao, living in Macao, mean age 21.3). Correlations were analyzed between BSN students, demographic characteristics, culture factors, intention factors, education and GN education factors, attitudes towards older people, preference GN as future work, willingness to work at GN after graduation. Logistic regression analysis was applied to analyze predictors of preferences GN as future work and willingness to work GN. Content analysis was used to explore nursing students' views and thoughts towards GN.

5.2 Correlation between Attitudes towards Older People and Factors among Nursing Students in Macao

In this study, nursing students in Macao had more positive attitudes ($M=168.4$, $SD=18.4$) towards older people though only 9.5% nursing students arranged preference GN as the 1st to 3rd future work (more preference). This finding was matched with previous studies that nursing students had positive attitudes towards older people between BSN years and no difference for year of study (Holroyd et al., 2009; Evers et al., 2011). Factors (demographic characteristics, culture factors, intention factors, education and GN education factors) were related to Macao attitudes towards older people, preference GN as future work, willingness to work at GN after graduation.

The present study concluded variables in religion (demographic characteristics); filial piety to aging parents and raised up by older people (culture factors); getting along with older people, like to spend time with older people, and intention to live with older people (intention factors); experience of GN taught course, clinical practice experience with older people (GN education factor); preference and willingness towards working in GN after graduation were associated with attitudes towards older people.

5.2.1 Demographic characteristics

The findings of present study reported there were no differences among Macao nursing students in age, gender, year of education, and family status with attitudes towards older people. Though some studies concluded significant differences in gender (Ayoğlu, Kulakçı, Ayyıldız, Aslan, & Veren, 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 year of BSN study (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, Giles, Paterson, & Butcher, 2005; Usta et al., 2012; Williams et al., 2007). Nursing students' attitudes in this study were not associated with age, gender, year of education, and family status.

There was no study to confirm religion as a factor to contribute attitude towards older people. This study concluded those nursing students reported religion choices in Buddhist, Taoism, Christian, and Catholic had more positive attitudes towards older people (higher mean scores in KAOP, KAOP-, and KAOP+) than those reported no religion and Muslim. It is interesting in two participants with Muslim (Mean 143.5) who had a lowest mean score of attitude towards older people; this may be related to personal characteristics of two Muslim nursing students. Thus, this study concluded that religion is associated with positive attitudes towards older people among nursing students in Macao.

5.2.2 Culture factors

Nursing students who were “agree” (92.3%) in “filial piety is important to aging parents” had higher attitude mean scores than other nursing students in this study. This reason may be related to Chinese culture and Confucianism to respect older people especially for parents and addressed in the previous studies (Li and Buechel, 2007; Lovell, 2006; Pan et al., 2009). Filial piety has been rooted in Chinese culture for thousands years. Though Macao has a history that once ruled by Portugal for 400 years, over 50% populations in Macao are Chinese now (DSEC, 2016). Some nursing students in this study wrote texts in “parents raised me up hardly, we have to take filial piety for them in return”. There was no similar research in Greater China areas and other regions for discussion and comparison in this important variable. Filial piety is associated with attitude towards older people.

Nursing students who “raised up by older people” (37.1%) had more positive

attitude towards older people which were consistency with previous studies (Evers et al., 2011; Gonçalves et al., 2011; Holroyd et al., 2009; Runkawatt et al., 2013; Türgay et al., 2015; Usta et al., 2012). In Chinese culture, grandparents would help to look after granddaughter or grandson when their parents are busy for working. This situation is popular in Macao as over 50% populations are Chinese (DSEC, 2016) and rooted with Confucianism. This finding confirmed culture factors were related to positive attitudes towards older people among nursing students in Macao. “Filial piety” and “raised up by 65+” were concluded in this study for the relationships with positive attitudes towards older people.

5.2.3 Intention factors

Nursing students who reported “good” in “getting along with older people” were associated with more positive attitudes towards older people that were consistency with previous studies (Evers et al., 2011; Gonçalves et al., 2011; Holroyd et al., 2009; Runkawatt et al., 2013; Türgay et al., 2015; Usta et al., 2012). Those nursing students who answered “agree” in “like to spend time with older people” and “to live with older people in the future” were associated with more positive attitudes towards older people that had consistent findings with previous research (Pan et al., 2009; Türgay et al., 2015; Usta et al., 2012). Nursing students who had good experiences or want to spend more time with older people have more positive attitudes towards older people.

5.2.4 GN education factors

Nursing students who answered “good” in “clinical practice experience with older people” and “GN taught course” had more positive attitudes towards older people. Some may question the valuable in “clinical practice experience with older people” for BSN Year I and II, Macao nursing schools have applied the clinical practicum among nursing students since Year I for the practice in hospitals and nursing homes. Almost

all nursing students could contact older people during their clinical practice. The findings are consistent with published studies- GN education and clinical practice could improve nursing students' attitudes towards older people (Rodgers and Jean, 2011; Runkawatt et al., 2013; Usta et al., 2012) and help reduce negative attitudes and stereotypes in nursing students towards older people (Brown, Nolan, Davies, Nolan, & Keady, 2008; Cozort, 2008; Holroyd et al., 2009; Neville and Dickie, 2014; Stevens, 2011; Tullo, Spencer, & Allan, 2010).

“Good clinical practice with 65+” and “good in experience of GN taught subject” had positive effects on nursing students' attitudes towards older people. The results were consistent with previous studies that GN course or training had effects on attitudes towards older people (Brown et al., 2008; Cozort, 2008; Neville, 2015b; Neville and Dickie, 2014; Stevens, 2011; Tullo et al., 2010). Nursing students' experiences of GN clinical practice were not associated with attitudes toward older people. GN clinical practice was not association with students attitudes towards older people in this study, the reason might be related to nursing students who already have positive attitudes towards older people (Williams et al., 2007).

In this study, nursing students had positive attitudes towards older people that were associated with good experiences in GN taught course and clinical practice with 65+. It is important to understand more views and thoughts in GN education (taught and clinical practice) from nursing students in Macao.

5.2.5 Willingness towards working in GN

Nursing students who answered “agree” in “willingness towards working in GN after graduation” were associated with positive attitudes towards older people. This finding is consistent with published studies (Bleijenberg et al., 2012; Eltantawy, 2013; Gonçalves et al., 2011; Koren et al., 2008; Pan et al., 2009; Türgay et al., 2015). Macao nursing students who were willingness towards working in GN had more positive attitudes towards older people.

5.3 Preference GN as Future Work and Contributor to GN among Nursing Students in Macao

The findings suggested that 9.5% Macao nursing students ranked preference GN as the 1st to 3rd future career (more preference), 91.5% nursing student ranked preference GN as the 4th to 12th future career (less preference). Moreover, 50.7% nursing students ranked “aged care center or institutes” as their 8th to 12th preference future nursing work in Macao.

The findings were matched with previous studies for unpopular nursing working places at tenth or the least preferred working place (Deschodt and Milisen, 2010; Haron et al., 2013; Henderson et al., 2008; Kloster, Høie, & Skår, 2007; Liu et al., 2014; Rathnayake et al., 2016; Shen and Xiao, 2012; Stevens, 2011; Swanlund and Kujath, 2012) or nursing students don't have any willingness for working in GN after graduation (Flood and Clark, 2009; Neville, 2015a). Nursing students in this study ranked community nursing and ER nursing would be their first preference future work, followed by medical & surgical nursing and paediatric nursing. Literature confirmed acute care nursing, pediatric nursing and midwifery were the most common choices

among nursing students (MaCann et al., 2010; Swanlund and Kujath, 2012) as nursing students viewed GN as hard and lack of challenges (Hovey, Dyck, Reese, & Kim, 2017).

Those published studies represented almost the same findings across country and periods from China (Shen and Xiao, 2012) to Europe (Kloster et al., 2007); investigator was very surprised that nursing students in Macao also represented the same findings in this study. The reason could be explained in the present study that most nurses in Macao want to work at only one public hospital as higher salary and more benefits than private hospitals, clinics, and aged care centers. Moreover, there is no public nursing home (aged care center) in Macao; this might be the reason in contributing nursing students rated GN at 8th to 12th preference future work place after graduation.

5.4 Willingness towards Working in GN after Graduation among Nursing Students in Macao

24.4% Macao nursing students in this study were “agree and strongly agree” in willingness to work in GN after graduation, this finding also echoed with “9.5% nursing students in this study were “Preference GN as Future work” and previous studies (Deschodt and Milisen, 2010; Haron et al., 2013; Henderson et al., 2008; Kloster, Høie, & Skår, 2007; Runkawatt et al., 2016; Shen and Xiao, 2012; Stevens, 2011; Swanlund and Kujath, 2012) or nursing students don’t have any willingness for working in GN after graduation (Flood and Clark, 2009; Neville, 2015a).

Previous research reported only 8.6% nurses in Belgium (Deschodt and Milisen, 2010), 5.1% of nursing students in Sri Lanka (Rathnayake et al., 2016), and about 8.0% of nursing students in Australia (Stevens, 2011) would choose GN as a future career, those findings had close findings with this study. Nursing students in Macao reported

they would choose other nursing careers than GN as future work.

On the other hand, 58% (n=106) Swedish nursing students would consider working with older people for future career (Carlson and Idvall, 2015) as most nursing students just finished their first nursing clinical practice. Nursing clinical practice will be one of contributors among nursing students towards GN work in the future. Xiao et al. (2013) concluded Chinese nursing students had higher percentage (72.1%) than Australia nursing students (45.3%) towards working in GN for future work (Xiao et al. 2013). The reasons for the differences might be referred to culture and ageing society. These two studies concluded that nursing students' willingness to work in GN were related to clinical practice, culture difference, and ageing society.

The findings showed “raised up by 65+”, “filial piety to ageing parents”, “neighbor with 65+”, “like to spend time with 65+”, “to live with older people in the future”, and “good experience of clinical practice with older people” were associated with willingness towards working in GN after graduation. This study concluded that demographic characteristics were not associated with preference and willingness working GN after graduation among nursing students in Macao. Nursing students who had good experiences with older people in clinical settings (Gonçalves et al., 2011) were more likely to work in GN settings after graduation. The findings also suggested the positive clinical experience with older people could encourage more nursing students towards GN work in the future (Carlson and Idvall, 2015). The culture factor was associated with nursing students' willingness towards GN work in Macao which was consistent with previous studies (Xiao et al. 2013). Culture, intention, and clinical practice with older people were confirmed in relation to work in GN after graduation among nursing students in Macao.

5.5 Other Factors

In the contributors towards working in GN, nursing students arranged personal interest as the first contributor towards working in GN, followed by working environment, salary, and society factors/values which only matched with one published study in personal interest or interests (Cheng et al., 2015). Studies suggested the clinical practice and positive environment from students' views plays an important role in promoting nursing students attitudes and willingness for working in GN after graduation (Carlson and Idvall, 2015; Cheng et al., 2015).

Nursing students' preference would be the most important contributors to work in GN after graduation in this study which had the same findings with previous studies (Cheng et al., 2015; Shoqirat and Abu-Qamar, 2015). Other than personal interest, nursing students in Macao arranged working environment, salary, and society factors/social value were more important to work in GN but not strongly related to GN clinical practice. The findings had the same contributors with previous studies, such as salary, workload, and location or size of workplace (Fenush Jr and Hupcey, 2008; Neilson and McNally, 2010; Rogstad and Aasland, 2007; Shih and Chuang, 2008).

The findings of this study confirmed with published studies in barriers that affected nursing students to choose gerontological nursing (aged care) as a career including low payment, lack of staff, low standard of caring settings, difficulties in career advancement, lack of challenge (Brown et al., 2008; Sarabia-Cobo and Castanedo-Pfeiffer, 2015). Low payment, staffing and settings issues have been affecting nurses for working in GN, this study also received the same responses from nursing students in Macao. The findings suggested that salary and benefit, staffing, and working environment in GN should be scrutinized regularly and compared with other nursing settings such as the public hospital in Macao for encouraging more nurses to

work in GN and the preparation for the ageing society in Macao.

Moreover, personal interest among nursing students was ranked by Macao nursing students for the first important factor toward working in GN after graduation. Educators should be inspired by this finding for the preparation of nursing students' interests in GN.

5.6 Summary and Interpretation of Findings of Open-Ended Questions

The study explored Macao nursing students' attitudes towards older people, preferences and willingness to work at GN in the future. Nursing students in Macao had positive attitudes towards older people, but not many of them would choose GN as their future working place. As GN education has been delivered and taught as a stand-alone subject in BSN program of Macao since 2008, this survey included five open-ended questions to explore Macao nursing students' views and thoughts towards GN education and working in GN. The each open-ended question of qualitative part received high response rate (50.7% to 93.6%) from Macao nursing students which enriched and provided more understandings about their perceptions towards GN education and future carrier in GN. The reason for using self-report documents in this survey was to encourage more responses and to discover real words and true meanings from Macao nursing students for their views and thoughts towards GN education and work. The high response rate suggested that open-ended question could be adopted and suitable for data collection from a group of people (nursing students) in experiences and perceptions of the specific topic. Moreover, high response rate may be related to anonymous and convenient without attending any interview which encouraged nursing students feeling more comfortable to give their opinions and thoughts towards GN education and future work.

Nursing students' replies provided more specific views and concrete suggestions. The qualitative data from Macao nursing students gave supplements from current understandings and findings from quantitative data. Content analysis was adapted to code meaningful units into categories and identify themes (Polit and Beck, 2014). The trustworthiness of qualitative data in this research was based on all nursing students' authenticities from their experiences and feeling towards nursing education and future work in GN. Each open-ended question replied by more than 191 nursing students in this study, data saturation was obtained and achieved for the supplement from Macao nursing student.

This study confirmed two themes from nursing students' replies towards five open-ended questions- "views and thoughts in GN education", and "factors towards working in GN settings". Nursing students' answers were contributed to this study for the more understandings of current situation in GN education of Macao, as well as provided the information for the factors towards working in GN setting.

5.6.1 Views and thoughts in GN education

As over 9.8% ageing population in Macao, there are needs for nurses and nursing students to be prepared and equipped with knowledge and skills to provide the quality care for older people (Hanson, 2014). Nursing education in Macao have been providing 4-year BSN programmes since 2008, including compulsory and elective subjects to provide nursing knowledge and skills to nursing students for the preparation of their future roles in nursing. There are about 120-140 nursing graduates each year from two nursing schools in Macao. Given the situation of the aging population in Macao, Gerontological Nursing (GN) course and GN clinical practice have been integrated and delivered as compulsory subjects into Macao BSN programme.

Though not many nursing schools or departments deliver gerontological nursing as a stand-alone subject (Gilje, Lacey, & Moore, 2007) instead of combining with other subjects into nursing programme (Deschodt and Milisen, 2010; Ironside, Tagliareni, McLaughlin, King, & Mengel, 2010). The GN course has been delivered as a unique subject at Year III for BSN education in Macao (3 credits and 45 hours for course duration) (Kiang Wu Nursing College of Macao, 2017; Macao Polytechnic Institute, 2017). After successfully completing the GN subjects, nursing students are then required to complete 120 hours in GN clinical practice. As the GN subject and clinical practice are compulsory subjects in Macao, any nursing students who fail the GN subject or the clinical practice will need to retake the same subject in the subsequent year.

Nursing students' answers towards GN were important and categorized into three sub-themes (GN, GN taught course, clinical practice) for 15 categories at chapter 4. This study concluded thoughts and views from nursing students in Macao into categories. Categories were including more GN specific contents needed; more activities involved into GN taught course and clinical practice; more teaching and learning time in GN education; the preparation for GN clinical practice.

