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REVIEW ARTICLE

Effectiveness of cultural competence educational interventions on health professionals and patient outcomes: A systematic review

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Abstract

Purpose: This systematic review aimed to identify, appraise, and synthesize the best available evidence for the effectiveness of cultural competence educational interventions on health professional and patient outcomes.

Methods: We conducted a systematic review of randomized and non-randomized controlled trials. We searched seven electronic databases including MEDLINE, EMBASE, Cochrane Library, and four Korean databases in June 2018. Studies that provided cultural competence educational interventions for health professionals and measured the impact on health professional outcomes, patient outcomes, or both were included. A narrative synthesis of study findings was performed.

Results: Eleven studies met the inclusion criteria. Studies used a randomized ($n = 5$) and a non-randomized controlled trial ($n = 6$) design and were conducted in the USA ($n = 7$), South Korea ($n = 3$), and Sweden ($n = 1$). Cultural competence education was provided mostly to those of single occupations, nurses ($n = 5$) or physicians ($n = 4$). The delivery mode was classroom ($n = 7$), online ($n = 3$), or blended learning ($n = 1$), using mainly lectures, discussions, and case studies as teaching and learning methods. Education duration ranged from less than 1 hr to 3 days. Nine studies reported significantly improved health professional outcomes compared to the control group. Patient outcomes were reported in three studies. Only one study reported significant effect on patient satisfaction ($d = 0.94$) and trust ($d = 0.71$). There was no significant effect on patient physiological outcomes.

Conclusions: Cultural competence educational interventions had a positive effect on health professional outcomes. There is a considerable lack of research assessing patient outcomes, and there is limited evidence on whether interventions can change patient outcomes.

KEYWORDS

cultural competence, education, health personnel, nursing, systematic review

1 | INTRODUCTION

There has been a continuous increase in the number of international migrants, with the number in 2015 thrice that in 1970 (International Organization for Migration [IOM], 2017). About 258 million people crossed national borders worldwide in 2017. This represents 3.4% of the world's total population (United Nations, 2017). In 2015, regions with the largest percentage of migrants among the total population were Oceania, North America, and Europe, forming 21, 15, and 10% of the migrant population, respectively (IOM, 2017). Since the 1990s, Asian industrialized countries, including South Korea (henceforth referred to as "Korea"), have faced a labor shortage in low-wage industries because of a population decline due to the increasing number of women who delay marriage or do not get married, low fertility, and an aging population (Kim, 2014). Over the last two decades, migrant workers and marriage migrants have increased in Korea, exceeding 2.3 million at the end of 2018 (Ministry of Justice, 2019). As the number of migrants increases in Korea, there is an increased need for health professionals to interact and cooperate with heterogeneous groups.

In a recent national multicultural family survey, migrants reported worsening health status as their stay in Korea increased (Ministry of Gender Equality and Family, 2015). Although healthier migrants are better able to contribute to the economy and society, migrants face challenges in accessing health care due to administrative, economic, cultural, linguistic, and social barriers (IOM, 2019). These results suggest that health disparities between native Koreans and ethnic and racial minority groups may soon become more visible in the country.

Cultural competence among health professionals reduces health inequality and ensures quality services to migrants (Betancourt, Green, Carrillo, & Park, 2005). Spector (2010, p. 8) said that cultural competence prevailed when "within the delivered care the health care provider understands and attends to the total context of the patient's situation. Cultural competence is a complex combination of knowledge, attitudes, and skills." In Western countries, there has been much discourse on cultural competence since the mid-1980s, and research on this topic has been rapidly increasing since the 1990s (Price et al., 2005). The steady reporting of systematic reviews examining cultural competence education since 2005 is due to the increase in the number of empirical studies examining this concept (Beach et al., 2005; Chipps, Simpson, & Brysiewicz, 2008; Gallagher & Polanin, 2015; Horvat, Horey, Romios, & Kis-Rigo, 2014; Lie, Lee-Rey, Gomez, Bereknyei, & Braddock III, 2011; Pearson et al., 2007; Price et al., 2005; Truong, Paradies, & Priest, 2014).

