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The Effectiveness of a Cultural Competence Training Program for Public Health Nurses using Intervention Mapping

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Purpose: This study evaluated the effects of a cultural competence training program for public health nurses (PHNs) using intervention mapping. **Methods:** An embedded mixed method design was used. Forty-one PHNs (experimental: 21, control: 20) and forty marriage migrant women (MMW) (20, in each group) who were provided nursing care by PHN participated in the study. The experimental group was provided with a four-week cultural competence program consisting of an eight hour offline and online course, e-mail newsletters and social networking services (BAND). Transcultural Self-efficacy (TSE) of the PHNs, client-nurse trust, and satisfaction with nursing care of MMW were measured. Ten PHNs in the experimental group were interviewed after the experimental study. **Results:** The experimental group showed a significantly greater improvement in TSE, client-nurse trust, and satisfaction with nursing care than did the control group. Six themes emerged from qualitative data: (a) Recognizing cultural differences, (b) Being interested in the multicultural policy, (c) Trying to communicate in MMW's own language, (d) Providing medical information using internet and smart phone, (e) Embracing culturally diverse people into society, and (f) Requiring ongoing cultural competence training. **Conclusion:** Cultural competence training enabled PHNs to provide culturally competent care and contribute to MMW's health outcomes.

Key Words: Cultural competency, Public health nurses, Education

INTRODUCTION

Recently, the Korean society is rapidly increasing in number of foreigners with different races, languages and nationalities due to globalization, expansion of foreign labor force and international marriage. The number of foreigners residing in Korea reached about 1.9 million by 2015 composing, reaching about 3.7% of the total population [1], suggesting that Korean society, which used to be a homogeneous nation and mono-culturalism society, has been transformed into a multi- ethnic and multicultural society. Korea's multicultural show policies have a different perspective from those of the Western of countries with a long immigrant history, as the West have led immigrants to gradually be gradually socialized and integrated based upon equality. Policies driven by the Korean government prioritize mainly encourage female marriage immigrants, who are the first settled immigrants, focusing on learning Korean language, childbirth and childcare in order to help them assimilate quickly in domestic families [2]. Community public health institutions such as public health centers and public health clinics have also provided health care services to marriage migrant women (MMW) and their families, mainly within this policy framework.

The multicultural phenomenon and policy of Korean society has increased the opportunities for nurses in the field to provide nursing services to multicultural beneficiaries, and emphasized the necessity of providing nursing services considering the diverse cultural background of foreign patients. Culture is a value, a belief, a norm and a way of life that is learned and shared, affecting the decisions and actions of members of society [3]. Therefore, the

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cultural background of clients affects the interpretation of the individual's health, illness perception and disease experience, as well as health behavior, communication within the health care system, and healthcare service use patterns [4]. In particular, cultural and language barriers between nurses and clients have negative effects on communication and confidence formation, resulting in dissatisfaction and non-compliance of nursing services, which is referred to as a limitation of achieving the health outcomes of multicultural groups [5]. Migrants residing in Korea have few opportunities to take advantage of healthcare services due to language barriers and lack of understanding of the healthcare system. They have also been treated unfairly because of health care professionals' prejudices and discrimination against different cultures with the lack of knowledge and understanding of cultural diversity [6]. In fact, nurses in the field of practice have not been systematically educated about cultural nursing care in past nursing education courses, and they have been suffering from language barriers while unable to understand the cultural needs of their clients [6,7].

In the United States and Canada, both with a longer multicultural history than Korea, national standards and guidelines for nursing and health care for culturally diverse people have been well developed. They recommend that nurses in all practical areas require receiving continuous and regular education [8-10]. Therefore, in Korea, based on the cultural beliefs, behaviors and demands of the clients and the community, it is necessary to improve nursing and professional education so that nurses become culturally competent to perform safe and fair nursing based on evidence and client- and family-centered care [8,9].

Although cultural competence of domestic nurses is reported to be relatively low [11,12], the provision of training programs to strengthen cultural competence is still insufficient. In a recent study on community nurses in Korea, more than 80% of visiting nurses and community health practitioners have provided nursing services to MMW. However, opportunities for participating in multicultural education were low for visiting nurses (22.0%) and community health practitioners (14.3%) [12]. In addition, it has been pointed out that in home health care services, there is a lack of practical guidance for the provision of nursing care for MMW, along with insufficient standardized nursing intervention training for culturally diverse clients [12]. In the case of cultural education for community health practitioners, it is reported that the content is mainly focused on cultural sensitivity, and education related to cultural knowledge and behavior, which is another component of cultural competence, has not been done [11]. Intervention studies on domestic cultural competence [13-16] are at an early stage and no intervention studies have been attempted on cultural competence programs for public health nurses that provide primary health care services in the community.

It is essential to enhance the cultural competence of public health nurses in order to improve the effects of systematic health care services for culturally diverse clients and families and to promote health equity for them. Thus, this study verified the effectiveness of the cultural competence training program developed by reflecting multicultural phenomenon in the Korean community and the work of public health nurses.

The hypotheses for evaluating the effectiveness of the program are as follows.

