

# Development and effectiveness of a global health competency promotion program for Korean undergraduate nursing students

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## Abstract

**Aim:** This study aimed to assess the effectiveness of a programme designed to promote global health competency among nursing students.

**Design:** It used a randomized pre-post-test comparison group design to compare the effects of a global health competency programme among nursing students.

**Methods:** Data collection for the pre-test was carried out for 2 days (25–26 October 2018) and that of post-test was conducted for 2 days (23–24 December 2018). A total of 38 fourth-year nursing students participated in this study (14 in the international nursing group, 11 in the transcultural nursing group and 13 in the complementary and alternative medicine group). The participants were from the nursing department of a university in Cheongju.

**Results:** There were no statistically significant differences between the groups in the pre-test homogeneity test. The international nursing group showed statistically significant improvements between the pre- and post-tests in global health competency, cultural competency, global health confidence and cultural nursing confidence.

## KEYWORDS

education, global health, global health confidence, nursing, students, transcultural nursing

## 1 | INTRODUCTION

With the recent ongoing global COVID-19 pandemic and the increase in mortality, the importance of healthcare system professionals' global health competency (GHC) is emerging (Peiró et al., 2020). The healthcare system is under statistically significant pressure; nurses are being regularly exposed to an abnormal and stressful environment. Additionally, increased international mobility and focus on health inequalities have fuelled a recent worldwide interest in global health and nursing. Nurses are now asked to contribute more directly to addressing global health issues, amid calls for a greater focus on understanding cultural diversity and minimizing health disparities across diverse cultural backgrounds (MacNeil & Ryan, 2013). They need global health competencies to understand

the perspectives, values and behaviours of patients and provide the necessary care for the maintenance, promotion and recovery of health among care recipients with diverse social and cultural backgrounds (Wilson et al., 2014). With an increase in globalization, awareness of the importance of international health has intensified among healthcare professionals, policymakers and practitioners (Wilson et al., 2016). Moreover, the GHC of nurses has become an important topic for multicultural clients from diverse population groups and cultural backgrounds. A focus on the global health competencies of nurses suggests that nursing education can no longer be confined to regional or national health issues and must also consider global health concerns. Poverty, terrorism, health care and environmental issues are common challenges for all countries and require international cooperation (Park & Cho, 2016). While some

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research has focussed on how the nursing curriculum can strengthen multicultural competencies, there is insufficient agreement on the requisite global health competencies for nurses, despite the shared focus on international health among healthcare professionals and practitioners. Although professionals may disagree on the specific nursing competencies needed in global health, the undergraduate curriculum must enable nurses to develop international health capabilities (Clark et al., 2016), such as the ability to actively respond to domestic and international environmental changes (Lee et al., 2015), understanding a patient's culture, disease and health, and possessing knowledge of how increasing GHC is an effective solution for reducing health and medical inequalities (Wilson et al., 2016). As a result, a programme is urgently needed to promote the global health competencies among nursing students and meet the needs of international patients from diverse cultural backgrounds (Clark et al., 2016; Edwards, 2015; Kang et al., 2020).

## 2 | BACKGROUND

Mirroring worldwide trends, Korean society has become increasingly multicultural. In 2018, multicultural marriages accounted for 8.3% of the total marriages, and multicultural births increased to 5.2% of total births in Korea (Statistics Korea, 2018). In 2016, there were 203 nursing education institutions in Korea, and awareness of domestic and foreign health changes was emphasized as one of the important programmes for learning outcomes of nursing education. A 2016 survey of the Korean Curriculum of Global Health Education showed that 39.8% of nursing colleges had an international nursing course (Choi et al., 2016). Nursing education programmes in Korea provide high-quality training for a preliminary specialist but lack training on international health capabilities. At the undergraduate level, there are no opportunities for systematic education in international health, and there is a lack of educational institutions that provide international health education programmes due to various difficulties such as cost (Wilson et al., 2016). Nursing students need to be exposed to international health education programmes during their training to be competent as future international health workers who can understand, supervise and evaluate the specificity of international health programmes and international health standards.

Global health is defined as a theoretical and practical area aimed at promoting health and securing equity for all people around the world (Koplan et al., 2009). In the late 2000s, efforts to develop global health competencies in the education of healthcare professionals in other fields were made. In this context, GHC refers to the global health core competency required for nursing students (Koplan et al., 2009; Wilson et al., 2012, 2016). However, there is a lack of understanding of the global health competencies of nursing students. Additionally, academicians have difficulty planning and delivering lectures related to international nursing because they have difficulty finding learning materials that will also be suitable for individual country characteristics-based nursing. Therefore, nursing educators should actively search for, evaluate and use strategies

to provide nurses with high-quality international health competencies (Long, 2014). Through systematic education and training, nursing students would become the primary international health practitioners. To reinforce the global health competencies of nursing students, experiencing dealing with people from various cultures through on-the-job training is important. Although nursing students meet with multicultural patients in clinical practice, finding a role model of multicultural nursing in the ranks of clinical nurses is difficult. Moreover, few Korean colleges provide courses specifically designed to improve the global health competencies of nurses, and there is a dearth of reports on the contents of the courses, or the strategies employed by them (Hwang et al., 2015).