Previous systematic reviews have pointed out some common limitations. The most fundamental problem is that there is no consensus on the concept of "cultural competence," and therefore there is a high degree of heterogeneity and inconsistency among educational interventions (Beach et al., 2005;Chipps et al., 2008 ; Gallagher & Polanin, 2015 ; Horvat et al., 2014 ; Truong et al., 2014). In addition, the methodological rigor of the studies is low (Chipps et al., 2008; Gallagher & Polanin, 2015; Horvat et al., 2014; Truong et al., 2014). And there is a lack of validity and consistency in the instruments and methods used to measure outcomes (Beach et al., 2005; Price et al., 2005; Truong et al., 2014). Therefore, results on the effectiveness of cultural competence education are rarely quantitatively integrated (Gallagher & Polanin, 2015).

Furthermore, there is still a lack of evidence on the impact of cultural competence education on patient outcomes (Beach et al., 2005; Chipps et al., 2008; Horvat et al., 2014; Renzaho, Romios, Crock, & Sønderlund, 2013; Truong et al., 2014). In addition, the studies included in previous systematic reviews were mainly limited to the USA, Canada, the UK, Australia, and other advanced English-speaking countries (Beach et al., 2005; Gallagher & Polanin, 2015; Horvat et al., 2014; Lie et al., 2011; Price et al., 2005; Truong et al., 2014). Therefore, these studies may not provide valid evidence that is applicable to Asian countries that have recently become multicultural societies.

In Korea, intervention studies on cultural competence have been reported since 2013 (Son, Je, & Yi, 2014). It is only in the last decade that cultural competence education was introduced in undergraduate nursing programs (Son et al., 2014) and in continuing education programs for practicing nurses. However, training in cultural competence is not yet considered essential, and the majority of practicing nurses do not receive adequate training (Chae & Park, 2019). Health care institutions and related authorities need strong and consistent evidence to establish policies and secure resources for cultural competence education (Lie et al., 2011). Therefore, it is necessary to determine the empirical evidence on the effects of cultural competence education, especially evidence from the latest domestic and international studies.

This systematic review aimed to assess the effect of cultural competence educational interventions on health professional and patient outcomes.

2 | METHODS

2.1 | Eligibility criteria

In this review, we selected studies based on the following criteria: (a) samples consisting of practicing health

professionals (nurses, physicians, or other health professionals) working in varied health care settings; (b) dedicated educational intervention provided to increase cultural competence of health professionals; (c) control groups receiving education on other subjects or not receiving any education; (d) studies reporting health professional outcomes (e.g. overall or subdomain of cultural competence, confidence of cultural competence) or patient outcomes (e.g. treatment outcomes, perceptions of their care); (e) a treatment-control design was used, including randomized controlled trials (RCTs) or non-randomized controlled trials (NRCTs); and (f) outcomes were published in a peer-reviewed journal as a full-text original study in English or Korean. We excluded the following types of studies: (a) samples consisting of undergraduate students; (b) cultural competence education provided as part of an intervention undergraduate or pre-licensure education program; (c) not experimental (qualitative studies, case reports, and review papers) or used only one group study; and (d) non-peer-reviewed article, thesis, or conference abstract or published in language other English or Korean.

2.2 | Search strategy

A systematic literature search was conducted in MEDLINE, EMBASE, the Cochrane Library, and Korean databases (KoreaMed, KISS, RISS, and DBpia) on June 9, 2018. In addition, the reference lists of the identified studies were reviewed manually to find any eligible studies. The databases were searched using search terms related to three aspects: population ("nurse," "physician," "medical staff," "medical personnel," "health care personnel," "health practitioner," "medical profession"), intervention ("education," "training," "workshop"), and outcomes ("cultural competence," "cultural attitude," "cultural knowledge," "cultural sensitivity," "cultural awareness"). To ensure a highly sensitive search, we designed a search strategy that included relevant Medical Subject Headings (MeSH) and Emtree (EMBASE Tree) terms. For our search strategy, we referred to the COSMIN (COnsensus-based Standards for the selection of health Measurement INstruments) guideline for systematic reviews of patient-reported outcome measures (Prinsen et al., 2018). The detailed search strategies are presented in Supplementary File S1.