- Hypothesis 1. The public health nurses in the experimental group receiving the cultural competence training program will have a higher TSE score than the control group.
- Hypothesis 2. The culturally diverse clients receiving nursing care by public health nurses in the experimental group will have a higher client-nurse trust score than the control group.
- Hypothesis 3. The culturally diverse clients receiving nursing care by public health nurses in the experimental group will have a higher nursing satisfaction score.

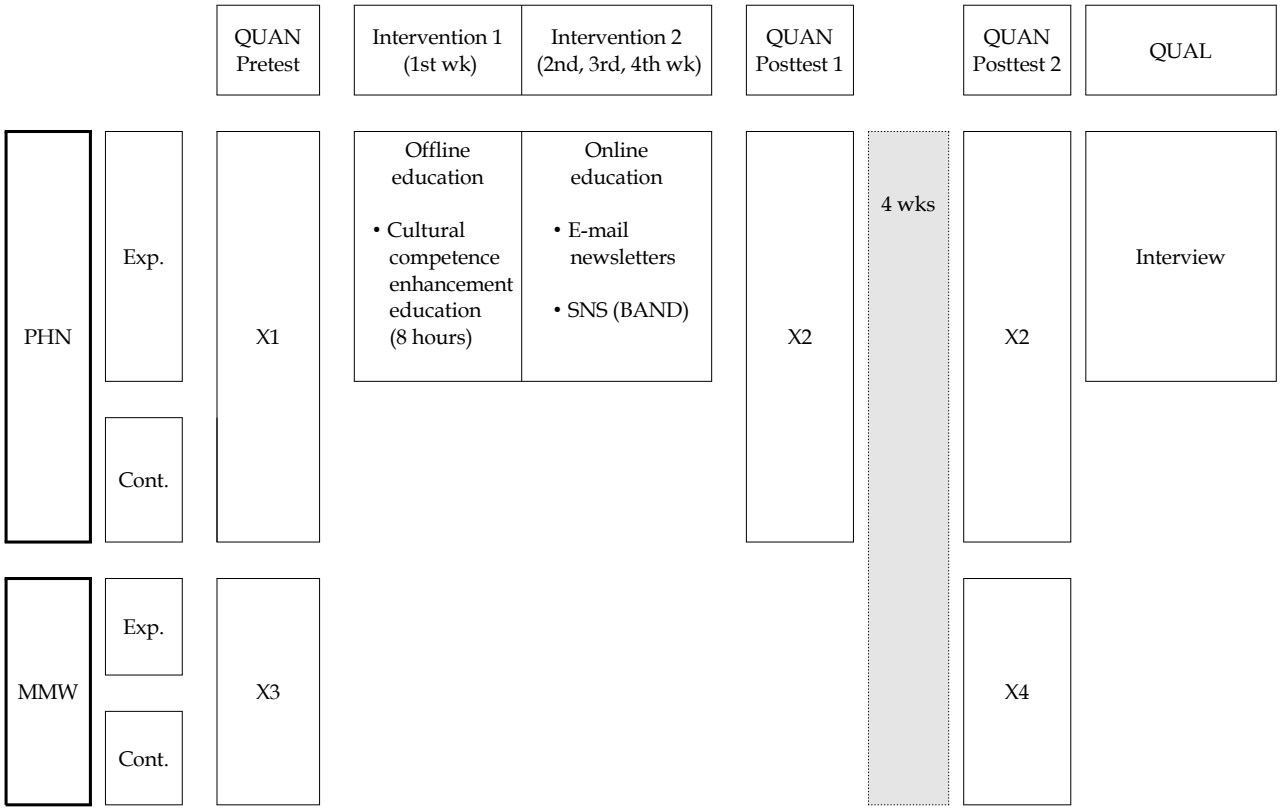
METHODS

1. Design

An embedded mixed method design was used [17] in which qualitative data is embedded within a major design of the non-equivalent control group pretest-posttest design (Figure 1). The outcomes of cultural competence training program for public health nurses were examined through the experimental method. The processes, such as how participants respond to the results were evaluated by obtaining detail views from participants additionally through qualitative data.

2. Participants and Settings

The participants of this study were public health nurses and culturally diverse clients who agreed to volunteer to participate in the study with an understanding of the purpose of this study. The inclusion criteria of the participants were public health nurses; (i) working in a public health center or a branch clinic of the public health center, (ii)



QUAN=quantitative; QUAL=qualitative; PHN=public health nurses; MMW=marriage migrant women; Exp.=experimental group; Cont.=control group; X1=Sociodemographic characteristics, Characteristics of multicultural experience, Transcultural Self-Efficacy; X2=Transcultural Self-Efficacy; X3=Sociodemographic characteristics, Proficiency in Korean, Client-Nurse trust, Satisfaction with nursing care; X4=Client-Nurse trust, Satisfaction with nursing care.

Figure 1. Study design.

never received cultural competence training, (iii) staying abroad less than six months, and (iv) providing nursing services such as maternal health, vaccinations, and visiting health care to culturally diverse clients. MMW, who have two times more nursing services from nurse participants and are able to communicate in Korean or through interpretation services, were selected as culturally diverse clients.

Among the 20 public health centers in G province, 7 public health centers with more than 10,000 foreigners or more than 2.8% foreign population and high population density were selected with convenience sampling. During the course of the study, four public health centers were assigned to the experimental group, and the remaining three public health centers were assigned to the control group to prevent diffusing of the treatment among the participants.