A systematic review exploring the effectiveness of a GHC improvement programme for nursing students found that such programmes increased cultural competency and multicultural self-efficacy among them (Kang et al., 2020). Cultural competence is a key factor of healthcare professionals to provide culturally responsive care to people from diverse cultural backgrounds, which is the current need of the hour (Forss et al., 2019; Safipour et al., 2017). Global health confidence is the level of confidence in nursing students to provide global health nursing services to patients, and cultural nursing confidence refers to the level of confidence in providing nursing based on a patient's cultural background. Nursing students often must care for people with diverse cultural backgrounds in clinical practice. Therefore, they need pedagogical intervention so that culturally diverse people do not have difficulties. These interventions will build confidence in global nursing and cultural nursing among them (Forss et al., 2019; Kang et al., 2020).

Metacognition refers to the ability to understand and operate one's own cognitive process, which refers to the self-evaluation process of thinking about one's own thought, the process of the thinking, the perceived result, the actual result of thinking and the thinking that gave the result (Flavell, 1979). Learning strategies are used to improve learning skills effectively. This is called a beam-processing strategy. Effective learners are actively involved in the learning process through self-regulation (Zimmerman, 1986). Thus, metacognition and learning strategies can be considered for the promotion of GHC in nursing students.

Since nurses are professionals who understand the specificity of international health programmes and international health standards, they can contribute to primary health care as practitioners who focus on behaviour modification through improved awareness (Lee, 2004). Studies have been conducted in many countries to verify the effects of improving the global health competencies of nurses and nursing students. However, continuously developing and applying various educational programmes to keep up with the changing global trends is necessary (Hwang et al., 2015; Kang et al., 2020).

To grow as international health practitioners, nursing students need sustainable educational programmes. However, in Korea, research about global health competencies for nurses is scarce barring research on the global health capacity-building programme. Thus, the purpose of this study was to examine the effects of programmes designed to promote global health competencies for undergraduate

Korean nursing students. The results of this study can be used as basic data for global health leadership by substantiating the need to provide support and financial resources for the association of the global nursing curriculum and the commencement of courses related to global health at nursing universities.

## 2.1 | Hypotheses

"The international nursing group, the transcultural nursing group, and the complementary and alternative medicine group:

1. Demonstrate statistically significant differences in GHC before and after the programme.
2. Display statistically significant differences in cultural competency before and after the programme.
3. Demonstrate statistically significant differences in global health confidence before and after the programme.
4. Illustrate statistically significant differences in cultural nursing confidence before and after the programme."

## 3 | THE STUDY

### 3.1 | Design

This study used a randomized pre-post-test comparison group design to examine the effects of a programme designed to promote GHC among nurses on measures of GHC, cultural competency, global health confidence and cultural nursing confidence.

### 3.2 | Method

#### 3.2.1 | Data collection

Prior to enrolment in courses, students were randomly assigned to three courses by a random number generator in Microsoft Excel at the end of August 2018. Fourth-year nursing students were exposed to clinical practice immediately after the commencement of the second semester, and they were notified about the recruitment of participants 1 week before returning to the classroom. Participants were recruited via an online board for 1 week, beginning on 22 October 2018. Recruited participants received an orientation to the research that included a verbal explanation of the study purpose and method, and how to respond to the online questionnaires. The participants had the right to refuse to participate in the study, there would be no advantage or disadvantage incurred by participating in the study, the post-test would be conducted after the completion of the 8-week programme and they could stop participating in the study whenever they wished, even after participating in the pre-test. They were also told that participation in the research would not impact their course grades. Data collection for the pre-test was carried out for 2 days

(25–26 October 2018). The questionnaire was administered via an online system. Orientation materials and directions for completing the online survey were provided on an online board. For 8 weeks, the international nursing group participated in the GHC promotion programme, the cultural nursing group participated in the transcultural nursing programme and the complementary and alternative medicine group participated in the complementary and alternative medicine programme. Post-test questionnaires were submitted via the online system after the programme was completed. Data collection for the post-test was conducted for 2 days (23–24 December 2018).

#### 3.2.2 | Participants

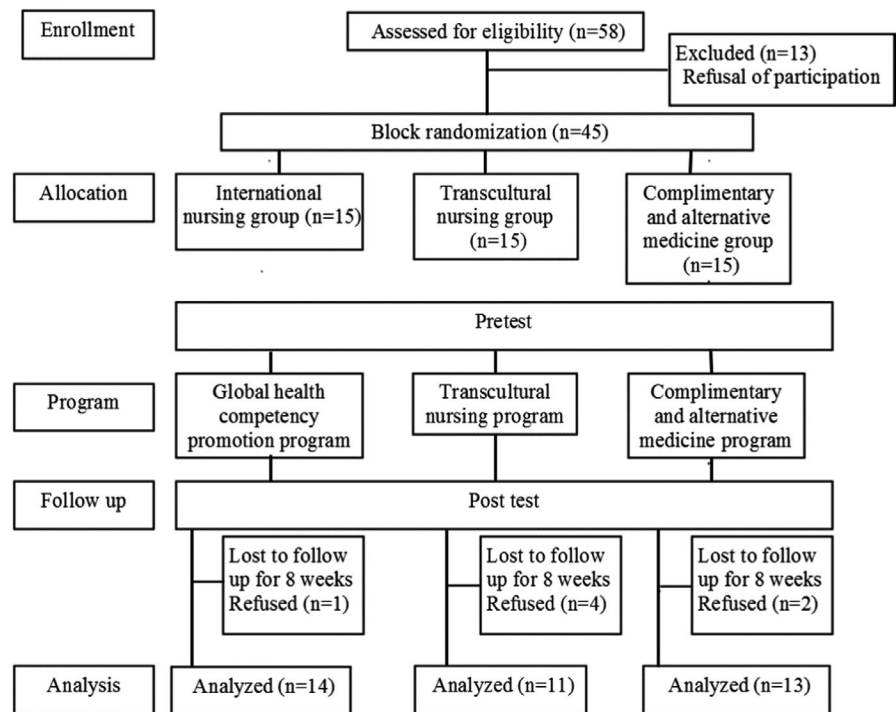
The participants of this study were fourth-year students in the nursing department of a university in the city of Cheongju, who took part in the following lectures: international nursing, transcultural nursing and complementary and alternative medicine. Previous consent was obtained after explaining that three courses were randomly assigned to them and not individually selected for the subject. After explaining the purpose and method of the study to the students, the pre-test questionnaire was distributed to 43 students who agreed to participate. Based on Kim's (2013) study of the development and effectiveness of a cultural competency building programme, the sample size for this study was calculated for an expected effect size of 1.95, alpha of 0.05 and power of 0.99, for a two-tailed test and a one-way ANOVA. The required sample size was 36 (12 participants each for the three groups). Assuming a dropout rate of 20%, 45 participants (15 in each group) were considered. Ultimately, five participants, who did not answer the post-test, were excluded from the study. Thus, 38 participants finally participated in the study, and the dropout rate was 11.6% (Figure 1).