Nursing students suggested that the specific contents of GN education should be focused on the care of older adults including knowledge, mental care, communications, and skills, as well as not repeated with "Medical and Surgical Nursing" subject. The findings of this study had the same result with one study from nursing students' focus group interviews (Duggan et al., 2013). The GN centered education should be inevitable and important for the preparations among nursing students towards GN. Moreover, the contents of GN taught course should be congruent with GN placement for nursing student (Gillespie, Gates, Mentzel, Al-Natour, & Kowalenko,

2013) that will be benefit to their learning experience in GN (Yau et al., 2012) and further for their preferences for working in GN.

5.6.2 Factors towards working in GN settings

This theme concluded 14 categories from nursing students' views and thought for factors towards working in GN settings including salary and benefit, setting and environment, personal interest, experience, society need, career future, resources and support, workload, affected by others, working hours, coworker, education, manpower, location.

There were consistent findings compared with previous studies in relation to affecting factors towards working in GN among nursing students. Salary and government supports were confirmed with previous studies related to low payments and lack of resources from governments (Abbey et al., Baumbusch et al., 2012; Fenush and Hupcey, 2008; Neison and McNally, 2010; Rognstad and Aasland, 2007; Shih and Chuang, 2008). Apart from salary and environment factors, personal interest (Cheng et al., 2015; Shoqirat and Abu-Qamar, 2015) and experience with older people (Koskinen et al., 2012; Reitmaier et al., 2016) were important contributors among Macao nursing students towards GN working. Nursing students in this study expressed they will work for GN in the future if needed, they had the same responses with Finnish nursing students (Koskinen et al., 2012) even they don't want to work in GN after graduation. The needs of society and career situation also contributed Macao nursing students' future career choices towards working in a GN setting.

Two important factors for working in GN have been concluded by Welford (2014) including the preparations of GN taught courses and clinical practice (Welford, 2014). Most nursing students in this study also expressed the preparations of GN would

be important for their future work in GN. The views and thoughts from Macao nursing students provided evidence and information to nursing educators to adopt strategies or teaching methods in GN education. Further, the results can help GN educators for the curriculum preparation and modification in order to improve nursing students' experiences with older people and interests into GN.

5.7 Strategies to promote nursing students into GN

This study concluded that nursing students' preferences and their experiences are important factors working in GN. Educators can adopt strategies in GN education to promote nursing students' interests in GN. This study proposes strategies generated from findings of this study and published articles in order to promote nursing students' interests for working in GN.

GN education including taught course and clinical practice aims to improve knowledge and clinical experience of aging which reduce negative attitudes and are fundamental steps in developing positive attitudes towards aging care (Henderson et al., 2008; Lee et al., 2015). Nursing education should focus on increasing nursing students' positive experiences with older people through curriculum revision and improvement to enhance more positive attitudes among nursing students (Bleijenberg et al., 2012), as well as satisfactions and interests for working with older people (McKinley and Cowan, 2003). Thus, nursing educators should use effective strategies to apply plans of socialization in GN education both in theory and clinical placement to promote nursing students' attitudes to older people (Eltantawy, 2013). The topics related to normal aging and issues should be adopted into GN course, nursing students could understand that they will face aging situation in the future (McKinley and Cowan, 2003). Moreover, it is suggested that advanced technology with online topic related to gerontological

nursing should be applied to enhance the learning process and motivation among nursing students as well as to increase their interests in GN (Eltantawy, 2013).

The gerontological nursing taught course should invite older people to share their experience in class, and involve knowledgeable and skillful educators in gerontological nursing (Gonçalves et al., 2011). The GN taught course should include the normal aging process and the illness change of the body in physical and psychosocial in order to promote nursing students' knowledge and skills about caring the older people (Abreu and Caldevilla, 2015). The topics of caring older people in depression, dementia and cognitive impairment for psychological support and care are important and needed in the gerontological nursing (Abreu and Caldevilla, 2015) which could provide nursing students comprehensive knowledge towards aged care.

American Association of Colleges of Nursing (AACN, 2012) suggested that education programme with specific course contents and clinical practices in gerontology is the key to improve the quality of nursing care for the aging population (AACN Statement of Support for Geriatric Nursing Education). The GN education in Macao includes GN taught course and GN clinical practice. The AACN and The John A. Hartford Foundation have made a commitment to advance gerontological nursing. AACN identified five strategies to strengthen nursing programs' geriatric curriculum in 2012: (a) develop faculty expertise to “gerontologize” the curriculum, (b) enhance the gerontological nursing curriculum with technology, (c) cultivate the practice in community, (d) develop clinical mentor and partnerships, and (e) create and support student interests in gerontology (AACN, 2012). Because of the far-reaching implications of aging, it is imperative to begin gerontological nursing course content and health promotion of older adults in beginning nursing courses (Walton & Blossom,

2013). Moreover, GN curriculum should include diversity teaching methods and learning styles to promote nursing students' interests in gerontological nursing.

5.7.1 Teaching methods and activities

Teaching methods and activities were suggested by nursing students in Macao to improve their learning experiences in GN. Gerontological nursing should include variety-teaching methods to deliver knowledge and skills among nursing students. The diversity of teaching activities can encourage nursing students to experience aging life, the needs for aging care (McKinley and Cowan, 2003), and opportunities to connect with healthy older people for the positive attitudes towards older people (Evers et al., 2011). The useful suggestion of teaching activities is to invite older people and gerontological health care professionals as guest speakers (Cozort, 2008) for the talks related to aging and daily life which will promote nursing students' positive attitudes towards older people (Gonçalves et al., 2011).

On study concluded that aged-simulation tools in GN class might cause the negative stereotype and attitudes towards older people (Cozort, 2008), thus educators have to provide clear instructions for nursing students regarding the use of aged-simulation tools. The instructions should include: (a) the purpose of aged simulation; (b) the process of normal aging; (c) sharing session from nursing students for their views and thought in aged simulation class.

More tutorial and seminar discussions should be included into GN classes, the topics are suggested to include: (a) the share session from past experiences with older people, (b) in-depth discussion related to normal changes in aging, and (c) the GN scenario and problem for nursing students (Cozort, 2008). More teaching methods and

activities will provide chances to nursing students to use learned GN knowledge and skills into situation and promote their interests into GN.

The new and innovative methods were suggested to include art activities with older people into GN (Walsh et al., 2008) and art-making activities between students and older people to foster students' interest in aging care (Chen and Walsh, 2009). The outcome and response from nursing students in art activities with older people need to be further monitored and tested. One research suggested GN educator should consider the cooperation and the student exchange programme with other international gerontological nursing programme (Runkawatt et al., 2013) to improve the understanding across the culture and to promote positive views towards aging care.

Gerontological assessment tools and sessions for nursing students are important that will promote their attitudes and interests towards older people and advance their knowledge and assessment skills (Potter et al., 2013). Experiential methods such as film, guided fantasy, group discussion, game, and role play are suggested into GN education that might be helpful to promote nursing students' attitude and assessment process (Eltantawy, 2013).

Educators can apply creative teaching learning methods during GN education in encouraging nursing students to experience and evaluate their own personal aging and biases. The GN education should cover the normal age related changes and how to communicate with older adults before the beginning of their clinical practice with older adults in different setting (Eltantawy, 2013). The community health care service for older people or some learning activities like the simulation game in gerontological nursing can be applied to increase students' involvement (Zverev, 2013), that might increase students' attitudes towards older people as well as their skills and knowledge.

5.7.2 Teacher and preceptor

Nursing students' attitudes might be affected by teachers' and clinical staffs' positive attitudes, it is important to develop innovative, non-ageist and creative programmes in the nursing gerontological nursing program (McLafferty, 2005) and facilitate educators and staff to be role models of nursing students (Cozort, 2008) who have a positive approach to aged care and working with older people (Evers et al., 2011; Henderson et al., 2008).

Faculty members cultivate nursing students from novice to practice level in nursing professions. Faculty members and preceptors play the important roles to affect students' attitudes to older people not only in knowledge but also a role model in aging care (Gonçalves et al., 2011).

Faculty members and preceptors can promote nursing students' interests for working in gerontological nursing (Evers et al., 2011) and willingness to work at GN in the future.

5.7.3 Clinical practice

GN clinical practice has a strong influence on nursing students' choice for working at GN settings (Abbey et al., 2006; Duggan et al., 2013). Positive clinical placement and environment in gerontological settings are important for nursing students (Evers et al., 2011) to decrease the feeling of a dislike for working with older people. Tailored GN education and positive clinical placement in nursing programme would be required to promote nursing students positive attitudes towards aging and working in gerontological settings (Rodgers and Jean, 2011).

There is a need to prepare mentors to support nursing students during clinical education, helping them to promote empathy and caring, develop helping relationship with older people, and discuss case studies (Abreu and Caldevilla, 2015) towards GN clinical practice. It's suggested the setting of GN clinical placement should encourage

compassionate care (Straughair, 2012) to ensure the quality of GN care among older people, this strategy can improve positive attitudes towards older people among nursing students and further to promote more nursing students' future career choices in GN.

5.7.4 Other activities

Some suggestions from social work and health sciences studies such as: meeting older people through focus groups (Heise et al., 2012) or inviting older adults guests in the classroom (Velez Ortiz, Cross, & Day, 2012), service-learning (Gutheil, Chernesky, & Sherratt, 2006) in community and normal aging home, face-to-face meetings and discussions (Krout and McKernan, 2007) with older people, undergraduate gerontology courses (Funderburk, Damon-Rodrigues, Storms, & Solomon, 2006), email and on-line pen pal (Chase, 2011), and well-designed clinical practicum (Olson, 2011) have been concluded to improve students' attitudes towards older people and enhance interests in working in gerontological settings.

Studies also suggested embedded caring and empathy into GN curricula will contribute nursing students' views and feelings to promote them for the more interests towards GN (Hovey et al., 2017). It is hoped that nursing students will value older people with caring and compassion cultivated by BSN program, further to improve their attitudes, knowledge and skills into gerontological nursing in the future.

5.8 Implementation of the Results for the Practice

This purpose of this study was to understand Macao nursing students' attitudes towards older people and preference and willingness for working in GN. Further to explore their views and thoughts towards GN education and working in GN after graduation.

The results showed nursing students in Macao had higher mean scores in KAOP that indicated more positive attitudes towards older people, but most of them chose GN,

as the 4th to 12th (less) preferred working place. Nursing students' experiences in GN education were fair to poor. The study explored the views and thought among nursing students and analyzed the findings for the suggestions and solutions towards GN education and factors for future work in GN settings.

5.8.1 GN education

The contents of GN education should involve the aging specific knowledge and skill training into programme. GN specific skill training for Macao BSN programme is suggested to emphasize aging related change among older people such as skin care and fall prevention. The standardized assessment tools for older population are suggested in this study to promote nursing students interests in working in GN after graduation.

Activities should be adopted into GN programme to promote nursing students interests in GN. Activities might include visiting aged care centers or nursing home, inviting GN nurses or older people to classes. This study suggests that nursing students' workload (assignment and activities) needs to be concerned, it's suggested that reasonable assignments of GN will contribute nursing students interest towards working in GN settings in the future.

GN clinical practice should provide briefing sessions before clinical practice including all preceptors and nursing students. It's suggested to provide GN or nursing skills standards to clinical preceptors before GN clinical practice that will benefit nursing students' clinical practice. The each group of nursing students for GN clinical practice should be teamed up less than five nursing students for better practice quality.

This study suggests that nursing students should plan and write down their GN clinical learning outcome and discuss with preceptors in the first or second day of GN practice. The preceptor and nursing students will have the same understandings in learning achievement and performance for the better GN clinical practice.

Moreover, compassionate care in GN should be promoted among nursing students and combined with competencies in nursing knowledge and skills in providing quality care among older people.

5.8.2 Policy implication

Macao has a unique culture combined with Western and Chinese elements as it was once governed by Portugal for over 400 years until in 2000 handed-over back to China. According to Tourism in Macao (2014), the culture of Macao is rather unique since it is largely made up of a combination of Chinese and Portuguese.

Though over 70% residents in Macao are Chinese, there is a combination of both Chinese and Portuguese are the official language in the city. Also, there are many English speakers in Macao as globalization. Macao also is one of the world's largest gaming centers which bring more than 85% of total government revenue in 2017. According to the The World Factbook from Central Intelligence Agency (C.I.A.) of United State (2017), Macao has been ranked the 4th higher Gross Domestic Product (GDP) per capita (PPP) for USD\$114,400 in 2017 (Central Intelligence Agency, 2017). As aging society, Macao Government has been showing the care since 2005 through annual subsidy to senior citizens who are permanent residents with aged over 65 years that also advocate the merit of respect for older adults. The amount of “Subsidy for Senior Citizens” has been increased to MOP \$8,000/year to older adults since 2016 (Social Welfare Bureau, 2017). As aging population has been increasing steadily in Macao, this strategy will encourage residents to respect and care older adults.

There were suggestions from nursing students about resources and supports from government. It is suggested the policy maker has to review the staffing situation not only in hospital but in community settings such as nursing home and aged care centers for the policy modification to encourage more nurses working in GN.

Furthermore, there has been a trend that most nurses in Macao want to work in the only one public hospital. The government has planned and been building the second hospital in Taipa area of Macao, which might include long-term care center and aged care center. Regarding the aging society in Macao, this study suggested that government may consider planning more public aged care centers in residential areas which might promote more nurses and nursing students' preferences and willingness in working in GN. The present study also suggests the policy makers could take into account with salary and benefit issues raised by current Macao nursing students to attract more nurses working in GN.

5.9 Limitations and Suggestions for Future Study

The limitations of this study include:

(1) The research design of this study was cross-sectional thus this study did not have the longitudinal results and aspects provided by tracking nursing students over their gerontological nursing study, clinical practice, the consequences of attitudes towards older people, and their career choice. It's suggested that future study could consider studying nursing students' attitudes towards older people and career choices from freshman to the last-year study of undergraduate, it would provide different aspects of GN.

(2) According to literature review, eight instruments were suggested by previous studies to measure attitudes towards older people. KAOP was used by most studies as its generality and popularity. This research used KAOP to survey nursing students' attitudes towards older people which may have some problems on the item score, and this tool was established in 1960 and in USA which might have time and culture issues. It's suggested further studies to develop a new scale or instrument which is more related

to the Greater China culture in attitudes towards older people or gerontological nursing.

(3) The study only focused on nursing students in Macao and did not have any comparison with other areas such as China, HK, and Taiwan. This study only involved nursing students in Macao but did not include those Macao citizens studying nursing program abroad. It's suggested to compare the difference among all Macao nursing students and Greater China areas in the future.

(4) All nursing students in Macao have been included as participants in this study. The KAOP score was positive among nursing students in Macao, it's suggested further study might consider comparing the difference with nursing students from other places in Greater China area and to increasing sample size from other area of Greater China to improve the generalizability of the results among nursing students in Greater China.

(5) Salary and working environment were confirmed (both quantitative and qualitative methods) in this study for the important factors among Macao nursing students towards working in GN. This study did not focus on these two factors rather than studying nursing students' preference and willingness to work in GN. It's suggested that future study can compare factors related to salary, working environments, and policy towards gerontological nursing.

(6) Macao has been delivering a stand-alone GN course for BSN programme since 2008, thus this study did not involve any intervention to compare pre-and-post changes in attitudes towards older people, preference and willingness towards working in GN among nursing students. Future study might consider comparing the difference between programmes, curriculum, and schools.

5.10 Conclusion

As global issue and Macao also faces the same problem, nursing student will

become tomorrow nurses in Macao. This study used a survey to explore and understand the situation among Macao nursing students towards working in gerontological settings after graduation. This survey also included a small section with open-ended questions to enrich the understanding of the subjective perception of Macao nursing students towards GN education and working in GN after graduation.