The required sample size was determined by using G* Power software (v. 3.1.7.) with power=80%, α=.05, effect size=.25, repeated measures=2 (clients) or 3 (nurses), and correlation between repeated measures=.50 [18]. A total of 28 public health nurse samples was required. For this study, a total of 44 nurse participants was recruited and assigned 22 subjects per experimental group and control group, considering a 50% dropout rate due to the high ratio of non-regular workers. After the enrollment, one nurse in the experimental group was dropped due to the absence of education, and two nurses in the control group withdrew because of parental leave and job termination. As a result, a total of 41 public health nurses participated in the study with 7% dropout rate (21 in the experimental group and 20 in the control group).

A total of 34 MMW was calculated for the study. Assuming a 60% dropout rate, a total of 56 MMW initially participated in this study, assigned 28 subjects per experimental group and control group. A total of 16 client participants withdrew, resulting in 40 client participants with 29% dropout rate (20 in each group) due to no contact (9 women), receiving nursing services less than twice a month during the experimental period (4 women), and rejection of data collection (3 women).

The qualitative data collection target were 10 nurse participants, who were selected among the experimental group of public health nurses after the second posttest, considering the TSE score, working departments and affiliated public health centers.

3. Measurements

Cultural competence was measured by using a Korean version of Jeffreys's [19] transcultural self-efficacy tool (TSET), which was modified by Kim [20]. TSET includes all of the three characteristics of a culturally competent nurse presented by the American Association of Colleges of Nursing (AACN), including cultural cognition (knowledge), performance (skill), and affection (attitude) [9,21]. The Korean version of TSET has 83 items with three subscales: cognitive (25 items), practical (28 items), affective (30 items). The total score ranged from 83 to 830, meaning that high scores indicate high degree of transcultural self-efficacy (TSE). The reliability of the tool at the time of development was .99 for Cronbach's α, and Cronbach's α was .98 for Kim's [20] study. In this study, Cronbach's α of TSET was .99, and Cronbach's α of three subscales ranged from .98 to .99.

The public health nurses' characteristics related to multicultural experience are measured in total 7 items. Based on previous studies on cultural competence, experience of overseas stay, foreign language ability, participation in education regarding culturally diverse client care, and the frequency of providing nursing care to culturally diverse clients were measured as variables influencing cultural competence [11,12].

The client's trust in nurse was measured by using the client-nurse trust scale, which Kim [22] modified from the client-physician trust scale developed by Kim et al. [23]. A panel of experts confirmed content validity. The client-nurse trust scale has 4 items, which are rated on a five-point Likert scale. High scores mean high degree of client's trust in nurses. The Cronbach's α of the client-physician trust scale was .93 [23], the Cronbach's α of the client-nurse trust scale was .84 in Kim's study [22] and .75 in this study.

The satisfaction with nursing care was measured by using the nursing satisfaction scale, which Kim [22] modified from the satisfaction with medical care scale developed by Kim et al. [23]. A panel of experts confirmed content validity. The nursing satisfaction scale has 4 items, which are rated on a five-point Likert scale. High scores indicate high degree of nursing satisfaction. The Cronbach's α of the satisfaction with medical care scale was .96[23], the Cronbach's α of the nursing satisfaction scale was .92 in Kim's study [22] and .86 in present study.

4. Experimental Intervention

The experimental intervention provided to public health nurses is a cultural competence training program developed for Korean public health nurses using Intervention Mapping [IM][24]. This is a systematically designed program based on psychosocial theory and evidence-based intervention strategies that influence the behavioral change based on the needs of the subjects. This program consists of an offline training course with 6 modules of 1 time 8 hours and online training of 3 weeks with two weekly email newsletters and BAND participation (Table 1). This study refers to the references and online sites introduced in the cultural competency toolkit of AACN [9] and the results of a systematic review of the cultural competence programs [13-16,25-28] to select theory-based teaching methods and performance strategies, including program components. In addition, this study composed the contents by reviewing online education for the promotion of overseas cultural competence such as 'Culturally Competent Nursing Care: A Cornerstone of Caring', of an online continuous education program with Minority Health Department of the US Department of Health, and 'Cultural Competence E-Learning Modules Series' of Canadian Sick Children's Hospital webpage.

The learning of culturally competent nursing is multidimensional process that is circulated in the order of cognitive (knowledge), affective (attitude) and practical (skill) dimension [19]. The offline education consisted of the following six learning modules depending on this learning process was provided: (i) 'concept of cultural competence' (module 1), 'multicultural policy' (module 2), and 'culture and nursing care' (module 3) on cultural knowledge; (ii) 'awareness and acceptance of other cultures' (module 4) on cultural sensitivity and awareness; (iii) 'effective communication skills' (module 5) and 'cultural assessment skills' (module 6) on cultural skills. Only the experimental group was given experimental intervention, and the control group was not given education during the experiment, and this study provided the same program to the applicants in the control group after the experiment.