2.3 | Study selection and data extraction

The article selection process is depicted in Figure 1. Search results were combined in an EndNote database (Clarivate Analytics, Philadelphia, PA, USA), and duplicate articles were removed. Next, irrelevant studies were excluded based on their titles and abstracts. Then the full texts of selected articles were assessed. All these processes were independently performed by two authors (J.L. and S.P.). The same two authors independently extracted the data using predefined forms. These included the following components: details of the study (study design, study duration, country, setting, conceptual framework), participant characteristics (inclusion/exclusion criteria, method of recruitment, number, age, gender, and profession), measurements (scale, frequency, and attrition rate), outcomes (all the outcomes reported in each study). The intervention data of each study were extracted using the conceptual framework proposed by Horvat et al. (2014). This framework includes the following four domains: education content, pedagogical approach (teaching and learning method), structure (delivery, duration), and participants. In case of any disagreement in the process of selection and data extraction, the final decision was made by consensus of all researchers.

2.4 | Quality assessment

The quality of RCTs was assessed using the Cochrane Risk of Bias Tool (Higgins & Green, 2011) for random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcomes assessment, incomplete outcome data, selective reporting, and other bias. The quality of NRCTs was assessed using the Risk of Bias Assessment tool for Non-randomized Studies (RoBANS) (Kim et al., 2011), which included selection of participants, confounding variables, measurement of intervention, blinding for outcome assessment, incomplete outcome data, and selective outcome reporting. Each domain was rated as "low risk," "high risk," or "unclear." Four authors (D.C., J.K., J.L., and S.P.) performed independent ratings for each domain and disagreements were resolved through discussion among all authors.

2.5 | Data analysis

Conducting a meta-analysis was not a suitable option because of the high levels of heterogeneity in the intervention methods and measurement instruments. Consequently, the findings of this systematic review are presented as a narrative review.

We calculated effect size for each of the included studies except two that did not provide appropriate standard deviations or sample sizes (Kutob, Senf, & Harris Jr,