The study findings showed not many Macao nursing students' preference (9.5% nursing students ranked GN as the most preference future work) and willingness to choose GN as the future career after graduation (24.5%), though Macao nursing students have more positive attitudes (higher KAOP mean scores) towards older people. Personal interest was the most important factor chosen by nursing students for their future career choice in GN. Religion, filial piety, intention with older people, GN taught, and clinical practice experience with older people were confirmed in relation to positive attitudes towards older people among nursing students in Macao.

There were two outcome variables including preference GN as future work and willingness to work in GN after graduation. Raised up by older people, intention with older people, and clinical experience with older people were associated with preference GN as future work, while filial piety, intention with older people, and clinical practice with older people were related to willingness to work in GN among Macao nursing students. This study concluded three predictors through logistic regression analysis for outcome variables including "intention with older people", "clinical experience with older people" and KAOP. Nursing students in this study who have intention to live with older people in the future, good clinical practice with older people, and higher KAOP respectively will be more likely to choose or work in GN settings after graduation.

Moreover, nursing students' views and thoughts are important to GN education and future work in GN. The findings of open-ended questions from nursing students'

views and thought suggested that contents in GN education should be focused on more GN specific and centered knowledge and skills, as well as more activities involved in GN course such as visiting living alone older people, institutions. Factors among Macao nursing students towards working in GN were related to salary, working environment, personal interest and experience with older people. Personal interest and experience with older people were also ranked as important contributors in quantitative research among nursing students in Macao.

Personal interest was confirmed in this study from both quantitative and qualitative (open-ended questions) data among Macao nursing students towards working in GN. Strategies in GN education are proposed in this study to promote nursing students' interest towards working in GN. Findings from this research provide some information to nursing schools in Macao for the evidence of GN education, as well as to policy maker for the evidence of GN in the future.

References

- Abbey, J., Abbey, B., Bridges, P., Elder, R., Lemcke, P., Liddle, J., & Thornton, R. (2006). Clinical placements in residential aged care facilities: The impact on nursing students' perception of aged care and the effect on career plans. *Australian Journal of Advanced Nursing*, 23(4), 14-19.
- Abreu, M., & Caldevilla, N. (2015). Attitudes toward aging in portuguese nursing students. *Procedia - Social and Behavioral Sciences*, 171(0), 961-967.
- Alabaster, E. (2007). Involving students in the challenges of caring for older people. *Nursing Older People*, 19(6), 23-28.
- Ayoğlu, F. N., Kulakçı, H., Ayyıldız, T. K., Aslan, G. K., & Veren, F. (2014). Attitudes of turkish nursing and medical students toward elderly people. *Journal of Transcultural Nursing*, 25(3), 241-248.
- Blais, K., Mikolaj, E., Jedlicka, D., Strayer, J., & Stanek, S. (2006). Innovative strategies for incorporating gerontology into bsn curricula. *Journal of Professional Nursing*, 22(2), 98-102.
- Bleijenberg, N., Jansen, M. J. M., & Schuurmans, M. J. (2012). Dutch nursing students' knowledge and attitudes towards older people- a longitudinal cohort study. *Journal of Nursing Education & Practice*, 2(2), 1-7.
- Brown, J., Nolan, M., Davies, S., Nolan, J., & Keady, J. (2008). Transforming students' views of gerontological nursing: Realising the potential of 'enriched' environments of learning and care: A multi-method longitudinal study. *International Journal of Nursing Studies*, 45(8), 1214-1232.
- Burbank, P., Dowling-Castronovo, A., Crowther, M., & Capezuti, E. (2006). Improving knowledge and attitudes toward older adults through innovative educational strategies. *Journal of Professional Nursing*, 22(2), 91-97.

- Carlson, E., & Bengtsson, M. (2014). The uniqueness of aged care: Registered nurses' experience as preceptors during clinical practice in nursing homes and home-based care. *Nurse Education Today*, 34(4), 569-573.
- Carlson, E., & Idvall, E. (2015). Who wants to work with older people? Swedish student nurses' willingness to work in aged care—a questionnaire study. *Nurse Education Today*, 35(7), 849-853.
- Carlson, E., Ramgard, M., Bolmsjo, I., & Bengtsson, M. (2013). Registered nurses' perceptions of their professional work in nursing homes and home-based care: A focus group study. *International Journal of Nursing Studies*.
- Celik, S. S., Kapucu, S., Tuna, Z., & Akkus, Y. (2010). Views and attitudes of nursing students towards ageing and older patients. *Australian Journal of Advanced Nursing*, 27(4), 24-30.
- Chase, C. (2011). An intergenerational e-mail pal project on attitudes of college students toward older adults. *Educational Gerontology*, 37(1), 27-37.
- Chen, A. M. H., Kiersma, M. E., Yehle, K. S., & Plake, K. S. (2015). Impact of the geriatric medication game on nursing students' empathy and attitudes toward older adults. *Nurse Education Today*, 35(1), 38-43.
- Chen, S., Melcher, P., Witucki, J., & McKibben, M. (2002). Nursing home use for clinical rotations: Taking a second look. *Nursing and Health Sciences*, 4(3), 131-137.
- Chen, S., & Walsh, S. M. (2009). Effect of a creative-bonding intervention on taiwanese nursing students' self-transcendence and attitudes toward elders. *Research in Nursing & Health*, 32(2), 204–216.
- Cheng, M., Cheng, C., Tian, Y., & Fan, X. (2015). Student nurses' motivation to choose gerontological nursing as a career in china: A survey study. *Nurse*

Education Today, 35(7), 843-848.

- Cozort, R. W. (2008). Student nurses' attitudes regarding older adults: Strategies for fostering improvement through academia. *Teaching and Learning in Nursing*, 3(1), 21-25.
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4 ed.). California, U.S.A.: SAGE Publications, Inc.
- De Guzman, A. B., Dangoy, R. J. D., David, K. C. V., Dayo, K. J. H., De Claro, K. A., De Guzman, G. V. G. G., & De Jesus, G. I. D. (2009). How many sides does a coin have? A phenomenology of filipino nurses' motivation and attitudes toward geriatric care. *Educational Gerontology*, 35(3), 260-276.
- De Guzman, A. B., Jimenez, B. C. B., Jocson, K. P., Junio, A. R., Junio, D. E., Jurado, J. B. N., & Justiniano, A. B. F. (2013). Filipino nursing students' behavioral intentions toward geriatric care: A structural equation model (sem). *Educational Gerontology*, 39(3), 138-154.
- Deschodt, M., & Milisen, K. (2010). Gerontological care in nursing education programmes. *Journal of Advanced Nursing*, 66(1), 139-148.
- DeVon, H. A., Block, M. E., Moyle-Wright, P., Ernst, D. M., Hayden, S. J., Lazzara, D. J., Kostas-Polston, E. (2007). A psychometric toolbox for testing validity and reliability. *Journal of nursing scholarship*, 39(2), 155-164.
- Duggan, S., Mitchell, E. A., & Moore, K. D. (2013). 'With a bit of tweaking...we could be great'. An exploratory study of the perceptions of students on working with older people in a preregistration bsc (hons) nursing course. *International Journal of Older People Nursing*, 8(3), 207-215.
- Eltantawy, S. H. A. E. (2013). Relation between nursing students' knowledge of aging and attitude towards ederly people and their will and intent to work with older

- adults. *Journal of Education and Practice*, 4(27), 125-136.
- Erdemir, F., Kav, S., Citak, E. A., Hanoglu, Z., & Karahan, A. (2011). A turkish version of kogon's attitude toward older people (kaop) scale: Reliability and validity assessment. *Archives of Gerontology and Geriatrics*, 52(3), e162-e165.
- Evers, C., Ploeg, J., & Kaasalainen, S. (2011). Case study of the attitudes and values of nursing students toward caring for older adults. *Journal of Nursing Education*, 50(7), 404-409.
- Fenush Jr, J. K., & Hupcey, J. E. (2008). An investigation of clinical unit choices by graduating baccalaureate nursing students. *Journal of Professional Nursing*, 24(2), 90-95. doi:10.1016/j.profnurs.2007.06.016
- Ferrarioa, C. G., Freemana, F. J., Nelletta, G., & Scheel, J. (2007). Changing nursing students' attitudes about aging: An argument for the successful aging paradigm. *Educational Gerontology*, 34(1), 51-66.
- Flood, M. T., & Clark, R. B. (2009). Exploring knowledge and attitudes toward aging among nursing and nonnursing students. *Educational Gerontology*, 35(7), 587-595.
- Funderburk, B., Damon-Rodrigues, J., Storms, L., & Solomon, D. H. (2006). Endurance of undergraduate attitudes toward older adults. *Educational Gerontology*, 32(6), 447-462.
- Furlan, J. C., Craven, B. C., Ritchie, R., Coukos, L., & Fehlings, M. G. (2009). Attitudes towards the older patients with spinal cord injury among registered nurses: A cross-sectional observational study. *Spinal Cord*, 47(9), 674-680.
- Furze, J., Lohman, H., & Mu, K. (2008). Impact of an interprofessional community-based educational experience on students' perceptions of other health

- professions and older adults. *Journal of Allied Health*, 37(2), 71-77.
- Gallagher, S., & Bennett, K. M. (2006). A comparison of acute and long-term health-care personnel's attitudes towards older adults. *International Journal of Nursing Practice*, 12(5), 273-279.
- Gerrish, K., Lathlean, J., & Cormack, D. (2015). *The research process in nursing* (K. Gerrish, J. Lathlean, & D. Cormack Eds. 7 ed.). Oxford, UK: Wiley-Blackwell.
- Gilje, F., Lacey, L., & Moore, C. (2007). Gerontology and geriatrics issues and trends in u.S. Nursing programs: A national survey. *Journal of Professional Nursing*, 23(1), 21-29.
- Gillespie, G. L., Gates, D. M., Mentzel, T., Al-Natour, A., & Kowalenko, T. (2013). Evaluation of a comprehensive ed violence prevention program. *Journal of Emergency Nursing*, 39(4), 376-383. doi:10.1016/j.jen.2012.12.010
- Gilliss, C. L. (2011). Comment on: Building academic geriatric nursing capacity: Results after the first 10 years and implications for the future. *Nursing Outlook*, 59(4), 205-206.
- Goncalves, D. C. (2009). From loving grandma to working with older adults: Promoting positive attitudes towards aging. *Educational Gerontology*, 35(3), 202-225.
- Gonçalves, D. C., Guedes, J., Fonseca, A. M., Pinto, F. C., Martín, I., Byrne, G. J., & Pachana, N. A. (2011). Attitudes, knowledge, and interest: Preparing university students to work in an aging world. *International Psychogeriatrics*, 23(2), 315-321.
- Gutheil, I. E., Chernesky, R. H., & Sherratt, M. I. (2006). Influencing student attitudes toward older adults: Results of a service-learning collaboration. *Educational*

- Gerontology*, 32(9), 771-784.
- Hanson, R. M. (2014). 'Is aged care affected by nurse attitudes?' A systematic review. *British Journal of Nursing*, 23(4), 225-229.
- Haron, Y., Levy, S., Albagli, M., Rotstein, R., & Riba, S. (2013). Why do nursing students not want to work in geriatric care? A national questionnaire survey. *International Journal of Nursing Studies*, 50(11), 1558-1565.
- Heise, B. A., Johnsen, V., Himes, D., & Wing, D. (2012). Developing positive attitudes toward geriatric nursing among millennials and generation xers. *Nursing Education Perspectives*, 33(3), 156-161. doi:10.5480/1536-5026-33.3.156
- Henderson, J., Xiao, L., Siegloff, L., Kelton, M., & Paterson, J. (2008). 'Older people have lived their lives': First year nursing students' attitudes towards older people. *Contemporary Nurse*, 30(1), 32-45.
- Holroyd, A., Dahlke, S., Fehr, C., Jung, P., & Hunter, A. (2009). Attitudes towards aging: Implications for a caring profession. *Journal of Nursing Education* 48(7), 374-380.
- Houser, J. (2015). *Nursing research: Reading, using, and creating evidence*. Boston, MA: Jones & Bartlett.
- Hovey, S., Dyck, M. J., Reese, C., & Kim, M. (2017). Nursing students' attitudes toward persons who are aged: An integrative review. *Nursing Education Today*, 49, 145-152.
- Hweidi, I. M., & Al-Obeisat, S. M. (2005). Jordanian nurses' attitudes toward older patients in acute care settings. *International Nursing Review*, 52(3), 225-232.
- Hweidi, I. M., & Al-Obeisat, S. M. (2006). Jordanian nursing students' attitudes toward older adults. *Nurse Education Today*, 26(1), 23-30.

- Ironside, P. M., Tagliareni, M. E., McLaughlin, B., King, E., & Mengel, A. (2010). Fostering geriatrics in associate degree nursing education: An assessment of current curricula and clinical experiences. *Journal of Nursing Education*, 49(5), 246-252.
- Kiang Wu Nursing College of Macao. (2017). Undergraduate programmes. Retrieved from <http://www.kwnc.edu.mo/web/cmain.htm>
- King, B. J., Roberts, T. J., & Bowers, B. J. (2013). Nursing student attitudes toward and preferences for working with older adults. *Gerontology & Geriatrics Education*, 34(3), 272–291.
- Kloster, T., Høie, M., & Skår, R. (2007). Nursing students career preferences: A norwegian study. *Journal of Advanced Nursing*, 58(3), 1-8.
- Kogan, N. (1961). Attitudes toward old people: The development of a scale and an examination of correlations. *Journal of Abnormal and Social Psychology*, 62(1), 44–54.
- Koh, L. C. (2012). Student attitudes and educational support in caring for older people- A review of literature. *Nurse Education in Practice*, 12(1), 16-20.
- Koren, M. E., Hertz, J., Munroe, D., Rossetti, J., Robertson, J., Plonczynski, D., Ehrlich-Jones, L. (2008). Assessing students' learning needs and attitudes: Considerations for gerontology curriculum planning. *Gerontology & Geriatrics Education*, 28(4), 39-56.
- Koskinen, S., Hupli, M., Katajisto, J., & Salminen, L. (2012). Graduating finnish nurse students' interest in gerontological nursing — A survey study. *Nurse Education Today*, 32(4), 356-360.
- Krout, J., & McKernan, P. (2007). The impact of gerontology inclusion on 12th grade perceptions of aging, older adults, & working with elders. *Gerontology and*

Geriatrics Education, 27(4), 23-40.

Lambrinou, E., Sourtzi, P., Kalokerinou, A., & Lemonidou, C. (2009). Attitudes and knowledge of the greek nursing students towards older people. *Nurse Education Today*, 29(6), 617-622.

Lee, Y.-S., Shin, S.-H., & Greiner, P. A. (2015). Can education change attitudes toward aging? A quasi-experimental design with a comparison group. *Journal of Nursing Education and Practice*, 5(9), 90-99.

Lee, Y. S. (2009). Measures of student attitudes on aging. *Educational Gerontology*, 35(2), 121-134.

Li, Y., & Buechel, A. (2007). Study of american and chinese family members' evaluations on institutionalized care for their older parents: Potential development in the future. *Journal of Health & Human Services Administration* 30(2), 176–198.

Littlejohn, L., Campbell, J., Collins-McNeil, J., & Khayile, T. (2012). Nursing shortage: A comparative analysis. *International Journal of Nursing Education Scholarship*, 1(1), 22-27.

Littlejohn, L., Campbell, J., Collins-McNeil, J., & Khayile, T. (2012). Nursing shortage: A comparative analysis. *International Journal of Nursing Education Scholarship*, 1(1), 22-27.