The offline education program developed for this study was approved by the Korea Nursing Association (KNA) as a continuing education course to RN (8 contact hours). The researcher took a continuing education provider course regarding continuing education course operation by KNA. According to the continuing education guidelines, the re-

Table 1. Cultural Competence Training Program for Public Health Nurses

Method	Criteria	Title & contents	Teaching method	TE	Time
Offline education	Cognitive dimension	Module 1. Concept and importance of cultural competence in nursing science · Reality of multi-cultures in Korea · Cultural factors which have an influence on nursing care and healthcare · Key concepts pertaining to the concept of cultural competence · Culturally competent care & health outcome	· Lecture (PPT) · Group performing mind map regarding cultural competence	· VP · D	50 min
	Cognitive dimension	Module 2. Cultural issues & change of multicultural policy and healthcare policy in community nursing practice · Reality of foreign population in communities · Problems occurring in Korea's culturally diverse community · Multicultural policy · Actual condition of healthcare for culturally diverse clients	· Lecture (PPT) · Group discussion: Role and responsibilities of public health nurses in culturally diverse community.	· VP · D	50 min
	Cognitive dimension	Module 3. Culture and nursing care: Impact of clients' cultural factors in nursing care · Cultural perspectives regarding belief and behavior in health care · Cultural perspectives regarding pregnancy and childbirth · Cultural perspectives regarding family structure, role & decision-making · Cultural perspectives regarding religion and death · Cultural differences in healthcare regarding religion	· Lecture (PPT) · Role play & group discussion: Qualitative study stories regarding pregnancy and childbirth of marriage -migrants women.	· VP · D	90 min
	Affective dimension	Module 4. Recognizing and accepting ones' own culture and others. · Culturally competent attitude · Cultural diversity · Identity of race and nation · My prejudice/bias/discrimination/racism · Problems of cognition of time-space distancing	· Lecture (PPT) · Self-reflection questionnaires · Watching video & discussion: 'Two faces of man'	· VP · AR	60 min
	Practical dimension	Module 5. Effective communication with culturally diverse clients · Communication and cultures · Korean culture and characteristics of their communication · Elements of verbal and non-verbal intercultural communication: Case study 1. Infant immunization at public health center · CLAS (Culturally and Linguistically Appropriate Services) · Strategies for communication with culturally diverse clients · Methods of and cautions for communication aided by interpreter: Case study 2. The son's translation to perform consent for surgery	· Watching movie & discussion: 'Never ending peace and love' directed by Park, Chan-wook · Lecture (PPT) · Case study & discussion	· VP · SRI · SP	100 min
	Practical dimension	Module 6. Cultural assessment skills for culturally diverse clients · Cultural perspectives and cultural assessment for history taking and physical assessment · Giger and Davidhizar's cultural assessment tool · Nurses' attitude in cultural assessment	· Lecture (PPT) · Demonstration & practice: Cultural assessment on pregnant women (role play)	· VP · GP	50 min
Online education: E-mail newsletter	Affective dimension	· Vol. 1 · Documentary film, EBS–Soc ⓔ ity Hijab; · What is culture? (Book: We all are a bit strangers) · Vol. 2 · Racial discrimination map (Chosun daily article); · Vietnamese culture · Vol. 3 · Documentary film, EBS –Soc ⓔ ity Skin color; · Who is 100% Korean? (Book: We all are a bit strangers) · Vol. 4 · Racial prejudice against immigrant foreigners is becoming more and more common (YTN's article); · Philippine culture · Vol. 5 · Documentary film, EBS –Peopl ⓔ Stranger; · Man who insulted foreigner' was indicted for the first time in Korea (Chosun Daily editorial). · Vol. 6 · 'Black people's mind is dark' (YTN's article); · Thai culture	· E-mail newsletters	· I · RE	2 times per week
Online education: SNS (BAND)	Affective dimension	· Freely posting pictures regarding cultural competence	· SNS (BAND): Posting pictures	· PCR	Anytime
	Practical dimension	· Useful multilingual expressions (greetings and appreciation) · Strategies of communication with culturally diverse clients · Communication with interpreter · The actual cultural assessment · Cultural assessment on pregnant women	· SNS (BAND): Memory card	· AO · RE	Anytime
	Cognitive dimension	· Sharing opinions	· SNS (BAND): Reflective writing	· SOB · IES	Anytime

AO=advance organizers; AR=anticipated regret; D=discussion; GP=guided practice; I=individualization; IES=improving emotional states; PCR=provide contingent rewards; RE=repeated exposure; SOB=self-monitor of behavior; SP=shifting perspective; SRI=scenario-based risk information; TE=theoretical method; VP=verbal persuasion.

searcher and three professors in nursing department with experience in teaching or counseling MMW or foreign workers taught modules that correspond to their major field. Before the training, the researcher met each of the three instructors, then explained and shared opinions about the contents of education, educational methods and learning environment and so on.

Twenty one nurse participants in the experimental group were divided into 15 and 6 participants according to their attendance schedule and received offline education along with other registered nurses who participated in the continuing education. The offline training was conducted in small groups of 20 or less for 1 day (8 hours). After that, 2nd, 3rd, and 4th week online education were conducted to 21 nurse participants twice a week by email newsletters, allowing them to ensure continuous learning and reflection of 'awareness and acceptance of other cultures' (module 4). In the 'cultural competence room of health nurses' created by the researcher using the BAND, which is a mobile community application, the nurse participants in the experimental group were invited by a Band URL via text before starting the offline education, and created a post including photos or newspaper articles and left comments about cultural competence in nursing after the offline education. They were able to share their thoughts and emotions and to stay connected with the instructors and collaborate with each other. The memory cards were uploaded on the BAND to facilitate 'cultural communication'(module 5) and 'cultural assessment'(module 6) in practice regardless of distance and time such as 'strategy of communication with culturally diverse clients', 'useful multilingual expressions (greetings and appreciation)' and 'cultural assessment questionnaires'.