#### 3.2.3 | Variables

##### *Global health competency*

Global health competency is a key competency for promoting the health, safety and well-being of the local and international population (Lee et al., 2015). In this study, GHC was measured using a tool adapted by Lee et al. (2015) to survey nursing professors in Korea and was based on a measure used by US nursing professors to assess the GHC of nursing students (Wilson et al., 2012). The data were obtained with the consent of the authors. The tool consisted of six sections and 24 competencies: three items on the international society's burden of diseases; six items on the impact of immigration, travel and migration on health; five on the social and environmental determinants of health; three on the globalization of health and health care; five on health care in resource-poor environments; and two on health as a basic component of human rights and development resource. Each item was measured on a 4-point Likert scale from 1 (unlikely) to 4 (very likely), with a higher score indicating higher GHC. In this study, Cronbach's  $\alpha$  was 0.91.

**FIGURE 1** The CONSORT flow diagram



#### *Cultural competency*

Cultural competency is an ongoing process to achieve the ability to work effectively in culturally diverse groups and communities based on detailed awareness, specific knowledge, refined skills and personal and professional respect for cultural attributes of similarities and differences (Suh, 2004). It was measured using a tool adapted by (Park et al., 2011), who translated questions measuring cultural activities from the Caffrey Cultural Competence in Healthcare Scale developed by Caffrey et al. (2005) and the cultural competence assessment developed by Schim et al. (2003). The tool consisted of four subsections and 42 questions: 10 items on cultural receptivity, 10 on cultural knowledge, six on cultural recognition and 14 on cultural activity. Each question was measured using a 5-point Likert scale from 1 point (very unlikely) to 5 points (very likely), with a higher score indicating higher cultural competency. In this study, Cronbach's  $\alpha$  was 0.93.

#### *Global health confidence*

Global health confidence is the level of confidence of nursing students in providing global health nursing to patients. It focuses on the social determinants of health and includes individuals and populations, nursing practice, research, education, leadership, advocacy, and policy initiatives, and references beliefs that nursing can be practised with respect to ethics, human dignity, human rights and cultural diversity (Mendes et al., 2018). In this study, the global health confidence of nursing students was measured using a visual analogue scale (VAS) with 0 point (very unconfident) and 10 points (very confident). The participants were asked, "How do you feel about your global health confidence?" to which they answered by marking a number from 0–10 on the scale. A higher score indicates a higher confidence in global health.

#### *Cultural nursing confidence*

Cultural nursing confidence reflects the level of confidence in providing cultural nursing to nursing subjects. It was measured using a VAS with 0 point (very underconfident) and 10 points (very confident). The participants were asked, "How do you feel about your cultural nursing confidence?" and answered by marking a number from 0–10 on the scale. Higher scores indicate a higher confidence in cultural nursing.

#### *Metacognition*

Metacognition refers to a person's ability to understand and manipulate their cognitive processes and to change their way of thinking about a topic (Flavell, 1979). In this study, metacognition was measured using a tool comprising 52 items, developed by Jeong (2017), which is a translation of the metacognitive awareness inventory (MAI) developed by Schraw and Dennison (1994). The tool consists of two sections: 17 items for cognitive knowledge and 35 for cognitive control. It uses a Likert scale from 1 point (very unlikely) to 6 points (very likely), and a higher score refers to higher metacognition. In this study, the Cronbach's  $\alpha$  was 0.90 for metacognitive knowledge and 0.94 for metacognitive control, and the Cronbach's  $\alpha$  of the entire instrument was 0.96.