Liu, M., Lam, B., Fong, P., & Yuan, H. B. (2013). Nursing shortage: The facts and strategies in macao society. *The Online Journal of Issues in Nursing*, 18(1).
<http://nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-18-2013/No1-Jan-2013/Articles-Previous-Topics/Nursing-Shortage-in-Macao-Society.html>

Liu, Y. E., Norman, I. J., & While, A. E. (2013). Nurses' attitudes towards older people: A systematic review. *International Journal of Nursing Studies*, 50(9), 1271-1282.

Lovell, M. (2006). Caring for older adults: Changing perceptions and attitudes.

Journal of Vascular Nursing, 24(1), 22-26.

Macao Polytechnic Institute. (2017). Bachelor of science in nursing, school of health sciences. Retrieved from

http://www.ipm.edu.mo/sciences/en/bsn_objectives.php

Macao Statistics and Census Service. (2016a). Health statistics. Retrieved from

<http://www.dsec.gov.mo/TimeSeriesDatabase.aspx>

Macao Statistics and Census Service. (2016b). Life expectancy at birth. Retrieved

from <http://www.dsec.gov.mo/Statistic.aspx?NodeGuid=7bb8808e-8fd3-4d6b-904a-34fe4b302883>

Majeski, R. A., Damond, M., & Stover, M. (2007). Assessment of gerontology programs: A comprehensive, strategic approach. *Educational Gerontology*, 33(7), 543-560.

Mark, J., & Charles, A. (2013). Successful interventions to encourage active ageing. *Nursing & Residential Care*, 15(7), 498-500.

Marsland, L., & Hickey, G. (2003). Planning a pathway in nursing: Do course experiences influence job plans? *Nurse Education Today*, 23(3), 226–235.

Matarese, M., Lommi, M., Pedone, C., Alvaro, R., & De Marinis, M. G. (2013). Nursing student attitudes towards older people: Validity and reliability of the italian version of the kogon attitudes towards older people scale. *Journal of Advanced Nursing*, 69(1), 175-184. doi:10.1111/j.1365-2648.2012.06055.x

McCann, T. V., Clark, E., & Lu, S. (2010). Bachelor of nursing students career choices: A three-year longitudinal study. *Nurse Education Today*, 30(1), 31-36.

McGarry, J., Aubeeluck, A., Simpson, C., & Williams, G. (2009). Nursing students' experience of care. *Nursing Older People* 21(7), 16-22.

McKinley, A., & Cowan, S. (2003). Student nurses' attitudes towards working with

- older patients. *Journal of Advanced Nursing*, 43(3), 298–309.
- McLafferty, E. (2005). A comparison of nurse teachers' and student nurses' attitudes toward hospitalised older adults. *Nurse Education Today*, 25(6), 472-479.
- Mellor, P., Chew, D., & Greenhill, J. (2007). Nurses' attitudes toward elderly people and knowledge of gerontic care in a multi-purpose health service (mphs). *Australian Journal of Advanced Nursing*, 24(4), 37-41.
- Miller, C. A. (2015). *Nursing for wellness in older adults*. Philadelphia: Wolters Kluwer.
- Mueller, C., Goering, M., Talley, K., & Zaccagnini, M. (2011). Taking on the challenge of clinical teaching in nursing homes. *Journal of Gerontological Nursing*, 37(4), 32-38.
- Neilson, G. R., & McNally, J. G. (2010). Not choosing nursing: Work experience and career choice of high academic achieving school leavers. *Nurse Education Today*, 30(1), 9-14. doi:10.1016/j.nedt.2009.05.007
- Neville, C. (2015a). A cross-sectional view of Australian undergraduate nurses' perceptions of working with older people. *Collegian*.
- Neville, C. (2015b). Undergraduate nurse attitudes toward older adults and perceptions of working with older adults: An analysis of measurement instruments. *Nurse Education Today*, 35(1), 183-188.
- Neville, C., & Dickie, R. (2014). The evaluation of undergraduate nurses' attitudes, perspectives and perceptions toward older people. *Nurse Education Today*, 34(7), 1074-1079.
- Ogiwara, S., Inoue, K., & Koshizu, S. (2007). Reliability and validity of a Japanese version of attitudes toward older adults scale. *Journal of Physical Therapy*, 19, 27–32.

- Olson, M. (2011). Self-efficacy, curriculum content, practicum experience and the interest of social work students in gerontology. *Educational Gerontology*, 37(7), 593-605.
- Pan, I. J., Edwards, H., & Chang, A. (2009). Taiwanese nursing students' attitudes toward older people. *Journal of Gerontological Nursing*, 35(11), 50–55.
- Plonczynski, D. J., Ehrlich-Jones, L., Robertson, J. F., Rossetti, J., Munroe, D. J., Koren, M. E., . . . Hertz, J. (2007). Ensuring a knowledgeable and committed gerontological nursing workforce. *Nursing Education Today*, 27(2), 113-121.
- Polit, D. F., & Beck, C. T. (2014). *Essentials of nursing research: Appraising evidence for nursing practice* (8 ed.). Philadelphia: Lippincott Williams and Wilkins.
- Potter, G., Clarke, T., Hackett, S., & Little, M. (2013). Nursing students and geriatric care: The influence of specific knowledge on evolving values, attitudes, and actions. *Nurse Education in Practice*, 13(5), 449-453.
- Rathnayake, S., Athukorala, Y., & Siop, S. (2016). Attitudes toward and willingness to work with older people among undergraduate nursing students in a public university in sri lanka: A cross sectional study. *Nurse Education Today*, 36(Supplement C), 439-444. doi:<https://doi.org/10.1016/j.nedt.2015.10.007>
- Reitmaier, A., Davies, S., Smith, L., Hooks, T., Schanke, H., Glasspoole, A., Ratzlaff, N. (2016). *Impact of a stand-alone course in gerontological nursing on undergraduate nursing students' perceptions of working with older adults: A quasi-experimental study* (Vol. 46).
- Robinson, A., & Cubit, K. (2007). Caring for older people with dementia in residential care: Nursing students' experiences. *Journal of Advanced Nursing*, 59(3), 255–263.

- Rodgers, V., & Jean, G. (2011). Shaping student nurses' attitudes towards older people through learning and experience. *Nursing Praxis in New Zealand*, 27(3), 13-20.
- Rognstad, M.-K., & Aasland, O. (2007). Change in career aspirations and job values from study time to working life. *Journal of Nursing Management*, 15(4), 424-432. doi:10.1111/j.1365-2834.2007.00655.x
- Runkawatt, V., Gustafsson, C., & Engström, G. (2013). Different cultures but similar positive attitudes: A comparison between thai and swedish nursing students' attitudes toward older people. *Educational Gerontology*, 39(2), 92-102.
- Runkawatt, V., Kerdchuen, K., Tipkanjanaraykha, K., Ubolwan, K., Tawetanawanich, Y., Nasirin, C., & Win, M. L. (2016). Kogan's attitude toward old people: Evaluation of validity and reliability assessment among nursing students in thailand, myanmar, and indonesia. *Asian Journal for Public Opinion Research*, 3(3), 145-155.
- Ryan, M., & McCauley, D. (2004). We built it and they did not come: Knowledge and attitudes of baccalaureate nursing students toward older adults. *Journal of the New York State Nurses Association*, 35(2), 5-9.
- Sarabia-Cobo, C. M., & Castanedo-Pfeiffer, C. (2015). Changing negative stereotypes regarding aging in undergraduate nursing students. *Nurse Education Today*, 35(9), e60-e64.
- Shen, J., & Xiao, L. D. (2012). Factors affecting nursing students' intention to work with older people in china. *Nurse Education Today*, 32(3), 219-223.
- Shih, W.-M., & Chuang, S.-H. (2008). Factors influencing student nurses' career choices after preceptorship in a five-year junior nursing college in taiwan. *Nurse Education Today*, 28(4), 494-500.

doi:10.1016/j.nedt.2007.09.001

Shoqirat, N., & Abu-Qamar, M. e. Z. (2015). From placement to employment: Career preferences of jordanian nursing students. *Nurse Education in Practice*, *15*(5), 366-372. doi:10.1016/j.nepr.2015.03.013

Skaalvik, M. W., Normann, K., & Henriksen, N. (2012). Nursing homes as learning environments: The impact of professional dialogue. *Nurse Education Today*, *32*, 412-416.

Söderhamn, O., Lindencrona, C., & Gustavsson, S. M. (2001). Attitudes toward older people among nursing students and registered nurses in sweden. *Nurse Education Today*, *21*(3), 225-229.

Stevens, J. A. (2011). Student nurses' career preferences for working with older people: A replicated longitudinal survey. *International Journal of Nursing Studies*, *48*(8), 944-951.

Stewart, J. J., Gilesbc, L., Paterson, J. E., & Butlere, S. J. (2005). Knowledge and attitudes towards older people: New zealand students entering health professional degrees. *Physical & Occupational Therapy In Geriatrics* *23*(4), 25-36.

Straughair, C. (2012). Exploring compassion: Implications for contemporary nursing. Part 1. *British Journal of Nursing*, *21*(3), 160-164.

doi:10.12968/bjon.2012.21.3.160

Swanlund, S., & Kujath, A. (2012). Attitudes of baccalaureate nursing students toward older adults: A pilot study. *Nursing Education Perspectives*, *33*(3), 181-183.

The World Bank. (2017). Population, total. Retrieved from

http://databank.worldbank.org/data/reports.aspx?Code=SP.POP.TOTL&id=1ff4a498&report_name=Popular-Indicators&populartype=series&ispopular=y

- Towner, E. M. (2006). Assessment of geriatric knowledge: An online tool for appraising entering apn students. *Journal of Professional Nursing, 22*, 112-115.
- Tullo, E. S., Spencer, J., & Allan, L. (2010). Systematic review: Helping the young to understand the old. Teaching interventions in geriatrics to improve the knowledge, skills, and attitudes of undergraduate medical students. *Journal of the American Geriatrics Society, 58*(10), 1987-1993.
- Türgay, A. S., Şahin, S., Şenuzun Aykar, F., Sari, D., Badir, A., & Canli Özer, Z. (2015). Attitudes of turkish nursing students toward elderly people. *European Geriatric Medicine, 6*(3), 267-270.
- Usta, Y. Y., Demir, Y., Yönder, M., & Yildiz, A. (2012). Nursing students' attitudes toward ageism in turkey. *Archives of Gerontology and Geriatrics, 54*(1), 90-93.
- Van, I. K. (2010). *Research report on "10-year plan for macao nursing human resources*. Kiang Wu Nursing College. Macao.
- Velez Ortiz, D., Cross, S. L., & Day, A. (2012). Insightful learning of life's lessons with older adult guests in the classroom. *Educational Gerontology, 38*(12), 854-866.
- Walsh, S. M., Chen, S., Hacker, M., & Broschard, D. (2008). A creative-bonding intervention and a friendly visit approach to promote nursing students' self-transcendence and positive attitudes toward elders: A pilot study. *Nurse Education Today, 28*(3), 363-370.
- Walton, J., & Blossom, H. (2013). The experience of nursing students visiting older adults living in rural communities. *Journal of Professional Nursing, 29*(4), 240-251.

- Waltz, C. F., Strickland, O. L., & Lenz, E. R. (2005). *Measurement in nursing and health research* (3 ed.). New York: Springer Publishing Co.
- Wang, C. C., Liao, W. C., Kao, M. C., Chen, Y. J., Lee, M. C., Lee, M. F., & Yen, C. H. (2009). Taiwanese medical and nursing student interest levels in and attitudes towards geriatrics. *Annals Academy of Medicine* 38(3), 230-236.
- Wang, C. C., Liao, W. C., Kuo, P. C., Yuan, S. C., Chuang, H. L., Lo, H. C., Yen, C. H. (2010). The chinese version of the facts on aging quiz scale: Reliability and validity assessment. *International Journal of Nursing Studies*, 47(6), 742-752.
- Welford, C. (2014). Attitudes and knowledge in older people's care. *Nurs Times*, 110(34-35), 22-24.
- Williams, B., Anderson, M. C., & Day, R. (2007). Undergraduate nursing students' knowledge of and attitudes toward aging: Comparison of context-based learning and a traditional program. *Journal of Nursing Education* 46(3), 115-120.
- Williams, K. N., Nowak, J., & Scobee, R. L. (2006). Fostering student interest in geriatric nursing: Impact of senior long-term care experiences. *Nursing Education Perspectives*, 27(4), 190–193.
- World Health Organization. (2015a). Definition of an older or elderly person. *Health statistics and information systems*.
<http://www.who.int/healthinfo/survey/ageingdefnolder/en/>
- World Health Organization. (2015b). WHO: Number of people over 60 years set to double by 2050; major societal changes required. Retrieved from
<http://www.who.int/mediacentre/news/releases/2015/older-persons-day/en/>
- Wray, N., & McCall, L. (2007). Plotting careers in aged care: Perspectives of medical, nursing, allied health students and new graduates. *Educational Gerontology*,

11, 939–954.

- Wu, B., Mao, Z. F., & Zhong, R. (2009). Long-term care arrangements in rural china: Review of recent developments. *Journal of the American Medical Directors Association, 10*(7), 472–477.
- Xiao, L. D., Paterson, J., Henderson, J., & Kelton, M. (2008). Gerontological education in undergraduate nursing programs: An australian perspective. *Educational Gerontology, 34*(9), 763-781.
- Yau, S. Y., Xiao, X. Y., Lee, L. Y. K., Tsang, A. Y. K., Wong, S. L., & Wong, K. F. (2012). Job stress among nurses in china. *Applied Nursing Research, 25*(1), 60-64. doi:<https://doi.org/10.1016/j.apnr.2011.07.001>
- Yen, C.-H., Liao, W.-C., Chen, Y.-R., Kao, M.-C., Lee, M.-C., & Wang, C.-C. (2009). A chinese version of kogon's attitude toward older people scale: Reliability and validity assessment. *International Journal of Nursing Studies, 46*(1), 38-44.
- Zverev, Y. (2013). Attitude towards older people among malawian medical and nursing students. *Educational Gerontology, 39*(1), 57-66.

Appendix A: List of Panel of Experts for Content Validity

Clinical administrator
Supervisor in a hospital, Macao Years of GN: Over 30 years in hospital Specialty: Geriatric nursing, nursing management and leadership
Long term care center
Director of a nursing home Years of GN: Over 30 years in Nursing home Specialty: Gerontological nursing, long term care management and leadership
Nursing Education
Vice-President of a higher educational institute Years of GN: Over 30 years in nursing education. Specialty: Gerontological Nursing, Nursing education and management
Professor of a higher education institute Years of GN: Over 30 years in nursing education. Specialty: Gerontological Nursing, Nursing education and management
Assistant Programme Coordinator in a higher education institute Specialty: Nursing education and management

Appendix B: A set of documents with consent form for experts of CVI

Invitation Letter to Experts in Gerontological Nursing for Content Validation of Questionnaire

Title of Study: Why don't nursing students like to work in a gerontological setting? Macao nurses and student nurses' views, attitude and related factors towards geriatric nursing and solutions for the future

Dear Sir/Madam,

I, HSU Mei Hua Kerry, a doctorate student, from Education of Doctor Program, HK Institute of Education, would like to invite you as an expert in Macao to participate in a research project entitled: Why don't nursing students like to work in a gerontological setting? For the purpose in content validation of questionnaire.