5. Procedures

Quantitative data collection was conducted from February 4, 2014 to April 17, 2014. In the case of public health nurses, pretest of the experimental group was conducted by the questionnaire under the guidance of the research assistant before the first offline education started. Posttest was conducted at the end of the 4th week (posttest 1) and 4weeks after the end of the program (posttest 2). The researchers distributed the questionnaire and collected it after the subject completed it. In the control group as well, the researchers distributed the questionnaire and collected it after the subject completed it, and pretest and posttest 1, 2 were conducted.

The pretest of MMW was conducted by researchers and trained research assistants either directly at home or at a public health center before the pretest of public health nurses was started, and read aloud the contents of the questionnaire in Korean. The posttest of MMW was performed in the same way as the pretest at the posttest 2 stage of public health nurses. Vietnamese MMW who had difficulty in Korean language were surveyed with the help of volunteer interpreter at the public health center.

Qualitative data were collected from the individual in-depth interviews using semi-structured questionnaires within one month of the end of the posttest 2. The duration of the interview was about 40~60 minutes, and the whole process was recorded with the consent of nurse participants. The main question was 'What has changed since cultural competence education?', and asked about changed personal thoughts and awareness after cultural competence education, and cases to demonstrate their specific cultural skills for culturally competent care in practice.

6. Ethical Considerations

This study was granted the approval (IRB No. 2013-0052-2) by the Bioethics Review Committee of Nursing College of Yonsei University. All research subjects who met the inclusion criteria were provided detailed information regarding the purpose and process of the study and signed the written informed consent form that is a voluntary agreement to participate in research. The control group who did not receive the treatment was allowed to take the same program to those who want after the experiment. A small gift of gratitude was given to all research participants.

In order to ensure confidentiality and privacy of all the participants, a consent from the Vietnamese interpreter about the confidentiality of interpreted contents was received and nurse participants were not informed of the questionnaire contents associated with 'client-nurse trust' and 'satisfaction with nursing care' to prevent disadvantages from MMW's response.

7. Data Analysis

1) Quantitative data analysis

Data analysis was carried out using IBM SPSS v. 20.0. To evaluate the baseline differences between the experimental and control groups, the x^2 test, Fisher's exact test, independent t-test, and Mann-Whitney U test were used. Linear mixed models conducted for repeated measurements in order to verify the changes in TSE in public health nurses and satisfaction with nursing care perceived by MMW between pretest and posttests. The Mann-Whitney

U test was used to test the changes in client-nurse trust of MMW between pre- and post-test because the assumption of normality was not met by the Shapiro-Wilk test.

2) Qualitative data analysis

Qualitative data collected from individual in-depth interviews were analyzed using directed content analysis [29]. The researcher extracts meaningful words, sentences, and paragraphs by repeatedly reading through the transcripts written by the research assistant and categorizes the effects of the program into cognitive-affective-practical dimensions, which are major components of cultural competence based on previous research results. The validity of analyzed data was reviewed by qualitative research experts.

RESULTS

1. Participants' Characteristics

1) Sociodemographic characteristics and multicultural experiences of public health nurses

The mean age was 42.3±7.68 years in the experimental group and 37.5±6.00 years in the control group. The majority of nurse participants had an associate degree (experimental group: 71.4%; control group: 70.0%). Most of nurse participants are married (experimental group: 95.2%; control group: 95.0%) and those with religion were 61.9% in the experimental group and 35.0% in the control group. The majority has '5 years or more and less than 7 years' work experience (experimental group: 38.1%; control group: 45.0%) and most of them are in temporary employment status (experimental group: 76.2%; control group: 85.0%). For the characteristics related to multicultural experience, most of nurse participants answered 'no' for the experience of staying abroad for more than one month (experimental group: 95.2%; control group: 100%) and responded 'nothing' for any communicable foreign languages (experimental group: 76.2%; control group: 65.0%). In terms of education participation regarding culturally competent care, 'no experience' was 66.7% in the experimental group and 65.0% in the control group. The frequency of providing nursing services to culturally diverse clients was for 'less than 10 times a year' 61.9% in the experimental group and 75.0% in the control group. There was no statistically significant difference between the experimental and the control group with regard to the baseline sociodemographic characteristics and multicultural experiences (Table 2).