#### *Learning strategy*

Learning strategy refers to various types of information processing strategies to efficiently improve learning ability (Zimmerman, 1986). The learning strategy scale used in this study was developed by Jeong (2017) and is a 46-item modified version of the Korean translation (translated by Heo, 2011) of the Motivated Strategies for Learning Questionnaire (Pintrich, 1991). The learning strategy scale consists of four subsections, including four items on superficial cognitive strategy,

15 on depth-cognitive strategy, 12 on metacognitive strategy and 15 on resource management strategy. The original 7-point Likert scale was converted to a 5-point Likert scale, and six negative questions were reverse-coded prior to analysis. The scores ranged from 1 (very unlikely) to 5 (very likely), and a higher score indicated a greater usage of learning strategies. In this study, Cronbach's  $\alpha$  for each section was 0.64 for superficial cognitive strategy, 0.85 for in-depth-cognitive strategy, 0.69 for metacognitive strategy and 0.71 for resource management strategy, respectively. Cronbach's  $\alpha$  for the entire tool was 0.91.

### 3.2.4 | Development of a programme to promote global health competency and others

The GHC promotion programme was designed specifically for this study to help nursing students understand general nursing matters in a global health context, gain awareness of their ability to contribute to global health through their global health competencies and comprehend practices of global health and nursing. The GHC model (Ablah et al., 2014) was used as a framework for the GHC promotion programme components: capacity strengthening, collaboration, partnering, ethical reasoning and professional practice, health equity and social justice, programme management, socio-cultural and political awareness and strategic analysis. It was an 8-week programme (100 min for each session, conducted once a week). The participants were divided into small groups of three or four. They learned new content in each session and had group discussions based on what they had learned in that session. The researcher provided discussion topics to participants before class, and participants conducted group discussions after class based on what they learned. During the 8 weeks and eight sessions, group presentations were made thrice. The discussion topics were (a) the global disease burden; (b) a comparison of changes in healthcare policies in the United States, Japan, Canada, France, Germany and Korea; and (c) planning of global health projects including a demand survey, the necessity of global cooperative development projects, objectives, and goals, and achievement assessment via indicators, performance management and other mechanisms (Table 1). They discussed the topic and summarized the discussion using post-it notes and pens on a 3M board in the form of a presentation.

The transcultural nursing programme was designed to improve the health and quality of life of multicultural patients in Korea by understanding multicultural society and their cultural background and to cultivate transcultural nursing capabilities by learning about health problems and nursing. Complementary and alternative medicine programmes were designed to apply independent nursing interventions in the nursing field by understanding and exploring the overall theory, application and research on various complementary and alternative therapies. The contents of the programme for each week of transcultural nursing and complementary and alternative medicine are presented in Appendix 1.

The difference between the GHC promotion programme and the other programmes was that the transcultural nursing programme and complementary and alternative medicine programme consisted

only of lectures, whereas the GHC promotion programme consisted of lectures, group discussions and project-based learning methods.

## 3.3 | Analysis

The data were analysed using IBM SPSS Statistics (version 25.0). Participant characteristics were analysed based on frequency, percentage, mean and standard deviation. The variables for this study were analysed based on the mean, standard deviation and lowest-highest value. The normality test was conducted using the Shapiro-Wilk test because of the small sample size. A test of homogeneity of the participant characteristics and the study variables before the programme operation revealed no statistically significant differences among the three groups, which satisfied the normality assumption. To test the hypotheses, the differences in the study variables from pre- to post-test were analysed using a one-way ANOVA, and post-tests were conducted via a Scheffé test. The statistical significance level was  $p < .05$  for all results.

## 4 | RESULTS

### 4.1 | Characteristics of the participants

The average age of the participants in this study was  $23.45 \pm 0.86$  years. Five students (13.2%) had international aid experience during their time at the university, and two (5.3%) had international nursing experience. The grade point average of the participants in the previous semester was  $3.66 \pm 0.37$ . Twenty students (52.6%) had a grade point average that was greater than the average of 3.7. The mean for metacognition was  $221.97 \pm 30.38$ , and the mean for learning strategy was  $157.16 \pm 19.88$ . There were no statistically significant differences among the three groups in the homogeneity pre-test (Table 2).

### 4.2 | Global health competency, cultural competency, global health confidence and cultural nursing confidence

The mean of GHC was  $62.16 \pm 8.96$  (range: 44–87), cultural competency was  $131.76 \pm 19.83$  (range: 84–170), global health confidence was  $5.00 \pm 2.13$  (range: 1–10) and cultural nursing confidence was  $5.13 \pm 2.32$  (range: 1–10). The homogeneity of the dependent variables in the pre-test of the three groups was the same (Table 3).

### 4.3 | Hypotheses testing

The GHC of the international nursing group significantly increased from  $59.14 \pm 5.63$  points before the programme to  $74.57 \pm 10.13$  points after the programme, and that of the transcultural