Student Investigator: HSU Mei Hua Kerry, a doctorate student, HK Institute of Education, Hong Kong

Faculty Supervisor: Prof. CHUNG, Wai Yee Joanne, Peter T C Lee Chair Professor of Health Studies, HK Institute of Education, Hong Kong

Co-supervisors: Prof. WONG, Kwok Shing Thomas and Dr. CHUNG, Ming Yan Louisa

The purpose of this research is to explore views, attitudes and related factors which influence student nurses toward working in geriatric settings and to use action research solutions encouraging more nurses to work in geriatric settings in Macao.

This research should have the benefit toward identifying influential factors of attitude and perception that contribute student nurses to work in gerontological setting. This study will gather more precise information from student nurses and to use action research for the development of strategies and solutions that encourages nurses choosing gerontological nursing as their future careers. If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@ied.edu.hk or by mail to Research and Development Office, The Hong Kong Institute of Education (Tel: +852 2948 6318). If you would like to obtain more information about this study, please contact Miss HSU, Mei Hua Kerry at telephone number [REDACTED] or their supervisor Prof. CHUNG, Wai Yee Joanne at telephone number [+852 2948 6436](tel:+85229486436).

Thank you for participating in this study.

HSU, Mei Hua Kerry

Student Investigator

致澳門老人護理專家有關問卷內容審查(專家效度)

研究主題：

為何護生不喜歡於老人護理機構場所工作？

護生對老人護理的態度、看法及相關因子研究及行動研究方案

尊敬的澳門護理專家：

誠邀閣下參加由香港教育學院鍾慧儀教授、汪國成教授及鍾明恩博士負責監督,由博士班學生徐美華女士負責執行的研究計劃,擔任問卷內容審查專家(詳見附件一)。

本研究目的為探討澳門護生對從事老人護理工作的態度、看法及相關因子;並運用研究中相關策略及方法,以促進更多護士選擇老人護理工作為未來的職業。

研究預期結果希望藉由澳門護生對老人護理的態度及想法中,分析相關的因素進而使用行動研究發展相關策略于老人護理課程,以鼓勵更多的護士從事老人護理工作。

所有參與者享有充分的權利在任何時候可決定退出這項研究,更不會因此引致任何不良後果。凡有關參與者的個別資料將會於以保密,一切資料的編碼只有研究人員得悉。

如閣下對這項研究有任何意見,可隨時與香港教育學院人類實驗對象操守委員會聯絡(電郵:hrec@ied.edu.hk; 電話:+852 2948 6318; 地址:香港教育學院研究與發展事務處)。

如閣下想獲得更多有關這項研究的資料,請與徐美華女士聯絡,電話+853 [REDACTED] 或聯絡她/他們的導師鍾慧儀教授,電話+852 2948 6436。

謝謝閣下參與這項研究。

徐美華

博士生研究員

**Content Validation of Student Nurses towards working in geriatric nursing
questionnaire**

Title of Study: Why don't nursing students like to work in a gerontological setting?

Purpose of Study:

The overall purpose of this study is to explore the attitudes, views and related factors which influence Macao student nurses towards working in geriatric settings and to use action research for development of strategies and curriculum change in gerontological nursing encouraging more nurses to work in geriatric settings in Macao.

Research Questions of study

On the basis of study purpose, the following research questions are generated:

1. What are the views, attitudes, and related factors of student nurses from two nursing school (Kiang Wu Nursing College of Macao and Macao Polytechnic Institute) toward working in gerontological nursing settings?
2. Are there significant differences among Macao student nurses in views, attitude and related factors toward working in gerontological nursing?
3. Are there similarities among Macao student nurses in views, attitude and related factors toward working in gerontological nursing settings?
4. What factors and conditions would contribute Macao student nurses' decision of choosing gerontological nursing as their career choice?
5. What learning strategies in gerontological nursing are most useful to student nurses for increasing learning and positive attitude toward working in gerontological settings?
6. What changes will be developed and applied in gerontological nursing subject during learning and practice period for student nurses?
7. What are effective strategies for implementing curriculum changes in gerontological nursing subject?

Please choose the rating of each item/ question for appropriateness as the following:

(*) 4= very appropriate, 3= appropriate (minor revision required), 2= inappropriate (major revision required), 1= not necessary

Part A to D

<i>Appropriateness of Each Item/ Question 適切性</i>		<i>Rating* 評分*</i> 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				<i>Comment and suggestion 修改意見或建議</i>
Part A: Background 背景資料		4	3	2	1	
1. Year of birth 出生年	19_____	4	3	2	1	
2. Gender 性別	<input type="checkbox"/> Male 男 <input type="checkbox"/> Female 女	4	3	2	1	
3. Body Height and weight 身高	_____ cm _____ kgw	4	3	2	1	
4. Education 教育程度	<input type="checkbox"/> BSN Year I 本科1年級 <input type="checkbox"/> BSN Year 2 本科2年級 <input type="checkbox"/> BSN Year III 本科3年級 <input type="checkbox"/> BSN Year IV 本科4年級 <input type="checkbox"/> Others 其他_____	4	3	2	1	
5. Religion 宗教信仰	<input type="checkbox"/> None 無 <input type="checkbox"/> Buddhist 佛教 <input type="checkbox"/> Taoism 道教 <input type="checkbox"/> Christian 基督教 <input type="checkbox"/> Catholic 天主教 <input type="checkbox"/> Muslim 回教 <input type="checkbox"/> Others 其他_____	4	3	2	1	
6. Marital status 婚姻狀況	<input type="checkbox"/> Single 未婚 <input type="checkbox"/> Married 已婚 <input type="checkbox"/> Others 其他_____	4	3	2	1	
Part B. Experience with aging		4	3	2	1	



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

Appropriateness of Each Item/ Question 適切性		Rating* 評分*				Comment and suggestion 修改意見或建議
		4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				
1. Family status 居住狀況	<input type="checkbox"/> Living with parents and sibling 小家庭(與父母及手足同住) <input type="checkbox"/> Living with grand-parents, parents and sibling 三代同堂(與祖父母、父母及手足同住) <input type="checkbox"/> Others 其他_____	4	3	2	1	
2. Living with 65+ 家中 65 歲以上長者	<input type="checkbox"/> None 沒有 <input type="checkbox"/> Yes, how many 有, 幾位_____	4	3	2	1	
3. Neighbor with 65+ 鄰居 65 歲以上長者	<input type="checkbox"/> None 沒有 <input type="checkbox"/> Yes, how many 有, 幾位_____	4	3	2	1	
4. Time with 65+ 與 65 歲以上長者的相處時間	<input type="checkbox"/> None, because 沒有, 因_____ <input type="checkbox"/> Few, about 很少, 大約多久及時間_____ <input type="checkbox"/> ___hour(s)/month 每月___小時 <input type="checkbox"/> Others 其他_____ <input type="checkbox"/> ___hour(s)/week 每週___小時 <input type="checkbox"/> ___hour(s)/day 每天___小時	4	3	2	1	
5. Riased up by 65+ 童年時由 65 歲以上長者扶養	<input type="checkbox"/> None 不是 <input type="checkbox"/> Yes, by _____ for how long _____ 是, _____ 位關係 _____ 多久 _____	4	3	2	1	



<i>Appropriateness of Each Item/ Question 適切性</i>		<i>Rating* 評分*</i> 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				<i>Comment and suggestion 修改意見或建議</i>
6.Lived with 65+曾與 65 歲以上長者居住一起生活過	<input type="checkbox"/> None 沒有 <input type="checkbox"/> Yes, with _____ for how long _____ 是, _____ 位關係 _____ 多久 _____ 起訖年(月)	4	3	2	1	
7.Living with 65+目前與 65 歲以上長者居住	<input type="checkbox"/> Non 不是 <input type="checkbox"/> Yes, with _____ since _____ 是, _____ 位關係 _____ 多久由 _____ 年(月)開始	4	3	2	1	
8.Getting along with 65+與 65 歲以上長者(如祖父母等親戚)關係	<input type="checkbox"/> very poor 非常不好 <input type="checkbox"/> poor 不好 <input type="checkbox"/> Fair 普通 <input type="checkbox"/> Good 好 <input type="checkbox"/> Very good 非常好	4	3	2	1	
Part C. Motivation related to aging		4	3	2	1	
1. Like to spend time with 65+是否喜歡與 65 歲以上長者相處	<input type="checkbox"/> Strongly disagree 非常不願意 <input type="checkbox"/> Disagree 不願意 <input type="checkbox"/> Don' t mind 無所謂 <input type="checkbox"/> Agree 願意 <input type="checkbox"/> Strongly agree 非常願意	4	3	2	1	
2. To live with 65+未來與 65 歲以上長者同住意願	<input type="checkbox"/> Strongly disagree 非常不願意 <input type="checkbox"/> Disagree 不願意 <input type="checkbox"/> Don' t mind 無所謂 <input type="checkbox"/> Agree 願意 <input type="checkbox"/> Strongly agree 非常願意	4	3	2	1	



<i>Appropriateness of Each Item/ Question 適切性</i>		<i>Rating* 評分*</i> 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				<i>Comment and suggestion 修改意見或建議</i>
3. Filial Piety for every one 對『子女應該孝順年長的父母』的看法	<input type="checkbox"/> Strongly disagree 非常不同意 <input type="checkbox"/> Disagree 不同意 <input type="checkbox"/> Don't mind 沒意見 <input type="checkbox"/> Agree 同意 <input type="checkbox"/> Strongly agree 非常同意	4	3	2	1	
Part D. Clinical experience and future career		4	3	2	1	
1. Clinical practice experience with 65+ 臨床實習接觸老人的經驗	<input type="checkbox"/> very poor 非常不好 <input type="checkbox"/> poor 不好 <input type="checkbox"/> Fair 普通 <input type="checkbox"/> Good 好 <input type="checkbox"/> Very good 非常好 Suggestion 相關建議: _____	4	3	2	1	
2. Nursing is my first study choice 護理專業是第一志願	<input type="checkbox"/> No, but 不是，但讀護理因 _____ <input type="checkbox"/> Yes, because 是，因 _____	4	3	2	1	
3. Working in GN after graduation 畢業後從事老人護理工作意向	<input type="checkbox"/> Strongly disagree 非常不願意 <input type="checkbox"/> Disagree 不願意 <input type="checkbox"/> Don't mind 無所謂 <input type="checkbox"/> Agree 願意 <input type="checkbox"/> Strongly agree 非常願意	4	3	2	1	



Appropriateness of Each Item/ Question 適切性		Rating* 評分*				Comment and suggestion 修改意見或建議
		4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				
<p>4. Please order the most three important factors for choosing GN as future career 請排序(1-3)前三項因素影響妳(你)未來選擇從事老人護理</p>	<input type="checkbox"/> GN theory class 老人護理教學方式 <input type="checkbox"/> GN clinical practice experience 老人護理實習經驗 <input type="checkbox"/> Experience with 65+過去跟長者相處的經驗 <input type="checkbox"/> Teachers or clinical preceptors(Role model)學校及臨床帶教老師的影響 <input type="checkbox"/> Peer group 受同學的影響 <input type="checkbox"/> Suggestion by parents or family 父母及家人的建議 <input type="checkbox"/> Preference 自己的喜好 <input type="checkbox"/> Working environment 工作環境 <input type="checkbox"/> Salary 薪資結構及升遷 <input type="checkbox"/> Other 其他_____	4	3	2	1	
<p>5. Please arrange 1-8 for your preferable nursing working place in the future 請排序 1-8 未來最想工作的護理工作單位</p>	<input type="checkbox"/> ER 急診室 <input type="checkbox"/> ICU or special care unit 加護病房或特殊單位 <input type="checkbox"/> Medical ward 內科病房 <input type="checkbox"/> Surgical ward 外科病房 <input type="checkbox"/> Pediatric ward 兒科病房 <input type="checkbox"/> Gyn ward 婦產科病房 <input type="checkbox"/> Community health center 社區衛生中心 <input type="checkbox"/> Nursing home/aged care center 護理之家或老人中心	4	3	2	1	



Part E: Attitude towards Old People Scale 對老人態度量表 (Kogan, 1961)

<i>Appropriateness of Each Item/ Question 適切性</i>							<i>Rating* 評分*</i> 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				<i>Comment and suggestion 修改意見或建議</i>
Item 項目	Strongly disagree 非常不同意	disagree 不同意	Slightly Disagree 有點不同意	Slightly Agree 有點同意	Agree 同意	Strongly agree 非常同意	4	3	2	1	
1N. Older adults should live in special residences. 老年人應該居住於特殊的住所。	A	B	C	D	E	F	4	3	2	1	
2N. Older adults are different. 老年人是不同的。	A	B	C	D	E	F	4	3	2	1	
3N. Older adults are unable to change. 老年人是無法做出改變或讓步的。	A	B	C	D	E	F	4	3	2	1	
4N. Older adults quit work when they become pensioners. 老年人一旦符合退休資格後便會離開職場。	A	B	C	D	E	F	4	3	2	1	



<i>Appropriateness of Each Item/ Question 適切性</i>							<i>Rating* 評分*</i> 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				<i>Comment and suggestion</i> <i>修改意見或建議</i>
5N. Older adults have shabby homes. 老年人的住所都是髒亂破舊不堪的。	A	B	C	D	E	F	4	3	2	1	
6N. Wisdom does not come with advancing age. 年齡增長不代表比較有智慧。	A	B	C	D	E	F	4	3	2	1	
7N. Older adults have too much influence in society. 在社會上，老年人有很大的影響力。	A	B	C	D	E	F	4	3	2	1	
8N. Older adults make others feel ill at ease. 老年人容易讓別人感覺不舒服。	A	B	C	D	E	F	4	3	2	1	
9N. Older adults bore others with their stories. 老年人總訴說著讓人容易感到無趣的陳年往事。	A	B	C	D	E	F	4	3	2	1	
10N. Older adults are always prying into the affairs of others. 老年人總喜歡探聽別人的隱私。	A	B	C	D	E	F	4	3	2	1	
11N. Older adults have irritating faults. 老年人容易因為一點小錯就發脾氣。	A	B	C	D	E	F	4	3	2	1	



<i>Appropriateness of Each Item/ Question 適切性</i>							<i>Rating* 評分*</i> 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				<i>Comment and suggestion</i> <i>修改意見或建議</i>
12N. Older adults have a negative influence on a neighborhood. 老年人容易對於街坊鄰居有不好的觀感。	A	B	C	D	E	F	4	3	2	1	
13N. Older adults are much alike. 老年人都很像。	A	B	C	D	E	F	4	3	2	1	
14N. Older adults are untidy. 老年人都不修邊幅，很邋遢。	A	B	C	D	E	F	4	3	2	1	
15N. Older adults are irritable, grouchy and unpleasant. 老年人脾氣不好、愛抱怨，對人也總是不客氣。	A	B	C	D	E	F	4	3	2	1	
16N. Older adults complain about the young. 老年人總看年輕人不順眼。	A	B	C	D	E	F	4	3	2	1	
17N. Older adults have excessive demands for love. 老年人極度渴望被關愛。	A	B	C	D	E	F	4	3	2	1	
1P. Older adults should live integrated with the young. 老年人應該與年輕人住在一個社區。	A	B	C	D	E	F	4	3	2	1	



Appropriateness of Each Item/ Question 適切性								Rating* 評分* 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				Comment and suggestion 修改意見或建議
2P. Older adults are no different from anyone else. 老年人與所有人一樣，沒有不同。	A	B	C	D	E	F	4	3	2	1		
3P. Older adults are capable of new adjustment. 老年人是有能力/可以作出調整及改變的。	A	B	C	D	E	F	4	3	2	1		
4P. Older adults prefer to work as long as they can. 只要他們還有能力，老年人也希望能一直工作。	A	B	C	D	E	F	4	3	2	1		
5P. Older adults have clean, attractive homes. 老年人的家通常乾淨舒適。	A	B	C	D	E	F	4	3	2	1		
6P. Older adults grow wiser with advancing age. 老年人的智慧隨著年齡的增長而增加。	A	B	C	D	E	F	4	3	2	1		
7P. Older adults should have more power in society. 老年人在社會上應該有較多的影響力。	A	B	C	D	E	F	4	3	2	1		
8P. Older adults are relaxing to be with. 老年人是很容易相處的。	A	B	C	D	E	F	4	3	2	1		