2) Sociodemographic characteristics and proficiency in Korean language of MMW

As for the nationalities of the participants, 'Vietnam' was 55.0% in the experimental group and 55.0% in the control group, which was the largest population, 'the Philippines' was 10.0% in the experimental group and 20.0% in the experimental group, and 'China (ethnic Koreans from China)' 5.0% in the experimental group and 15.0% in the control group. The mean age was 31.3±6.84 years in the experimental group and 30.3±5.95 years in the control group. And in terms of age, '26 years old or older and less than 31 years old' was 50.0% in the experimental group and 35.0% in the control group, which is the largest population, and 'the case of 31 years old or older' was 35.0% in the experimental group and 35% in the control group. In terms of education level, 'high school graduation or more' was 45.0% in the experimental group and 60.0% in the control group, and 'elementary school graduation' was 30.0% in the experimental group and 20.0% in the control group. Most of MMW have children (experimental group: 95.0%; control group: 90.0%) and do not have an occupation (experimental group: 90.0%; control group: 80.0%). The economic level was 'bad' in 70.0% of the experimental group and 40.0% of the control group, and medical insurance was held in 95.0% of the experimental group and 100% of the control group. The period of residence in Korea was 'more than 5 years' in 70.0% of the experimental group and 65.0% of the control group. The MMW answered 'fair' or 'good' for proficiency in Korean language were 70.0% of the experimental group and 95.0% of the control group in speaking, 55.0% of the experimental group and 75.0% of the control group in reading and 40.0% of the experimental group and 75.0% of the control group in writing. There was no statistically significant difference in baseline sociodemographic characteristics and proficiency in Korean language between the two groups, confirming the homogeneity between the two groups.

2. Homogeneity

There was no statistically significant difference in baseline TSE (t=-0.52, p=.604), client-nurse trust (Z=-1.52, p=.149) and satisfaction with nursing care (t=1.21, p=.233) between the experimental and the control group. The mean score for baseline these variables; TSE (experimental group: 5.79±1.50; control group: 6.00±1.09), client-nurse trust (experimental group: 3.85±0.42; control group: 4.01±0.46) and satisfaction with nursing care (experimental group: 3.69±0.66; control group: 3.98±0.83).

Table 2. Homogeneity Test of Sociodemographic Characteristics and Multicultural Experiences between Experimental and Control Groups of Public Health Nurses (*N*=41)

Variables	Categories	Exp. (n=21)	Cont. (n=20)	x^2	*p*
		n (%) or M±SD	n (%)		
Age (year)	<40	8 (38.1)	12 (60.0)	1.97	.161
	≥40	13 (61.9)	8 (40.0)		
		42.3±7.68	37.5±6.00		
Education level	Association degree	15 (71.4)	14 (70.0)	0.01	.920
	≥Bachelor's degree	6 (28.6)	6 (30.0)		
Marital status	Not married	1 (4.8)	1 (5.0)		>.999†
	Married	20 (95.2)	19 (95.0)		
Religion	Yes	13 (61.9)	7 (35.0)	2.97	.085
	No	8 (38.1)	13 (65.0)		
Career as a public health nurse (year)	<5	8 (38.1)	4 (20.0)	1.70	.427
	5~<7	8 (38.1)	9 (45.0)		
	≥7	5 (23.8)	7 (35.0)		
Type of employment	Permanent	5 (23.8)	3 (15.0)	0.51	.477
	Temporal	16 (76.2)	17 (85.0)		
Staying abroad over one month	Yes	1 (4.8)	-		>.999†
	No	20 (95.2)	20 (100.0)		
Foreign language ability	Yes	5 (23.8)	7 (35.0)	0.62	.431
	No	16 (76.2)	13 (65.0)		
Participation in education regarding culturally diverse client care	Yes	7 (33.3)	7 (35.0)	0.01	.910
	No	14 (66.7)	13 (65.0)		
Frequency of providing nursing care to culturally diverse clients (times/yr)	≥10	8 (38.1)	5 (25.0)	0.81	.368
	<10	13 (61.9)	15 (75.0)		

Exp.=experimental group; Cont.=control group; †Fisher's exact test.

3. Transcultural self-efficacy

The results of the linear mixed models showed statistically significant difference of interaction of time and group between the experimental and the control group in TSE (F=3.54, *p*=.034) and practical dimension (F=6.57, *p*=.002), while there was no significant difference in the cognitive dimension (F=0.52, *p*=.598) and the affective dimension (F=2.76, *p*=.070) (Table 3). Hypothesis 1 was supported.

4. Client-nurse Trust

From the results of Mann-Whitney U test, there was statistically significant difference between the experimental and the control group in client-nurse trust (Z=-2.42, *p*=.018) (Table 4). Hypothesis 2 was supported.

5. Satisfaction with Nursing Care

The results of the linear mixed models showed statistically significant difference of between the experimental and control groups in terms of the changes in satisfaction with nursing care (F=9.22, *p*=.004)(Table 4). Hypothesis 3 was supported.

6. Changes Resulting from Cultural Competence Training

As a result of analysis of qualitative data, 35 meaningful statements were extracted and based on this, six topic lists were derived.

1) Recognizing cultural differences (cognitive dimension)

The respondents said that they came to learn about 'cultural differences distinguished from my culture' with regard to pregnancy and childbirth after participating in this study. They also stated that they try to recognize and mediate the family conflicts and the problems of children in multicultural families due to cultural differences.