**TABLE 1** Global health competency promotion programme

Session	Contents	Pedagogy strategies	Time
1	<ol style="list-style-type: none"> <li>1. Introduction of the program</li> <li>2. Organization of small group and making ground rules</li> <li>3. Understanding of global health and nursing               <ol style="list-style-type: none"> <li>(i) Concepts and necessities of globalization, health and global health</li> <li>(ii) Global health equity and health determinants</li> </ol> </li> </ol>	Lecture Interaction among learners	100 min
2	<ol style="list-style-type: none"> <li>1. Global health and SDGs</li> <li>2. Global health governance</li> <li>3. International nursing competency               <ol style="list-style-type: none"> <li>(i) Global health competency</li> <li>(ii) Cultural competency</li> </ol> </li> </ol>	Lecture Questions and group discussion	100 min
3	<ol style="list-style-type: none"> <li>1. Global disease burden               <ol style="list-style-type: none"> <li>(i) Maternal and child health</li> <li>(ii) Global health environment</li> <li>(iii) Non-communicable disease</li> <li>(iv) Communicable disease</li> </ol> </li> </ol>	Lecture Questions and group discussion Group presentation	100 min
4	<ol style="list-style-type: none"> <li>1. Changes in healthcare policy and domestic policy in each country (United States, Japan, Canada, France, Germany)</li> </ol>	Questions and group discussion Homework: Healthcare policy Group presentation	100 min
5	<ol style="list-style-type: none"> <li>1. Global health strategy and policy               <ol style="list-style-type: none"> <li>(i) International health leadership and networking</li> <li>(ii) Strengthen healthcare system</li> <li>(iii) Build partnership</li> </ol> </li> </ol>	Lecture Questions and group discussion	100 min
6	<ol style="list-style-type: none"> <li>1. Practice of global health: Examples of international development cooperation               <ol style="list-style-type: none"> <li>(i) Vietnam happiness program: Community health promotion program</li> <li>(ii) Kyrgyzstan migrant village community-based preventive centre health promotion project</li> <li>(iii) Peruvian urban poor women's self-sustaining health family self-help centre establishment project</li> <li>(iv) Global health professional course</li> <li>(v) Global professional health outreach</li> </ol> </li> </ol>	Lecture Questions and group discussion	100 min
7	<ol style="list-style-type: none"> <li>1. Health strategy and policy               <ol style="list-style-type: none"> <li>(i) Planning global health projects</li> <li>(ii) Global health planning process</li> <li>(iii) A logical model as a planning framework for global nursing care</li> </ol> </li> </ol>	Lecture Questions and group discussion	100 min
8	<ol style="list-style-type: none"> <li>1. Planning and discussion of global health projects               <ol style="list-style-type: none"> <li>(i) Demand survey: health level, health system, external system</li> <li>(ii) Necessity of global cooperative development projects, objectives and goals</li> <li>(iii) Strategic and detailed planning                   <ol style="list-style-type: none"> <li>a. Indicators according to goals</li> <li>b. Definition of indicators, frequency of indicator measurement</li> <li>c. Methods of measurement: Baseline and target values</li> <li>d. Means of performance verification</li> </ol> </li> </ol> </li> </ol>	Questions and group discussion Homework: Planning global health projects Group presentation	100 min

nursing group and the complementary and alternative medicine group increased by  $0.55 \pm 8.26$  and  $4.31 \pm 12.02$  points, respectively ( $F = 7.45$ ,  $p = .002$ ). In the post-analysis, the international nursing group showed a significantly greater improvement in GHC than the transcultural nursing and complementary and alternative medicine groups. There was no statistically significant difference in the improvement in GHC between the transcultural nursing and

complementary and alternative medicine groups. The first hypothesis was supported by the fact that the global health competencies of the three groups showed differences before and after the programme (Table 4).

The differences in the transcultural nursing and complementary and alternative medicine groups before and after the programme were  $13.73 \pm 21.24\%$  and  $11.69 \pm 32.77$ , respectively. In the

TABLE 2 Characteristics of the participants and homogeneity among the groups (N = 38)

Characteristics	Total (N = 38)	International nursing (N = 14)	Transcultural nursing (N = 11)	Complementary and alternative medicine (N = 13)	$\chi^2$ or F	p
Age (year)	<23.5	10 (71.4)	8 (72.7)	7 (53.8)	0.36	.700 <sup>a</sup>
	≥23.5	4 (28.6)	3 (27.3)	6 (46.2)		
	M (SD)	23.57 (1.02)	23.27 (0.47)	23.46 (0.97)		
Gender	Male	2 (14.3)	0 (0.0)	1 (7.7)	1.53	.763 <sup>b</sup>
	Female	12 (85.7)	11 (100.0)	12 (92.3)		
Foreign residence for more than 1 month	No	12 (85.7)	7 (63.6)	9 (69.2)	1.82	.423 <sup>b</sup>
	Yes	2 (14.3)	4 (36.4)	4 (30.8)		
Foreign friend	No	13 (92.9)	6 (54.5)	8 (61.5)	5.47	.065 <sup>b</sup>
	Yes	1 (7.1)	5 (45.5)	5 (38.5)		
Overseas service experience	No	13 (92.9)	9 (81.8)	11 (84.6)	0.94	.715 <sup>b</sup>
	Yes	1 (7.1)	2 (18.2)	2 (15.4)		
International health experience	No	14 (100.0)	10 (90.9)	12 (92.3)	1.54	.522 <sup>b</sup>
	Yes	2 (5.3)	1 (9.1)	1 (7.7)		
English language ability	<5	6 (42.9)	3 (27.3)	5 (38.5)	0.51	.603 <sup>a</sup>
	≥5	8 (57.1)	8 (72.7)	8 (61.5)		
Grade	M (SD)	4.79 (1.67)	5.45 (1.69)	5.08 (1.55)	0.88	.422 <sup>a</sup>
	<3.7	8 (57.1)	4 (36.4)	6 (46.2)		
Meta cognition	≥3.7	6 (42.9)	7 (63.6)	7 (53.8)	0.16	.860 <sup>a</sup>
	M (SD)	3.66 (0.37)	3.7 (0.3)	3.7 (0.3)		
Learning strategy	<222	7 (50.0)	5 (45.5)	6 (46.2)	0.63	.540 <sup>a</sup>
	≥222	7 (50.0)	6 (54.5)	7 (53.8)		
Learning strategy	M (SD)	221.97 (30.38)	225.27 (27.25)	222.92 (39.98)	0.63	.540 <sup>a</sup>
	<157.2	8 (57.1)	2 (18.2)	5 (38.5)		
Learning strategy	≥157.2	6 (42.9)	9 (81.8)	8 (61.5)	156.69 (25.84)	
	M (SD)	157.16 (19.88)	162.45 (10.64)	156.69 (25.84)		

<sup>a</sup>One-way ANOVA.<sup>b</sup>Fisher's exact test.