Appropriateness of Each Item/ Question 適切性							Rating* 評分* 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				Comment and suggestion 修改意見或建議
9P. It is nice when older adults speak about their past. 當老年人分享著他們過去的經歷時，是很棒的。	A	B	C	D	E	F	4	3	2	1	
10P. Older adults mind their own business. 老年人很注意他們自己的本分與責任。	A	B	C	D	E	F	4	3	2	1	
11P. Older adults have the same faults as the young. 老年人也會犯和年輕人一樣的錯誤。	A	B	C	D	E	F	4	3	2	1	
12P. Neighborhoods are nice when integrated with older adults. 和老年人打成一片的街坊鄰居是很好的。	A	B	C	D	E	F	4	3	2	1	
13P. Older adults are different from one another. 每一個老年人都是一個個體，沒有人是一模一樣的。	A	B	C	D	E	F	4	3	2	1	
14P. Older adults are clean and neat. 老年人是乾淨的，是讓人感到舒服的。	A	B	C	D	E	F	4	3	2	1	



<i>Appropriateness of Each Item/ Question 適切性</i>							<i>Rating* 評分*</i> 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				<i>Comment and suggestion 修改意見或建議</i>
15P. Older adults are cheerful, agreeable and good-humored. 老年人是樂觀的，好溝通的，也有好的幽默感。	A	B	C	D	E	F	4	3	2	1	
16P. Older adults seldom complain about the young. 老年人很少對年輕人有所抱怨。	A	B	C	D	E	F	4	3	2	1	
17P. Older adults need no more love than others. 老年人與一般人一樣，不需要特別多的關愛。	A	B	C	D	E	F	4	3	2	1	

Part F: Comment and suggestion

<i>Appropriateness of Each Item/ Question 適切性</i>	<i>Rating* 評分*</i> 4:非常適用 3:適用 2:不適用;須修正 1:非常不適用;需刪除				<i>Comment and suggestion 修改意見或建議</i>
Part F: Comment and suggestion	4	3	2	1	
1. What's going your mind about "Geriatric/ Gerontological Nursing"? 對老人護理學科的建議，請詳述於下	4	3	2	1	



2. What's going your mind about any factor would be contributors for working at geriatric nursing in the future? 那些因素可加強未來於老人護理場所工作?	4	3	2	1	
--	---	---	---	---	--



Appendix C: A set of documents for pilot study

THE HONG KONG INSTITUTE OF EDUCATION

Graduate School

CONSENT TO PARTICIPATE IN RESEARCH

Why don't nursing students like to work in a gerontological setting?

I _____ hereby consent to participate in the captioned research conducted by HSU, Mei Hua Kerry, who is a doctorate student of the Graduate School in The Hong Kong Institute of Education, and supervised by Prof. CHUNG, Wai Yee Joanne, Prof. WONG, Kwok Shing Thomas and Dr. CHUNG, Ming Yan Louisa.

I understand that information obtained from this research may be used in future research and may be published. However, my right to privacy will be retained, i.e., my personal details will not be revealed.

The procedure as set out in the **attached** information sheet has been fully explained. I understand the benefits and risks involved. My participation in the project is voluntary.

I acknowledge that I have the right to question any part of the procedure and can withdraw at any time without negative consequences.

Name of participant

Signature of participant

Date



INFORMATION SHEET- Questionnaire for Pilot Study

Why don't nursing students like to work in a gerontological setting?

You are invited to participate in a project conducted by Miss HSU, Mei Hua Kerry, who is a doctorate student of the Graduate School in The Hong Kong Institute of Education and supervised by Prof. CHUNG, Wai Yee Joanne, Prof. WONG, Kwok Shing Thomas and Dr. CHUNG, Ming Yan Louisa.

The overall purpose of this study is to explore views, attitudes and related factors which influence student nurses toward working in geriatric settings and to suggest solutions encouraging more nurses to work in gerontological settings in Macao.

Procedure: You are invited to answer attached questionnaire which will take your time for 30~60 minute to complete. This questionnaire contains a number of questions related to your perception and attitude towards working in gerontological setting. There is no *right* way of answer. It depends on what suits your own style and your perception. It is accordingly important that you answer for each question as honestly as you can.

You have every right to withdraw from the study at any time without negative consequences. All information related to you will be remained confidential and identified by codes with limited access by researchers only.

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@ied.edu.hk or by mail to Research and Development Office, The Hong Kong Institute of Education (Tel:+852 2948-6318).

If you would like to obtain more information about this study, please contact Miss HSU, Mei Hua Kerry at telephone number [REDACTED] or their supervisor Prof. CHUNG, Wai Yee Joanne at telephone number [+852 2948 6436](tel:+85229486436).

Thank you for your interest in participating in this study.

HSU, Mei Hua Kerry
Student Investigator

有關資料-前驅研究問卷調查
為何護生不喜歡老人護理？
護生對老人護理的態度、看法及相關因子研究及行動研究改善方案

誠邀閣下參加由香港教育學院博士班學生徐美華女士負責執行並由鍾慧儀教授、汪國成教授及鍾明恩博士負責監督的研究計劃。

本研究目的為探討澳門護生對從事老人護理工作的態度、看法及相關因子；並運用行動研究中相關策略及方法以促進更多護士選擇老人護理工作為未來的職業。

步驟：妳(你)將需利用 30-60 分鐘回答附件中的問卷，問卷的問題主要是了解澳門護生對老人護理工作的態度及看法。每題問題並沒有標準答案，所以請選出最合適你心意的答案。

閣下享有充分的權利在任何時候決定退出這項研究，更不會因此引致任何不良後果。凡有關閣下的資料將會保密，一切資料的編碼只有研究人員得悉。

如閣下對這項研究有任何意見，可隨時與香港教育學院人類實驗對象操守委員會聯絡（電郵：hrec@ied.edu.hk；電話：+852 2948 6318；地址：香港教育學院研究與發展事務處）。

如閣下想獲得更多有關這項研究的資料，請與徐美華女士聯絡，電話 +853 [REDACTED] 或聯絡她/他們的導師鍾慧儀教授，電話 +852 2948 6436。

謝謝閣下有興趣參與這項研究。

徐美華
博士生研究員

香港教育學院
研究生院

參與研究同意書

為何護生不喜歡老人護理？
護生對老人護理的態度、看法及相關因子研究及行動研究改善方案

本人_____同意參加由鍾慧儀教授、汪國成教授及鍾明恩博士負責監督，由香港教育學院博士班學生徐美華女士負責執行的研究計劃。

本人理解此研究所獲得的資料可用於未來的研究和學術發表。然而本人有權保護自己的隱私，本人的個人資料將不能洩漏。

本人對所附資料的有關步驟已經得到充分的解釋。本人理解可能會出現的風險。本人是自願參與這項研究。

本人理解我有權在研究過程中提出問題，並在任何時候決定退出研究，更不會因此引致任何不良後果。

參加者姓名：

參加者簽名：

日期：



Pilot study - This questionnaire contains three parts which will take your time about 30 to 60 minutes. There is no right way for each question. It depends on what suits your own thought.**

本分問卷共有三部分，需要利用妳(你)約 30-60 分鐘，每道問題並沒有標準答案，請依照妳(你)本身的想法選出最合適的答案。

Part A: 背景資料

1. Year of birth 出生年	19_____
2. Gender 性別	<input type="checkbox"/> Male 男 <input type="checkbox"/> Female 女
3. Education 教育程度	<input type="checkbox"/> BSN Year I 本科 1 年級 <input type="checkbox"/> BSN Year 2 本科 2 年級 <input type="checkbox"/> BSN Year III 本科 3 年級 <input type="checkbox"/> BSN Year IV 本科 4 年級 <input type="checkbox"/> Others 其他_____
4. Religion 宗教信仰	<input type="checkbox"/> None 無 <input type="checkbox"/> Buddhist 佛教 <input type="checkbox"/> Taoism 道教 <input type="checkbox"/> Christian 基督教 <input type="checkbox"/> Catholic 天主教 <input type="checkbox"/> Muslim 回教 <input type="checkbox"/> Others 其他_____
5. Family status 目前居住狀況	<input type="checkbox"/> Living with parents and sibling 小家庭(與父母及手足同住) <input type="checkbox"/> Living with grand-parents with parents and sibling 三代同堂(與祖父母、父母及手足同住) <input type="checkbox"/> Others 其他 _____
6. Living with 65+ 目前家中 65 歲以上長者	<input type="checkbox"/> None 沒有 <input type="checkbox"/> Yes, how many_____ with _____ for how long_____ 是，_____ 位關係_____ 多久 _____ 起訖年(月)
7. Neighbor with 65+ 目前鄰居 65 歲以上長者	<input type="checkbox"/> None 沒有 <input type="checkbox"/> Yes, how many 有，幾位_____

<p>8. Time with 65+ within 5 years 五年內與 65 歲以上長者的相處時間</p>	<p><input type="checkbox"/>None, because 沒有，因_____</p> <p><input type="checkbox"/>Few, about 很少，大約多久及時間_____</p> <p><input type="checkbox"/>__hour(s)/month 每月__小時</p> <p><input type="checkbox"/>__hour(s)/week 每週__小時</p> <p><input type="checkbox"/>__hour(s)/day 每天__小時</p> <p><input type="checkbox"/>Others 其他_____</p>
<p>9. Riased up by 65+ when you were below 12 years 童年(12歲前)時由 65 歲以上長者扶養</p>	<p><input type="checkbox"/>None 不是</p> <p><input type="checkbox"/>Yes, by _____ for how long _____ 是，_____ 位關係_____ 多久_____</p>
<p>10. Lived with 65+ 曾與 65 歲以上長者居住一起生活過</p>	<p><input type="checkbox"/>None 沒有</p> <p><input type="checkbox"/>Yes, with _____ for how long _____ 是，_____ 位關係_____ 多久_____ 起訖年(月)</p>
<p>11. Getting along with 65+ 與 65 歲以上長者(如祖父母等親戚)關係</p>	<p><input type="checkbox"/>very poor 非常不融洽</p> <p><input type="checkbox"/>poor 不融洽</p> <p><input type="checkbox"/>Fair 普通</p> <p><input type="checkbox"/>Good 融洽</p> <p><input type="checkbox"/>Very good 非常融洽</p>
<p>12. Like to spend time with 65+ 是否喜歡與 65 歲以上長者相處</p>	<p><input type="checkbox"/>Strongly disagree 非常不願意</p> <p><input type="checkbox"/>Disagree 不願意</p> <p><input type="checkbox"/>Don't mind 無所謂</p> <p><input type="checkbox"/>Agree 願意</p> <p><input type="checkbox"/>Strongly agree 非常願意</p>

<p>13. To live with 65+未來與 65 歲以上長者同住意願</p>	<p><input type="checkbox"/> Strongly disagree 非常不願意</p> <p><input type="checkbox"/> Disagree 不願意</p> <p><input type="checkbox"/> Don't mind 無所謂願意</p> <p><input type="checkbox"/> Agree 願意</p> <p><input type="checkbox"/> Strongly agree 非常願意</p>
<p>14. Filial Piety 對『子女應該孝順年長的父母』的看法</p>	<p><input type="checkbox"/> Strongly disagree 非常不同意，因_____</p> <p><input type="checkbox"/> Disagree 不同意，因_____</p> <p><input type="checkbox"/> Don't mind 沒意見，因_____</p> <p><input type="checkbox"/> Agree 同意，因_____</p> <p><input type="checkbox"/> Strongly agree 非常同意，因_____</p>
<p>15. Clinical practice experience with 65+臨床實習接觸老人的經驗</p>	<p><input type="checkbox"/> None 無</p> <p><input type="checkbox"/> Yes, How long 有, 多久_____</p>
<p>16. Clinical practice experience with 65+臨床實習接觸老人的經驗</p>	<p><input type="checkbox"/> Very poor 非常不好</p> <p><input type="checkbox"/> Poor 不好</p> <p><input type="checkbox"/> Fair 普通</p> <p><input type="checkbox"/> Good 好</p> <p><input type="checkbox"/> Very good 非常好</p> <p>Suggestion 相關建議</p> <p>: _____</p>
<p>17. Nursing is my first study choice 護理專業是第一志願</p>	<p><input type="checkbox"/> No, but 不是，但讀護理因_____</p> <p><input type="checkbox"/> Yes, because 是，因_____</p>

<p>18. Working in GN after graduation 畢業後從事老人護理工作意向</p>	<p><input type="checkbox"/> Strongly disagree 非常不願意</p> <p><input type="checkbox"/> Disagree 不願意</p> <p><input type="checkbox"/> Don't mind 無所謂</p> <p><input type="checkbox"/> Agree 願意</p> <p><input type="checkbox"/> Strongly agree 非常願意</p>
<p>19. Please arrange 1-12 for your preferences for future work 請排序 1-12 未來最想工作的護理工作單位</p>	<p><input type="checkbox"/> Aged care institute 老人照護中心 ER 急診室</p> <p><input type="checkbox"/> Critical care nursing 重症監護或特殊單位</p> <p><input type="checkbox"/> Home care nursing 居家護理</p> <p><input type="checkbox"/> Medical/surgical nursing 內外科護理</p> <p><input type="checkbox"/> Midwifery 婦產科護理</p> <p><input type="checkbox"/> Nurse anesthetist 麻醉科護理</p> <p><input type="checkbox"/> Oncology nursing 腫瘤科護理</p> <p><input type="checkbox"/> Operating room nursing 開刀房護理</p> <p><input type="checkbox"/> Paediatric ward 兒科病房</p> <p><input type="checkbox"/> Psychiatric nursing 精神科護理</p> <p><input type="checkbox"/> Public health nursing 公共衛生護理</p> <p><input type="checkbox"/> Other 其他</p>
<p>20. The most three important factors for choosing GN as future career 請排序 (1~3) 前三項因素影響妳(你)未來選擇從事老人護理</p>	<p><input type="checkbox"/> GN theory class 老人護理教學方式</p> <p><input type="checkbox"/> GN clinical practice experience 老人護理實習經驗</p> <p><input type="checkbox"/> Experience with 65+ 過去跟 65 歲以上長者相處的經驗</p> <p><input type="checkbox"/> Teachers or clinical preceptors(Role model) 學校及臨床帶教老師的影響</p> <p><input type="checkbox"/> Peer group 受同學的影響</p> <p><input type="checkbox"/> Suggestion by parents or family 父母及家人的建議</p> <p><input type="checkbox"/> Preference 自己的喜好</p> <p><input type="checkbox"/> Working environment 工作環境</p> <p><input type="checkbox"/> Salary 薪資結構及升遷</p>

	<input type="checkbox"/> Society factor and social value 社會需求及對老人護理價值增加 <input type="checkbox"/> Other 其他_____
21.Family working in nursing 家人從事護理相關工作	<input type="checkbox"/> None 無 <input type="checkbox"/> Yes, related to GN 是，與老人護理相關工作機構_____ <input type="checkbox"/> Yes, not related to GN 是，與老人護理無關
22.Evaluation of GN taught subject 對目前“老年護理”教學的評價	<input type="checkbox"/> NA 不適用 <input type="checkbox"/> Very poor 非常不滿意 <input type="checkbox"/> Poor 不滿意 <input type="checkbox"/> Fair 普通 <input type="checkbox"/> Good 滿意 <input type="checkbox"/> Very good 非常滿意
23.Evaluation of GN clinical practice 對目前“老年護理”臨床實習安排的評價	<input type="checkbox"/> NA 不適用 <input type="checkbox"/> Very poor 非常不滿意 <input type="checkbox"/> Poor 不滿意 <input type="checkbox"/> Fair 普通 <input type="checkbox"/> Good 滿意 <input type="checkbox"/> Very good 非常滿意

Part B:

Directions: Circle the LETTER on the scale following each statement, according to the following key, that is closest to your opinion of old people.