Table 3. Comparison of Transcultural Self-efficacy between Experimental and Control Groups of Public Health Nurses (*N*=41)

Variables	Time	Exp. (n=21) M±SD	Cont. (n=20) M±SD		F	*p*
Transcultural self-efficacy	Pretest	5.79±1.50	6.00±1.09	Group	2.63	.113
	Posttest 1	6.62±1.20	5.99±0.88	Time	15.91	<.001
	Posttest 2	7.59±1.48	6.67±0.92	Group×Time	3.54	.034
Cognitive dimension	Pretest	6.59±1.45	6.28±1.15	Group	3.70	.062
	Posttest 1	6.80±1.29	6.36±0.85	Time	11.64	<.001
	Posttest 2	7.83±1.36	7.07±0.85	Group×Time	0.52	.598
Practical dimension	Pretest	4.95±1.65	5.66±1.06	Group	1.43	.239
	Posttest 1	6.41±1.58	5.51±1.21	Time	16.32	<.001
	Posttest 2	7.27±1.49	6.31±1.38	Group×Time	6.57	.002
Affective dimension	Pretest	5.90±1.79	6.09±1.33	Group	1.82	.185
	Posttest 1	6.68±1.44	6.16±1.03	Time	10.50	<.001
	Posttest 2	7.69±1.78	6.30±1.05	Group×Time	2.76	.070

Exp.=experimental group; Cont.=control group.

Table 4. Comparison of Client-Nurse Trust and Satisfaction with Nursing Care Perceived by Marriage Migrant Women between Experimental and Control Groups (*N*=40)

Variables	Time	Exp. (n=20) M±SD	Cont. (n=20) M±SD		Z or F	*p*
Client-nurse trust	Pretest	3.85±0.42	4.01±0.46		-2.42	.018
	Posttest	4.11±0.53	3.94±0.44			
Satisfaction with nursing care	Pretest	3.69±0.66	3.98±0.83	Group	0.01	.910
	Posttest	4.09±0.50	3.76±0.35	Time	0.86	.358
				Group×Time	9.22	.004

Exp.=experimental group; Cont.=control group.

2) Being interested in the multicultural policy (cognitive dimension)

The interviewees recognized that Korean society has been turning into a multicultural society and stated that they became 'interested in multicultural policies.' They also expressed the need to expand support for the vulnerable populations.

3) Trying to communicate in MMW's own language (practical dimension)

The respondents stated that they used to explain to other family members excluding MMW who do not speak Korean fluently, however, after attending training course, tried to greet first with their mother tongue and to talk to them using translation apps or translation service. They also said that they sometimes felt an impulse to ask something specifically. Especially, by utilizing application of cultural assessment tools, the point that they attempt to actively ask specific questions for the cultural background and characteristics of the subject was what they felt as a big change.

4) Providing medical information using internet and smart phone (practical dimension)

The respondents utilized related internet web-sites and smartphone apps that they learned in the education to provide medical information to culturally diverse clients. Public health nurses also encouraged and cared for MMW to visit public health centers comfortably by themselves for the timely immunization of their children.

5) Embracing culturally diverse people into society (affective dimension)

The respondents have expressed respect for people of other cultures and have developed a sense of accepting and embracing them as members of our society. They frankly expressed their ethnocentrism, stereotypes, and prejudice, which they had previously held in expressions such as 'they are poor and are one step below us', 'others from foreign countries', 'a person who can be ignored'. They stated that they were able to overcome the exclusiveness and hierarchical superiority of MMW through education and to regard them as an equal position. Also, public health nurses stated "MMW are considered to be 'multicultural

persons' but never have thought that Sarangi is the same", which means that they became aware of discriminative categorization and double vision of culturally diverse people.

6) Requiring ongoing cultural competence training

After the program ended, nurse participants continued to search for materials such as movies and documentaries related to multicultural themes and to share information with people around them. In addition, they stressed that 'cultural competence education is insufficient for one-time education' and regular and continuous education is required.

DISCUSSION

This study was attempted to identify the effects of cultural competence training program for public health nurses so that they could provide culturally competent nursing care taking into account the diverse cultural backgrounds and needs of culturally diverse clients residing in the community. As a result, the cultural competence training program developed in this study was found to be effective in improving the TSE of public health nurses and the client-nurse trust and the satisfaction with nursing care of MMW.

This study applied an embedded mixed method design which is one of the mixing methods to verify the program effect. This is a research method that is used when qualitative data on research questions are additionally required on the basis of quantitative research. This study explores the response of the subjects to the experimental results and the long-term effects they experienced, and provides additional explanations about the results of quantitative research [17]. In this study, there was no statistically significant change in cognitive and affective dimensions of TSE after experimental treatment in quantitative data analysis. However, knowledge and understanding of other cultures of public health nurses improved after the training in the structured interviews added after the experimental study. It was confirmed that they respect other cultures and embrace MMW as members of our society, which was helpful in the limited interpretation of the study results. In assessing cultural attitudes, as it is difficult to accurately measure changes in stereotypes or prejudices about particular ethnic groups or races, and there is a tendency to make socially favored responses, it is appropriate to measure using structured interviews, which supports the argument of Betancourt et al. [5].

Like this, although the changes in the cognitive and affective dimension were observed in individual interviews, the contradictory result in the practical dimension only was that unexpected results were obtained in the control group that did not provide the intervention and the TSE score increased. This is due to the incidence of measles in a high school in province G in 2013, and accordingly from February 2014, the research period, a free measles vaccination program was carried out for 10,000 MMW in the public health center in G province, which presumably is related to the promotion of medical care to multicultural families. And it may have influenced the results of the study as a contingent event that raised awareness and interest in the health of MMW.