**TABLE 3** Descriptive statistics of the outcome variables and homogeneity of the outcome variables among the groups (N = 38)

Variable	Item	Scale	M (SD)	Min-Max	International nursing (N = 14)	Transcultural nursing (N = 11)	Complementary and alternative medicine (N = 13)	F	p
Global health competency	24	4	62.16 (8.96)	44-87	59.14 (5.63)	65.00 (7.28)	63.00 (12.25)	1.44	.251
Cultural competency	42	5	131.76 (19.83)	84-170	123.07 (12.84)	142.00 (16.05)	132.46 (25.19)	3.15	.055
Global health confidence	1	10	5.00 (2.13)	1-10	4.21 (2.39)	5.91 (1.45)	5.08 (2.140)	2.08	.141
Cultural nursing confidence	1	10	5.13 (2.32)	1-10	4.14 (2.51)	6.27 (1.42)	5.23 (2.39)	2.89	.069

post-analysis, the international nursing group showed a significantly greater improvement in cultural competency than the transcultural nursing and complementary and alternative medicine groups ( $F = 3.40, p = .045$ ). There was no statistically significant difference in the improvement in cultural competency between the transcultural nursing and complementary and alternative medicine groups. The second hypothesis was supported by the fact that the cultural competencies of the three groups showed differences before and after the programme (Table 4).

The global health confidence of the international nursing group significantly increased by  $2.36 \pm 2.21$ , from  $4.21 \pm 2.39$  before the programme to  $6.57 \pm 1.65$  after the programme. The changes in global health confidence for the transcultural nursing and complementary and alternative medicine groups were  $-0.09 \pm 1.58$  and  $0.15 \pm 2.08$ , respectively. In the post-analysis, the international nursing group showed a significantly greater improvement in global health confidence than the transcultural nursing and complementary and alternative medicine groups ( $F = 5.98$  and  $p = .006$ ), and there was no statistically significant difference in the change in global health confidence between the transcultural nursing group and the complementary and alternative medicine groups. The third hypothesis was supported by the fact that the global health competencies of the three groups showed differences before and after the programme (Table 4).

The cultural nursing confidence of the international nursing group significantly increased by  $2.21 \pm 2.33$  points, from  $4.14 \pm 2.51$  points before the programme to  $6.36 \pm 1.78$  points after the programme. Difference in the cultural nursing confidence before and after the programme was  $0.73 \pm 1.42$  in the transcultural nursing group and  $0.46 \pm 1.56$  in the complementary and alternative medicine group. In the post-analysis, the international nursing group showed a significantly greater improvement in cultural nursing confidence than the transcultural nursing and complementary and alternative medicine groups, and no statistically significant difference in the improvement in cultural nursing confidence between the transcultural nursing and complementary and alternative medicine groups was noted. The fourth hypothesis was supported by the fact that the cultural nursing confidence of the three groups showed differences before and after the programme (Table 4).

## 5 | DISCUSSION

With the recent developments across the world, people have become aware of the necessity and importance of global health competencies (Kang et al., 2020). This study examined the GHC, cultural competency, global health confidence and cultural nursing confidence of nursing students after participating in a programme designed to promote GHC. This study developed a programme based on the GHC model proposed by Ablah et al. (2014), which was developed specifically for this study as an 8-week programme that included three to four small group discussions. In the future, the programme will include additional programmatic components, such as invited lectures, online topic discussions, videos and communication via mass media. The



**TABLE 4** Comparisons of the outcome variables after global health competency promotion programme among the groups ( $N = 38$ )

Variable	Time	International nursing ( $N = 14$ )	Transcultural nursing ( $N = 11$ )	Complementary and alternative medicine ( $N = 13$ )	<i>F</i>	<i>p</i> (scheffe)
		Mean ( <i>SD</i> )				
Global health competency	Pre-test	59.14 (5.63)	65.00 (7.28)	63.00 (12.25)	7.45 ( $a > b, c$ ) <sup>†</sup>	.002
	Post-test	74.57 (10.13)	65.55 (11.11)	67.31 (10.38)		
	Difference (post-pre)	15.43 (9.65) <sup>a</sup>	0.55 (8.26) <sup>b</sup>	4.31 (12.02) <sup>c</sup>		
Cultural competency	Pre-test	123.07 (12.84)	142.00 (16.05)	132.46 (25.19)	3.40 ( $a > b, c$ ) <sup>†</sup>	.045
	Post-test	159.00 (23.29)	155.73 (19.51)	144.15 (30.16)		
	Difference (post-pre)	35.93 (23.92) <sup>a</sup>	13.73 (21.24) <sup>b</sup>	11.69 (32.77) <sup>c</sup>		
Global health confidence	Pre-test	4.21 (2.39)	5.91 (1.45)	5.08 (2.140)	5.98 ( $a > b, c$ ) <sup>†</sup>	.006
	Post-test	6.57 (1.65)	5.82 (2.14)	5.23 (2.28)		
	Difference (post-pre)	2.36 (2.21) <sup>a</sup>	-0.09 (1.58) <sup>b</sup>	0.15 (2.08) <sup>c</sup>		
Cultural nursing confidence	Pre-test	4.14 (2.51)	6.27 (1.42)	5.23 (2.39)	3.50 ( $a > b, c$ ) <sup>†</sup>	.041
	Post-test	6.36 (1.78)	7.00 (1.48)	5.69 (1.93)		
	Difference (post-pre)	2.21 (2.33) <sup>a</sup>	0.73 (1.42) <sup>b</sup>	0.46 (1.56) <sup>c</sup>		

<sup>†</sup>Post hoc : Scheffe test.