主要測量你對老人的態度，共有 34 題，請你依照：非常不同意(A)、不同意(B)、有點不同意(C)、有點同意(D)、同意(E)、非常同意(F)的方式給予每個題目你的意見。

Item 項目	Strongly disagree 非常不同意	disagree 不同意	Slightly Disagree 有點不同意	Slightly Agree 有點同意	Agree 同意	Strongly agree 非常同意
1N. Older adults should live in special residences. 老年人應該居住於特殊的住所。	A	B	C	D	E	F
2N. Older adults are different. 老年人是不同的。	A	B	C	D	E	F
3N. Older adults are unable to change. 老年人是無法做出改變或讓步的。	A	B	C	D	E	F
4N. Older adults quit work when they become pensioners. 老年人一旦符合退休資格後便會離開職場。	A	B	C	D	E	F
5N. Older adults have shabby homes. 老年人的住所都是髒亂破舊不堪的。	A	B	C	D	E	F
6N. Wisdom does not come with advancing age. 年齡增長不代表比較有智慧。	A	B	C	D	E	F
7N. Older adults have too much influence in society. 老年人在社會上的影響力太大。	A	B	C	D	E	F
8N. Older adults make others feel ill at ease. 老年人容易讓別人感覺不舒服。	A	B	C	D	E	F
9N. Older adults bore others with their stories. 老年人總訴說著讓人容易感到無趣的陳年往事。	A	B	C	D	E	F
10N. Older adults are always prying into the affairs of others. 老年人總喜歡探聽別人的隱私。	A	B	C	D	E	F
11N. Older adults have irritating faults. 老年人容易因為一點小錯就發脾氣。	A	B	C	D	E	F
12N. Older adults have a negative influence on a neighborhood. 老年人容易對於街坊鄰居有不好的觀感。	A	B	C	D	E	F
13N. Older adults are much alike. 老年人都很像。	A	B	C	D	E	F
14N. Older adults are untidy. 老年人都不修邊幅，很邋邋。	A	B	C	D	E	F
15N. Older adults are irritable, grouchy and unpleasant. 老年人脾氣不好、愛抱怨，對人也總是不客氣。	A	B	C	D	E	F
16N. Older adults complain about the young. 老年人總看年輕人不順眼。	A	B	C	D	E	F
17N. Older adults have excessive demands for love. 老年人極度渴望被關愛。	A	B	C	D	E	F

Item 項目	Strongly disagree 非常不同意	disagree 不同意	Slightly Disagree 有點不同意	Slightly Agree 有點同意	Agree 同意	Strongly agree 非常同意
1P. Older adults should live integrated with the young. 老年人應該與年輕人住在一起。	A	B	C	D	E	F
2P. Older adults are no different from anyone else. 老年人與所有人一樣，沒有不同。	A	B	C	D	E	F
3P. Older adults are capable of new adjustment. 老年人是有能力/可以作出調整及改變的。	A	B	C	D	E	F
4P. Older adults prefer to work as long as they can. 只要他們還有能力，老年人也希望能一直工作。	A	B	C	D	E	F
5P. Older adults have clean, attractive homes. 老年人的家通常乾淨舒適。	A	B	C	D	E	F
6P. Older adults grow wiser with advancing age. 老年人的智慧隨著年齡的增長而增加。	A	B	C	D	E	F
7P. Older adults should have more power in society. 老年人在社會上應該有較多的影響力。	A	B	C	D	E	F
8P. Older adults are relaxing to be with. 老年人是很容易相處的。	A	B	C	D	E	F
9P. It is nice when older adults speak about their past. 當老年人分享著他們過去的經歷時，是件很好的事。	A	B	C	D	E	F
10P. Older adults mind their own business. 老年人很注意他們自己的本分與責任。	A	B	C	D	E	F
11P. Older adults have the same faults as the young. 老年人也會犯和年輕人一樣的錯誤。	A	B	C	D	E	F
12P. Neighborhoods are nice when integrated with older adults. 和老年人打成一片的街坊鄰居是很好的。	A	B	C	D	E	F
13P. Older adults are different from one another. 每一個老年人都是一個個體，沒有人是一模一樣的。	A	B	C	D	E	F
14P. Older adults are clean and neat. 老年人是乾淨的，是讓人感到舒服的。	A	B	C	D	E	F
15P. Older adults are cheerful, agreeable and good-humored. 老年人是樂觀的，好溝通的，也有良好的幽默感。	A	B	C	D	E	F
16P. Older adults seldom complain about the young. 老年人很少對年輕人有所抱怨。	A	B	C	D	E	F
17P. Older adults need no more love than others. 老年人需要的關愛與其他人一樣。	A	B	C	D	E	F



The Education University
of Hong Kong Library

For private study or research only.
Not for publication or further reproduction.

Part C: Comment and suggestion 意見及建議

1. What are your thoughts and suggestions about “Geriatric/ Gerontological Nursing”? 對學校老人護理學科的想法及建議?

2. What are your thoughts and suggestions about clinical practice in “Geriatric/ Gerontological Nursing”? 對學校老人護理實習的想法及建議?

3. What are your thoughts about working in “Geriatric/ Gerontological Nursing” setting? 對選擇在老人護理機構工作的想法如何?

4. What are your thoughts about “any factors that would be contributors for working at Geriatric/ Gerontological Nursing in the future”? 你認為哪些因素會增加你未來在老人護理場所工作的意願?

5. What are your suggestions about professional development to encourage more nurses working in GN? 你認為哪些專業發展前景可鼓勵更多護士從事老人護理工作?

*******End of Questionnaire*******

Appendix D: Approval for Data collection from HREC of The Education

University of Hong Kong



17 November 2014

Ms HSU Mei Hua Kerry
Doctor of Education Programme
Graduate School

Dear Ms Hsu,

Application for Ethical Review <Ref. no. 2014-2015-0019>

I am pleased to inform you that approval has been given by the Human Research Ethics Committee (HREC) for your research project:

Project title: Why Don't Nursing Students Like to Work in a Gerontological Setting?

Please note the comments made by the Committee concerning the application in the **Attachment**.

Ethical approval is granted for the project period from 17 November 2014 to 31 July 2015. If a project extension is applied for lasting more than 3 months, HREC should be contacted with information regarding the nature of and the reason for the extension. If any substantial changes have been made to the project, a new HREC application will be required.

Please note that you are responsible for informing the HREC in advance of any proposed substantive changes to the research proposal or procedures which may affect the validity of this ethical approval. You will receive separate notification should a fresh approval be required.

Thank you for your kind attention and we wish you well with your research.

Yours sincerely,



Cherry Ng (Ms)
Secretary
Human Research Ethics Committee

c.c. Professor Dennis McInerney, Chairperson, Human Research Ethics Committee

Appendix E: Approval for Data Collection from Kiang Wu Nursing College of

Macao

申請于澳門鏡湖護理學院進行博士學位課題研究及倫理審查

尊敬的尹一橋院長:

申請及邀請 貴學校的護士學生參加由香港教育學院鍾慧儀教授、汪國成教授及鍾明恩博士負責監督,由博士班學生徐美華女士負責執行的研究計劃,並申請貴學院的倫理審查,研究計畫書請詳見附件。

研究主題:

為何護生不喜歡老年護理?

澳門護生對老人護理的態度、看法及相關因子研究及行動方案

本研究目的為探討澳門護生對從事老人護理工作的態度、看法及相關因子;並運用行動研究中相關策略及方法,以促進更多護士選擇老人護理工作為未來的職業。

調查時間預計為 2014 年十一月至 2015 年三月,參與的護士學生將被邀請參與問卷調查及焦點小組訪談。研究預期結果希望藉由澳門護生對老人護理的態度及想法中,分析相關的因素進而使用行動研究發展相關策略于老人護理課程,以鼓勵更多的護士從事老人護理工作。

倫理考量:所有參與者為自願參與此研究並填立研究同意書,參與者享有充分的權利在任何時候可決定退出這項研究,更不會因此引致任何不良後果。凡有關參與者的個別資料將會於以保密,一切資料的編碼只有研究人員得悉。

如貴學院想獲得更多有關這項研究的資料,請與徐美華女士聯絡,電話+853 6696 6357 或聯絡她的導師鍾慧儀教授,電話+852 2948 6436。

謝謝閣下有興趣參與這項研究。



徐美華
博士生研究員

2014.10.16



徐美華 女士：

閣下向本學院提出有關『澳門護生對老人護理的態度、看法及相關因子研究及行動方案』的研究協助申請，經本學院有關部門商議，同意協助閣下第一階段的研究，並根據第一階段的結果及行動方案而決定是否接受閣下第二階段的研究。請閣下需要做到以下事項：

1. 研究對象知情同意，自由決定是否參與；
2. 研究完成後，需要在半年內提交研究結果或論文至本學院科研委員會；
3. 研究論文中，不能單獨標示本學院的名稱，如要分析學校間差異，需用代號表示。



朱明霞

科研委員會副負責人

澳門鏡湖護理學院

校本部 Main Campus 澳門鏡湖馬路35號地下
Est. Repouso No.35, R/C, Macau
電話 Tel: (853) 8295 6200

望廈校址 Mong Ha Campus 澳門慕拉士大馬路218號A澳門日報大廈13-16樓
Av. de Vençeslau de Morais No.218A, Edif. Cio do Jornal Ou Mun, 13/F-16/F, Macau
電話 Tel: (853) 8590 6300

傳真 Fax: (853) 2836 5204 電郵 E-mail: admin@kwnc.edu.mo 網址 Website: <http://www.kwnc.edu.mo>

**Appendix F: Approval for Data Collection from School of Health Sciences,
Macao Polytechnic Institute**

申請于澳門理工學院高等衛生學校進行博士學位研究資料收集許可

尊敬的劉明校長:

申請及邀請貴學校的澳門護士學生參加由香港教育學院鍾慧儀教授、汪國成教授及鍾明恩博士負責監督,由博士班學生徐美華女士負責執行的研究計劃,研究計畫書請詳見附件。

研究主題:

為何護生不喜歡老年護理?

護生對老人護理的態度、看法及相關因子研究及行動方案

本研究目的為探討澳門護生對從事老人護理工作的態度、看法及相關因子;並運用行動研究中相關策略及方法,以促進更多護士選擇老人護理工作為未來的職業。

調查時間預計為 2014 年十一月至 2015 年三月,參與的護士學生將被邀請參與問卷調查及焦點小組訪談。研究預期結果希望藉由澳門護生對老人護理的態度及想法中,分析相關的因素進而使用行動研究發展相關策略于老人護理課程,以鼓勵更多的護士從事老人護理工作。

倫理考量: 所有參與者為自願參與此研究並填立研究同意書,參與者享有充分的權利在任何時候可決定退出這項研究,更不會因此引致任何不良後果。凡有關參與者的個別資料將會於以保密,一切資料的編碼只有研究人員得悉。

如貴學院想獲得更多有關這項研究的資料,請與徐美華女士聯絡,電話+853 6696 6357 或聯絡她的導師鍾慧儀教授,電話+852 2948 6436。

謝謝閣下有興趣參與這項研究。

徐美華
博士生研究員

2014.10.30

於2014年10月30日听取ISS

PSC 委員同意徐老师在平略
遵守所述伦理考量之情况在來
校抄位学生收集资料。

2014.11.5



Appendix G: A set of documents for main study

THE HONG KONG INSTITUTE OF EDUCATION Graduate School CONSENT TO PARTICIPATE IN RESEARCH Why don't nursing students like to work in a gerontological setting?

I _____ hereby consent to participate in the captioned research conducted by HSU, Mei Hua Kerry, who is a doctorate student of the Graduate School in The Hong Kong Institute of Education, and supervised by Prof. CHUNG, Wai Yee Joanne, Prof. WONG, Kwok Shing Thomas and Dr. CHUNG, Ming Yan Louisa.

I understand that information obtained from this research may be used in future research and may be published. However, my right to privacy will be retained, i.e., my personal details will not be revealed.

The procedure as set out in the **attached** information sheet has been fully explained. I understand the benefits and risks involved. My participation in the project is voluntary.

I acknowledge that I have the right to question any part of the procedure and can withdraw at any time without negative consequences.

Name of participant

Signature of participant

Date

INFORMATION SHEET- Questionnaire

Why don't nursing students like to work in a gerontological setting?

You are invited to participate in a project conducted by Miss HSU, Mei Hua Kerry, who is a doctorate student of the Graduate School in The Hong Kong Institute of Education and supervised by Prof. CHUNG, Wai Yee Joanne, Prof. WONG, Kwok Shing Thomas and Dr. CHUNG, Ming Yan Louisa.

The overall purpose of this study is to explore views, attitudes and related factors which influence student nurses toward working in geriatric settings and to suggest solutions encouraging more nurses to work in gerontological settings in Macao.

Procedure: You are invited to answer attached questionnaire which will take your time for 30~60 minute to complete. This questionnaire contains a number of questions related to your perception and attitude towards working in gerontological setting. There is no *right* way of answer. It depends on what suits your own style and your perception. It is accordingly important that you answer for each question as honestly as you can.

You have every right to withdraw from the study at any time without negative consequences. All information related to you will be remained confidential and identified by codes with limited access by researchers only.

If you have any concerns about the conduct of this research study, please do not hesitate to contact the Human Research Ethics Committee by email at hrec@ied.edu.hk or by mail to Research and Development Office, The Hong Kong Institute of Education (Tel:+852 2948-6318).

If you would like to obtain more information about this study, please contact Miss HSU, Mei Hua Kerry at telephone number [REDACTED] or their supervisor Prof. CHUNG, Wai Yee Joanne at telephone number +852 2948 6436.

Thank you for your interest in participating in this study.

HSU, Mei Hua Kerry
Student Investigator

有關資料-問卷調查

為何護生不喜歡老人護理？

護生對老人護理的態度、看法及相關因子研究及行動研究改善方案

誠邀閣下參加由香港教育學院博士班學生徐美華女士負責執行並由鍾慧儀教授、汪國成教授及鍾明恩博士負責監督的研究計劃。

本研究目的為探討澳門護生對從事老人護理工作的態度、看法及相關因子；並建議相關策略及方法以促進更多護士選擇老人護理工作為未來的職業。

步驟：妳(你)將需利用 30-60 分鐘回答附件中的問卷，問卷的問題主要是了解澳門護生對老人護理工作的態度及看法。每題問題並沒有標準答案，所以請選出最合適你心意的答案。

閣下享有充分的權利在任何時候決定退出這項研究，更不會因此引致任何不良後果。凡有關閣下的資料將會保密，一切資料的編碼只有研究人員得悉。

如閣下對這項研究有任何意見，可隨時與香港教育學院人類實驗對象操守委員會聯絡(電郵：hrec@ied.edu.hk；電話：+852 2948 6318；地址：香港教育學院研究與發展事務處)。

如閣下想獲得更多有關這項研究的資料，請與徐美華女士聯絡，電話 [REDACTED] 或聯絡她/他們的導師鍾慧儀教授，電話 +852 2948 6436。

謝謝閣下有興趣參與這項研究。

徐美華
博士生研究員

香港教育學院
研究生院

參與研究同意書

為何護生不喜歡老人護理？
護生對老人護理的態度、看法及相關因子研究及行動研
究改善方案

本人_____同意參加由香港教育學院博士班學生徐美華女士負責執行及由鍾慧儀教授、汪國成教授及鍾明恩博士負責監督，的研究計劃。

本人理解此研究所獲得的資料可用於未來的研究和學術發表。然而本人有權保護自己的隱私，本人的個人資料將不能洩漏。本人對所附資料的有關步驟已經得到充分的解釋。本人理解可能會出現的風險。本人是自願參與這項研究。

本人理解我有權在研究過程中提出問題，並在任何時候決定退出研究，更不會因此引致任何不良後果

參加者姓名：

參加者簽名：

日期：



Questionnaire:

This questionnaire contains three parts (8 pages) which will take your time about 30 to 60 minutes. There is no right way for each question. It depends on what suits your own thought.