The level of TSE of the public health nurses was 5.79±1.50 in the experimental group and 6.00±1.09 in the control group, which were almost at the middle level before the program intervention and the control group was slightly higher than the experimental group. The findings from the present study are slightly higher than those of Kim [20], who evaluated the TSE of hospital nurses (4.54±1.34) using the same tool. This is interpreted as a result of accumulating experience while providing services to culturally diverse people in the community where the multicultural population ratio is higher. These results support the argument of Campinha-bacote [30], which emphasized that cultural contact directly interacting with other cultures is a key factor in achieving cultural competence. To explore the TSE according to cultural competence training program interventions, the experimental group had a tendency to increase immediately after the end of the program and it was maintained up to 4 weeks after finishing the program compared to the control group. This seems to support Jeffreys' statement that cultural nursing self-efficacy is enhanced by formalized education and other educational experiences [19], and that the effectiveness of cultural competence education lasts up to four weeks [25], the results of which are similar to those of the previous studies.

In the present study, the scores of the practical dimension among the cognitive -practical-affective dimensions of each subcategory of TSE were the lowest in the pretest, but after the program intervention, cognitive and affective dimension showed no significant change of scores at each stage between the two groups, whereas in the practical dimension, the experimental group showed significantly improved changes of scores at each stage compared to the control group. This can be interpreted as influences of composition and teaching methods of educational program contents. The cultural competence training program of this study was developed based on the IM framework [24], with a focus on the practical skills of public health nurses to perform culturally competent nursing in the practical field. This study used various methods of edu-

cator participatory teaching such as attempting to greet MMW with their mother tongue by using a memory card or using translation apps to increase the participants' engagement with the conversation, and using educational materials to directly try out the cultural assessment and provide feedback, etc. In an overseas study on enhancing the cultural competence of nurses, it has been reported that the education program that applied the teaching method of participating in cultural activities and interviewing and evaluating using cultural assessment tools was effective in increasing cultural skills [26,27]. In this study, it was confirmed that the teaching and learning methods such as the contents of education, demonstration and role play focusing on the behavior change of the subjects are effective in attaining educational achievement.

This study is different from previous studies in that it measured the health outcomes of culturally diverse clients in addition to the effects of the cultural competence program provided to public health nurses. There is no study that measured the outcomes of the clients among the four studies that verified the effectiveness of the cultural competence program developed for domestic nurses and nursing students [13-16], and Majumdar et al.'s [28] study was the only one in foreign literature. In practice, cultural competence of nurses is exerted through interaction with culturally diverse clients, and cultural competence of health care providers is ultimately aimed at improving health status and improving health equity of culturally diverse people. The evaluation by the perspectives of the clients receiving nursing care is the best way to check whether the culturally competent nursing is performed [21]. Therefore, as shown in the results of this study, the findings of improved health outcomes of MMW were from the fact that through the training, public health nurses increased confidence in the provision of culturally competent nursing, and performed it in practice, and also in the viewpoint of MMW, it could be interpreted and perceived as appropriate nursing, leading to the MMW's health outcomes. In other words, the contents of education were narrowed down to pregnant and childbirth, which is the main health problem of MMW, the first settlement migrants in Korea, and immunization of their children. It is believed that the fact that they were taught as simulated exercises in the form of discussion and role play by putting current cases frequently encountered in the public health center together with the education of 'communication' and 'cultural assessment skills' may have increased health nurses' performance.

Cultural competence is an essential competence that all health care providers in health care institutions must have. Cultural competence education and training should be included within the regular curriculum and it is necessary to provide systematic educational opportunities and resources for the relevant health and medical practitioners at the relevant association and government dimension. In addition, government-level support is essential including establishment of interpreter support system, multi-lingual education materials and information display, etc. to strengthen institutional cultural competence, in order for domestic nurses working in various institutions to provide equally culturally competent nursing for culturally diverse clients. In order to systematize and sustain the promotion of cultural competence within the community system, information and materials for strengthening cultural competence are shared by establishing partnerships between health clinics such as hospitals and clinics in the region as well as public health centers and free medical clinics, and training and education for health care providers are performed in mutual cooperation. At the same time, cultural awareness and sensitivity of community residents should be cultivated. All these efforts will ultimately contribute to ensuring the health rights of culturally diverse clients and ensuring their health equity.

CONCLUSION

This is the first study to verify the effectiveness of the cultural competence training program for public health nurses applying IM framework [24]. As a result of applying an embedded mixed method design, TSE was improved in public health nurses after the training was received, and changes such as public health nurses 'recognizing cultural differences', 'being interested in the multicultural policy', and 'embracing culturally diverse people into society' were identified. In addition, it was confirmed how public health nurses have performed culturally competent nursing such as 'trying to communicate in MMW's own language' and 'providing medical information using internet and smart phone' within the community system. All these results improved the MMW's perspectives of trust in nurses and satisfaction with nursing care, which ultimately contributed to the positive health outcomes.

This study has proven the validity of the cultural competence training program and has been able to disseminate and sustain education to public health nurses in other areas as well. Future studies should include continuous cultural competence education by differentiating the level of education into basic and intensive courses. Although previous studies suggest that the cultural competence of health care professionals has a positive impact on health

outcomes in culturally diverse people, the results remain inconclusive and insufficient. To help address these insufficiencies, it is suggested that the target group of culturally diverse clients should be specified as subjects with a specific disease or health problem and the effects of the program should be directly measured as health outcomes such as treatment compliance or health condition.

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