<sup>a</sup>International nursing.

<sup>b</sup>Transcultural nursing.

<sup>c</sup>Complementary and alternative medicine.

results of this study suggest that the educational programme is short but effective. It should be emphasized that the programme was developed in Korea, where there are few opportunities for nursing students to participate in a programme designed to promote GHC. The programme can be used as a basis for the development and evaluation of related GHC promotion programmes in the future. Clark et al. (2016) presented 12 global health competencies needed for nursing education: global burden of disease, travel and migration, determinants of health, environmental factors, cultural competency, communication, health systems/delivery, professionalism/ethics, social justice/human rights, partnership/collaboration, management skills and key players. In the future, it would be desirable to consider these factors when constructing GHC programmes for nursing students.

Participants in the programme had no prior experience with courses related to global health. Among the 38 participants in the study, 26.3% had never lived in another country for more than 1 month, and 28.9% had at least one foreign friend. The proportion of participants with overseas volunteer experience in university life was 13.2%, and 5.3% of the total participants had an experience of international nursing. Hwang et al. (2015) reported that 51.8% of the undergraduates in their study did not take courses related to other cultures, and only 36.1% of students had the opportunity to interact with other cultures in Korea. These results suggest that there is little or no literature related to cultural or global health competencies in Korean nursing education programmes. Thus, there is a need for practical and comprehensive education in the global health competencies of Korean nursing students. Prior research has also suggested that international health research is not integrated into the curriculum in many nursing education programmes, and the curriculum

does not prepare health professionals to meet international health needs (Bradbury-Jones, 2009). Training health professionals, such as nurses, on global health competencies improves health outcomes and reduces health inequalities. The GHC improvement programme is positive for the cultural competency and multicultural self-efficacy of nurses and nursing students. Therefore, nursing educators should make efforts to ensure that a GHC promotion programme is operated in the undergraduate curriculum and encourage nursing students to cultivate self-efficacy that can provide nursing appropriate to each country's characteristics (Kang et al., 2020). However, for the GHC promotion programme to be widely used and ultimately change the nurses' behaviour and attitudes towards global health, further research is needed with larger sample sizes to provide stronger empirical evidence to support such programmes.

In this study, the global health competencies of the experimental group that received the programme were significantly higher than those of the other two groups. In Kim's study (2018), the GHC was 2.72 out of 4, which was lower than the 3.1 points achieved in the post-intervention group in the current study. The higher the global citizenship of nursing students, the higher their global health competencies (Kim, 2018). We might assume that the difference between these two scores was due to the GHC promotion programme. Based on the current findings, reinforcing global citizenship in developing international health competence education programmes for nursing students is necessary. Furthermore, using convergence education methods using diverse media rather than lecture-oriented methods is essential (Kim & Han, 2018).

The cultural competency of the experimental group that received the GHC programme was significantly higher than that of the other

two groups. The average cultural competency score after the intervention was 2.97. Using the same scale, Chae et al. (2012) found that the cultural competence of nurses was 2.57, which was lower than that in this study. The difference is likely due to efforts made to improve nursing education and increase the cultural capacity of nursing students. The GHC promotion programme particularly promoted the comparison and discussion of health policy changes in various countries. Cultural competency refers to the nursing students' proficiency in foreign languages, experiences in other cultures, hospital organizational resources, and professional nurses' autonomy and job performance to influence nurses' capabilities, rather than their personal characteristics. It is recommended that factors affecting the cultural competency of nursing students should be identified. Kim (2013) implemented an educational programme for cultural competency among nursing students and found that it was effective in improving transcultural self-efficacy, intercultural communication competence and state anxiety. These findings should be considered when developing a GHC promotion programme. As the literature on nursing students is scarce, stimulating the discussion of cultural competency among nursing students is necessary.

The global health confidence of the experimental group that participated in the GHC promotion programme was also higher than that of the other two groups. The global health confidence of nursing students is a self-assessment tool. If students systematically learn about global health with their own competencies, it is likely that doing so will improve their global health confidence. These findings suggest that recognizing the importance of education in improving the global health competencies of nursing students is essential. Moreover, competency-based education be provided to improve the global health of healthcare professionals is recommended (Gruppen et al., 2012).

The results of this study are statistically significant in confirming the effectiveness of the GHC programme. In this study, after applying the GHC programme to nursing students, GHC, cultural competency, global health confidence and cultural nursing confidence increased. These results were supported by a study by Kang et al. (2020) that GHC improvement programmes influence multicultural self-efficacy and cultural competence. In the future, variables for GHC improvement should be further identified, and further studies should be conducted on the characteristics of these variables.