問卷內容:

本分問卷共有三部分，需要利用妳(你)約 30-60 分鐘，每道問題並沒有標準答案，請依照妳(你)本身的想法選出最合適的答案。

Part A: Background 背景資料

1. Year of birth 出生年	19_____
2. Gender 性別	<input type="checkbox"/> Male 男 <input type="checkbox"/> Female 女
3. Education 教育程度	<input type="checkbox"/> BSN Year I 本科 1 年級 <input type="checkbox"/> BSN Year II 本科 2 年級 <input type="checkbox"/> BSN Year III 本科 3 年級 <input type="checkbox"/> BSN Year IV 本科 4 年級 <input type="checkbox"/> Others 其他_____
4. Religion 宗教信仰	<input type="checkbox"/> None 無 <input type="checkbox"/> Buddhist 佛教 <input type="checkbox"/> Taoism 道教 <input type="checkbox"/> Christian 基督教 <input type="checkbox"/> Catholic 天主教 <input type="checkbox"/> Muslim 回教 <input type="checkbox"/> Others 其他_____
5. Family status 目前居住狀況	<input type="checkbox"/> Living with parents and sibling 小家庭(與父母及手足同住) <input type="checkbox"/> Living with grand-parents with parents and sibling 三代同堂(與祖父母、父母及手足同住) <input type="checkbox"/> Others 其他 _____
6. Living with 65+ 目前家中 65 歲以上長者	<input type="checkbox"/> None 沒有 <input type="checkbox"/> Yes 是 Person(s)幾位 _____ Relation 關係 _____ From 開始年(月)_____
7. Neighbor with 65+ 目前鄰居 65 歲以上長者	<input type="checkbox"/> None 沒有 <input type="checkbox"/> Yes 有 Person(s)幾位_____



<p>8. Time with 65+ within 5 years 五年內與 65 歲以上長者的相處時間</p>	<p><input type="checkbox"/> Never 沒有</p> <p><input type="checkbox"/> Rarely (less than once a year) 很少(一年一次或更少)</p> <p><input type="checkbox"/> Occasionally (1-3 times a year) 偶爾(一年三次或更多)</p> <p><input type="checkbox"/> Frequency (once a month) 很常(每月一次)</p> <p><input type="checkbox"/> Very frequently (1-2 times a week) 很頻繁(每星期一~二次)</p> <p><input type="checkbox"/> Every day 每天</p>
<p>9. Rised up by 65+ when you were below 12 years 童年(12 歲前)時由 65 歲以上長者扶養</p>	<p><input type="checkbox"/> None 不是</p> <p><input type="checkbox"/> Yes 是</p> <p>By whom 誰及關係 _____</p> <p>How long 多久 _____</p>
<p>10. Lived with 65+ 曾與 65 歲以上長者居住一起生活過</p>	<p><input type="checkbox"/> None 沒有</p> <p><input type="checkbox"/> Yes 是</p> <p>Person(s) 幾位 _____</p> <p>Relation 關係 _____</p> <p>How long 多久 _____</p>
<p>11. Getting along with 65+ 與 65 歲以上長者(如祖父母等親戚)關係</p>	<p><input type="checkbox"/> Very poor 非常不融洽</p> <p><input type="checkbox"/> Poor 不融洽</p> <p><input type="checkbox"/> Fair 普通</p> <p><input type="checkbox"/> Good 融洽</p> <p><input type="checkbox"/> Very good 非常融洽</p>
<p>12. Like to spend time with 65+</p>	<p><input type="checkbox"/> Strongly disagree 非常不願意</p> <p><input type="checkbox"/> Disagree 不願意</p> <p><input type="checkbox"/> Don't mind 無所謂</p>

<p>是否喜歡與 65 歲以上長者相處</p>	<p><input type="checkbox"/> Agree 願意</p> <p><input type="checkbox"/> Strongly agree 非常願意</p>
<p>13. To live with 65+ 未來與 65 歲以上長者同住意願</p>	<p><input type="checkbox"/> Strongly disagree 非常不願意</p> <p><input type="checkbox"/> Disagree 不願意</p> <p><input type="checkbox"/> Don't mind 無所謂願意</p> <p><input type="checkbox"/> Agree 願意</p> <p><input type="checkbox"/> Strongly agree 非常願意</p>
<p>14. Filial Piety 對『子女應該孝順年長的父母』的看法</p>	<p><input type="checkbox"/> Strongly disagree 非常不同意，因_____</p> <p><input type="checkbox"/> Disagree 不同意，因_____</p> <p><input type="checkbox"/> Don't mind 沒意見，因_____</p> <p><input type="checkbox"/> Agree 同意，因_____</p> <p><input type="checkbox"/> Strongly agree 非常同意，因_____</p>
<p>15. Clinical practice experience with 65+ 臨床實習接觸老人的經驗</p>	<p><input type="checkbox"/> None 無</p> <p><input type="checkbox"/> Yes 有</p> <p>How long 多久_____</p>
<p>16. Clinical practice experience with 65+ 臨床實習接觸老人的經驗</p>	<p><input type="checkbox"/> Very poor 非常不好</p> <p><input type="checkbox"/> Poor 不好</p> <p><input type="checkbox"/> Fair 普通</p> <p><input type="checkbox"/> Good 好</p> <p><input type="checkbox"/> Very good 非常好</p> <p>Suggestion 相關建議</p> <p>: _____</p>
<p>17. Nursing is my first study choice</p>	<p><input type="checkbox"/> No, but 不是，但讀護理因_____</p>

<p>護理專業是第一志願</p>	<p><input type="checkbox"/> Yes, because 是，因</p> <hr/>
<p>18. Working in GN after graduation 畢業後從事老人護理工作意向</p>	<p><input type="checkbox"/> Strongly disagree 非常不願意</p> <p><input type="checkbox"/> Disagree 不願意</p> <p><input type="checkbox"/> Don't mind 無所謂</p> <p><input type="checkbox"/> Agree 願意</p> <p><input type="checkbox"/> Strongly agree 非常願意</p>
<p>19. Please arrange 1-12 for your preferences for future work 請排序 1-12 未來最想工作的護理工作單位</p>	<p><input type="checkbox"/> Aged care institute 老人照護中心</p> <p><input type="checkbox"/> Critical care nursing 重症監護或特殊單位</p> <p><input type="checkbox"/> Community and public health nursing 社區及公共衛生護理</p> <p><input type="checkbox"/> Medical/surgical nursing 內外科護理</p> <p><input type="checkbox"/> Midwifery 婦產科護理</p> <p><input type="checkbox"/> Nurse anesthetist 麻醉科護理</p> <p><input type="checkbox"/> Oncology nursing 腫瘤科護理</p> <p><input type="checkbox"/> Operating room nursing 開刀房護理</p> <p><input type="checkbox"/> Paediatric ward 兒科病房</p> <p><input type="checkbox"/> Psychiatric nursing 精神科護理</p> <p><input type="checkbox"/> ER 急診室</p> <p><input type="checkbox"/> Others- Hotel or institution 其他-酒店或機構</p>
<p>20. The most three important factors for choosing GN as future career</p>	<p><input type="checkbox"/> GN theory class 老人護理教學方式</p> <p><input type="checkbox"/> GN clinical practice experience 老人護理實習經驗</p> <p><input type="checkbox"/> Experience with 65+ 過去跟 65 歲以上長者相處的經驗</p> <p><input type="checkbox"/> Teachers or clinical preceptors(Role model) 學校及臨床帶教老師的影響</p> <p><input type="checkbox"/> Peer group 受同學的影響</p> <p><input type="checkbox"/> Suggestion by parents or family 父母及家人的建議</p>

<p>請排序(1~3)</p> <p>前三項因素影響妳(你)未來選擇從事老人護理</p>	<p><input type="checkbox"/>Preference 自己的喜好</p> <p><input type="checkbox"/>Working environment 工作環境</p> <p><input type="checkbox"/>Salary 薪資結構及升遷</p> <p><input type="checkbox"/>Society factor and social value 社會需求及對老人護理價值增加</p> <p><input type="checkbox"/>Other 其他_____</p>
<p>21.Family working in nursing</p> <p>家人從事護理相關工作</p>	<p><input type="checkbox"/>None 無</p> <p><input type="checkbox"/>Yes, related to GN 是，與老人護理相關工作機構_____</p> <p><input type="checkbox"/>Yes, not related to GN 是，與老人護理無關</p>
<p>22.Evaluation of GN taught subject</p> <p>對目前“老年護理”教學的評價</p>	<p><input type="checkbox"/>NA 不適用</p> <p><input type="checkbox"/>Very poor 非常不滿意</p> <p><input type="checkbox"/>Poor 不滿意</p> <p><input type="checkbox"/>Fair 普通</p> <p><input type="checkbox"/>Good 滿意</p> <p><input type="checkbox"/>Very good 非常滿意</p>
<p>23.Evaluation of GN clinical practice</p> <p>對目前“老年護理”臨床實習安排的評價</p>	<p><input type="checkbox"/>NA 不適用</p> <p><input type="checkbox"/>Very poor 非常不滿意</p> <p><input type="checkbox"/>Poor 不滿意</p> <p><input type="checkbox"/>Fair 普通</p> <p><input type="checkbox"/>Good 滿意</p> <p><input type="checkbox"/>Very good 非常滿意</p>

Part B:

Directions: Circle the LETTER on the scale following each statement, according to the following key: (A) Strongly disagree, (B) Disagree, (C) Slightly disagree, (D) Slightly agree, (E) Agree, (F) Strongly agree, that is closest to your opinion of old people.

主要測量你對老人的態度，共有 34 題，請你依照：非常不同意(A)、不同意(B)、有點不同意(C)、有點同意(D)、同意(E)、非常同意(F)的方式給予每個題目你的意見。

Item 項目	Strongly disagree 非常不同意	Disagree 不同意	Slightly disagree 有點不同意	Slightly agree 有點同意	Agree 同意	Strongly agree 非常同意
1. Older adults should live in special residences. 老年人應該居住於特殊的住所。	A	B	C	D	E	F
2. Older adults are different. 老年人是不同的。	A	B	C	D	E	F
3. Older adults are unable to change. 老年人是無法做出改變或讓步的。	A	B	C	D	E	F
4. Older adults quit work when they become pensioners. 老年人一旦符合退休資格後便會離開職場。	A	B	C	D	E	F
5. Older adults have shabby homes. 老年人的住所都是髒亂破舊不堪的。	A	B	C	D	E	F
6. Wisdom does not come with advancing age. 年齡增長不代表比較有智慧。	A	B	C	D	E	F
7. Older adults have too much influence in society. 老年人在社會上的影響力太大。	A	B	C	D	E	F
8. Older adults make others feel ill at ease. 老年人容易讓別人感覺不舒服。	A	B	C	D	E	F
9. Older adults bore others with their stories. 老年人總訴說著讓人容易感到無趣的陳年往事。	A	B	C	D	E	F
10. Older adults are always prying into the affairs of others. 老年人總喜歡探聽別人的隱私。	A	B	C	D	E	F
11. Older adults have irritating faults. 老年人容易因為一點小錯就發脾氣。	A	B	C	D	E	F
12. Older adults have a negative influence on a neighborhood. 老年人容易對於街坊鄰居有不好的觀感。	A	B	C	D	E	F
13. Older adults are much alike. 老年人都很像。	A	B	C	D	E	F
14. Older adults are untidy. 老年人都不修邊幅，很邋遢。	A	B	C	D	E	F
15. Older adults are irritable, grouchy and unpleasant. 老年人脾氣不好、愛抱怨，對人也總是不客氣。	A	B	C	D	E	F
16. Older adults complain about the young. 老年人總看年輕人不順眼。	A	B	C	D	E	F
17. Older adults have excessive demands for love. 老年人極度渴望被關愛。	A	B	C	D	E	F
18. Older adults should live integrated with the young. 老年人應該與年輕人住在一起。	A	B	C	D	E	F
19. Older adults are no different from anyone else. 老年人與所有人一樣，沒有不同。	A	B	C	D	E	F

Item 項目	Strongly disagree 非常不同意	Disagree 不同意	Slightly disagree 有點不同意	Slightly agree 有點同意	Agree 同意	Strongly agree 非常同意
20. Older adults are capable of new adjustment. 老年人是有能力可以作出調整及改變的。	A	B	C	D	E	F
21. Older adults prefer to work as long as they can. 只要他們還有能力，老年人也希望能一直工作。	A	B	C	D	E	F
22. Older adults have clean, attractive homes. 老年人的家通常乾淨舒適。	A	B	C	D	E	F
23. Older adults grow wiser with advancing age. 老年人的智慧隨著年齡的增長而增加。	A	B	C	D	E	F
24. Older adults should have more power in society. 老年人在社會上應該有較多的影響力。	A	B	C	D	E	F
25. Older adults are relaxing to be with. 老年人是很容易相處的。	A	B	C	D	E	F
26. It is nice when older adults speak about their past. 當老年人分享著他們過去的經歷時，是件很好的事。	A	B	C	D	E	F
27. Older adults mind their own business. 老年人很注意他們自己的本分與責任。	A	B	C	D	E	F
28. Older adults have the same faults as the young. 老年人也會犯和年輕人一樣的錯誤。	A	B	C	D	E	F
29. Neighborhoods are nice when integrated with older adults. 和老年人打成一片的街坊鄰居是很好的。	A	B	C	D	E	F
30. Older adults are different from one another. 每一個老年人都是一個個體，沒有人是一模一樣的。	A	B	C	D	E	F
31. Older adults are clean and neat. 老年人是乾淨的，是讓人感到舒服的。	A	B	C	D	E	F
32. Older adults are cheerful, agreeable and good-humored. 老年人是樂觀的，好溝通的，也有良好的幽默感。	A	B	C	D	E	F
33. Older adults seldom complain about the young. 老年人很少對年輕人有所抱怨。	A	B	C	D	E	F
34. Older adults need no more love than others. 老年人需要的關愛與其他人一樣。	A	B	C	D	E	F

Part C: Comment and suggestion 意見及建議

1. What are your thoughts and suggestions about “Geriatric/ Gerontological Nursing”? 對學校老人護理學科的想法及建議?

2. What are your thoughts and suggestions about clinical practice in “Geriatric/ Gerontological Nursing”? 對學校老人護理實習的想法及建議?

3. What are your thoughts about working in “Geriatric/ Gerontological Nursing” setting? 對選擇在老人護理機構工作的想法如何?

4. What are your thoughts about “any factors that would be contributors for working at Geriatric/ Gerontological Nursing in the future”? 你認為哪些因素會增加你未來在老人護理場所工作的意願?

5. What are your suggestions about professional development to encourage more nurses working in GN? 你認為哪些專業發展前景可鼓勵更多護士從事老人護理工作?

*******End of Questionnaire*******