Cultural nursing confidence was also noted to be higher in the experimental group that received the GHC promotion programme. The measure of cultural nursing confidence used in this study is not a measure of cultural competency but a measure of self-perceived confidence. As the programme participants discussed overall global health and the comparison of healthcare policies across countries, they may have gained an increased understanding of other countries and confidence in their abilities to understand other cultures. If nursing students have a better understanding of other cultures and are confident in their understanding, then they may be more likely to promote GHC. Future GHC programmes would require finding ways to enhance this effect.

One of the learning outcomes that nursing students should achieve before graduation is the ability to recognize changes in healthcare

policies both at home and abroad. This implies that the nursing community is no longer constrained to the domestic context but has expanded into the international community. In this regard, nursing students should be able to use their capacity as health professionals in the international community after graduation. In addition to majors, multidisciplinary curriculum development is required for nursing students, and basic research is also required to achieve the desired outcome. In this study, a GHC promotion programme for nursing students was developed with little domestic research on the GHC of Korean nursing students. Further follow-up studies are required to determine the impact of efforts to increase the GHC of nursing students.

## 5.1 | Limitations

A limitation of this study is that nursing students were recruited from in a particular geographic region by using a convenience sampling method; hence, the results cannot be generalized to other geographic regions or nursing programmes.

## 6 | CONCLUSION

The results of implementing a GHC promotion programme for nursing students indicated that the programme was effective in improving global health competencies, cultural competency, global health confidence and cultural nursing confidence. The programme focussed on promoting GHC, understanding international health and overall nursing, international disease burdens, international health strategies and policies. It also aimed at fostering international nursing competencies that nurses can use to contribute to international health. Therefore, it is recommended that this educational programme should be expanded and implemented more widely. Additionally, GHC is not a single educational programme, workshop or overseas experience, but a continuous effort, in which nurses with global health competencies continue to improve. In this study, the effects of the programme were evaluated immediately after the end of the education programme. However, evaluating whether GHC is maintained and improved after a long period of time is necessary. This study confirmed that continuous development and application of various educational programmes are necessary for the promotion of GHC in nursing students. To generalize the research results, repeating the study using quasi-experimental design methods and randomly selecting participants is necessary.

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## CONFLICTS OF INTEREST

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## AUTHOR CONTRIBUTIONS

Study design: M-K Cho; Data collection: M-K Cho, M Choi; Data analysis: M-K Cho; Manuscript writing: M-K Cho, M Choi.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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## APPENDIX 1

### The contents of transcultural nursing and complementary and alternative medicine

Contents				
Session	Transcultural nursing	Complementary and alternative medicine	Pedagogy strategies	Time
1	1. Introduction of the program 2. Understanding of multiculturalism (i) The concept of culture and multiculturalism (ii) Transition to a multicultural society (iii) Background of entry into a multicultural society	1. Introduction of the program 2. Overview of complementary and alternative medicine (i) The concept of complementary and alternative medicine (ii) History of complementary and alternative medicine (iii) Complementary and alternative medicine and nursing practice	Lecture	100 min
2	1. Culture and adaptation (i) Multicultural Theory (ii) Multicultural terminology 2. Globalization and multiculturalism (i) The meaning of globalization (ii) History of world population migration (iii) Migration and cultural conflict	1. Traditional complementary medicine (i) Meridian therapy (ii) Moxibustion (iii) Hand acupuncture therapy (iv) Cupping therapy	Lecture	100 min
3	1. Understanding of Korean multicultural society (i) Current status of multiculturalism (ii) The problem of multicultural society 2. Understanding of multicultural society in other countries (i) Current status of multiculturalism in other countries (ii) The problem of multicultural society in other countries	1. Mind and body therapy (i) Overview of mind and body (definition, historical background, basic principles and effects, nursing intervention, etc.) (ii) DanJeon breathing (iii) Laughter therapy	Lecture	100 min
4	1. Multicultural society and policy (i) Multicultural laws and systems (ii) Multicultural policy in Korea (health care, social welfare, education, etc.) 2. Multicultural families and adaptation	1. Mind and body therapy (i) Relaxation therapy with guided imagery (ii) Music therapy (iii) Humor therapy (iv) Meditation (v) Biofeedback, etc.	Lecture	100 min

Contents				
Session	Transcultural nursing	Complementary and alternative medicine	Pedagogy strategies	Time
5	1. Communication with a multicultural society	1. Natural remedies (i) Overview of natural remedies (definition, historical background, basic principles and effects, nursing intervention, etc.) (ii) Aromatherapy	Lecture	100 min
6	1. Understanding the environment of immigrant countries (i) United States of America (ii) Canada (iii) Australia (iv) England (v) France (vi) Germany (vii) Japan (viii) China	1. Natural remedies (i) Dietotherapy (ii) Horticultural therapy	Lecture	100 min
7	1. Health problems and health management in a multicultural society (i) Health approach in multicultural society (ii) Health approach by life cycle (iii) Cultural competence and health (iv) Health problems in a multicultural society (marriage migrants, foreign workers, North Korean defectors, international students, refugees, etc.)	1. Manual therapy (i) Overview of manual therapy (definition, historical background, basic principles and effects, nursing intervention, etc.) (ii) Auricular acupressure therapy	Lecture	100 min
8	1. Medical tourism and global healthcare 2. Watch videos of multicultural nursing-related cases and share their impressions	1. Manual therapy (i) Foot reflexology (ii) Kinesio taping	Lecture Discussion	100 min