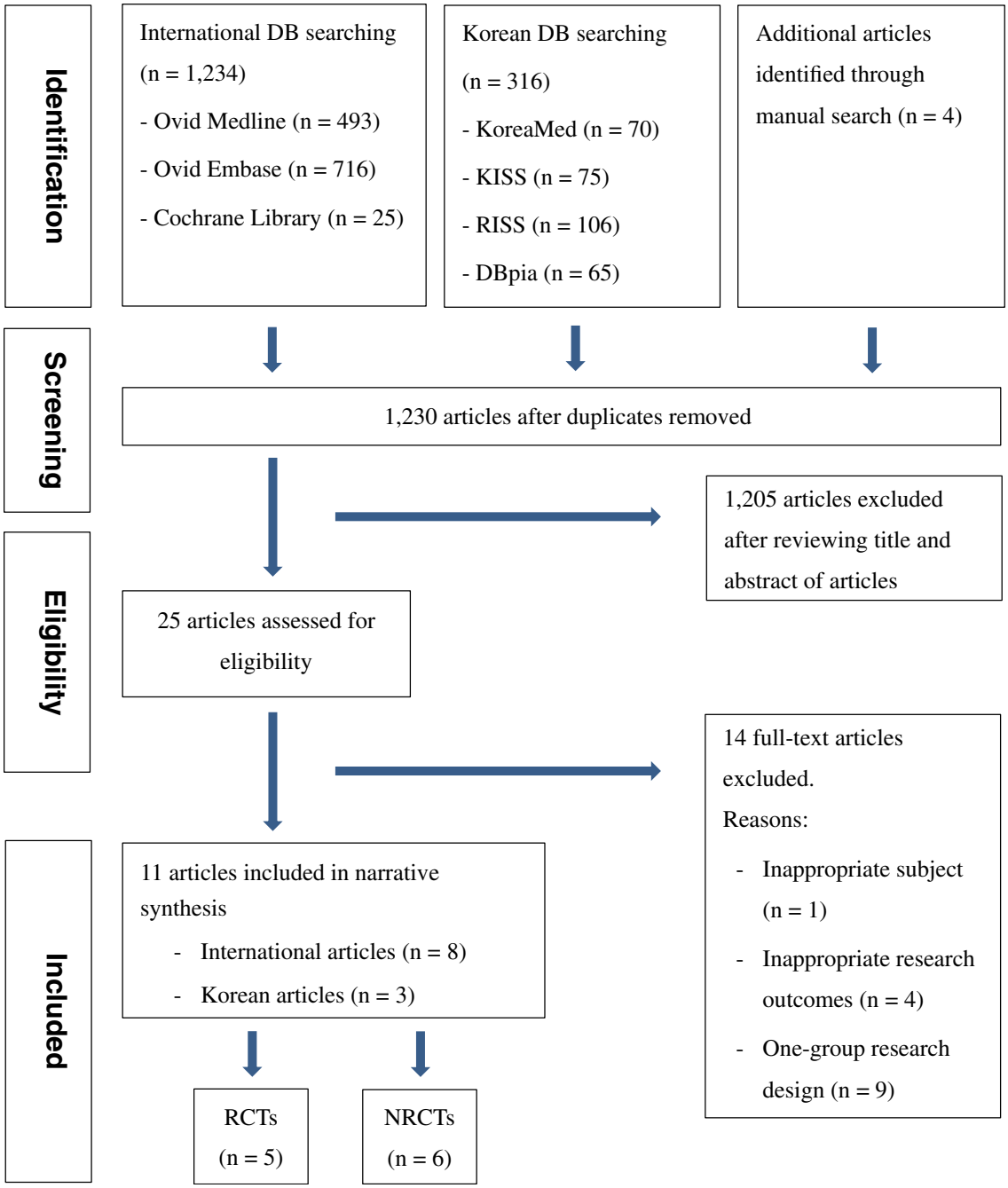

FIGURE 1 Flow diagram of study selection process. RCT, randomized controlled trial; NRCT, non-randomized controlled trial

2009; Schim, Doorenbos, & Borse, 2006). The author of one of these studies could no longer be contacted, and the other failed to respond when was contacted through email for additional information on the standard deviations. For continuous data, the effect sizes were calculated using the mean difference in the outcome levels of each pre-intervention and post-intervention measure between the intervention and the control groups. For one study without the pre-intervention measure, the effect size was calculated using the mean and standard deviation of post-intervention measure between the intervention and control groups. For dichotomous data, the effect size was estimated by the number of events in the intervention and control groups. The effect size of each study was presented by converting it into standardized mean difference, Cohen's d, using Comprehensive Meta-Analysis 3.0 (Biostat, Englewood, NJ, USA). Standard interpretation of the effect sizes was used with the values of the effect sizes considered as small ($d = 0.2$), medium ($d = 0.5$), and large ($d = 0.8$) (Cohen, 1992). Effect sizes were not pooled and displayed in a forest plot to represent an overall meta-analyzed measure of effect

because of the high levels of heterogeneity among the included studies and the different study designs. Registration was not required for this systematic review process.

3 | RESULTS

3.1 | Study selection

The database search identified a total of 1,550 articles (1,234 international and 316 national), and four articles were included by manual search. After removing duplicates, 1,230 articles were screened, and 25 articles were selected based on the titles and abstracts. The remaining 25 articles were thoroughly reviewed. Fourteen of the 25 articles were excluded for the following reasons: not targeting health professionals ($n = 1$), not providing appropriate intervention effects ($n = 4$), and using one group study ($n = 9$). Therefore, a total of 11 studies (five RCTs and six NRCTs) were included in this review (Figure. 1).

3.2 | Study characteristics

The characteristics of the included studies are presented in Table 1. The 11 studies included were published between 2001 and 2017. The majority of the studies were conducted in the USA (63.6%), followed by Korea (27.3%) and Sweden (9.1%) and all the three studies conducted in Korea had been reported after 2013. Of the included studies, participants were nurses in five studies (Berlin et al., 2010; Je, Son, & Kim, 2015; Kim & Lee, 2016; Park & Kweon, 2013; Smith, 2001), physicians in four studies (Horky et al., 2017; Kutob et al., 2009; Kutob et al., 2013; Thom et al., 2006), nurses, physicians, and physician assistants in one study (Sequist et al., 2010), and multidisciplinary hospice staff in one study (Schim et al., 2006). Of the 11 studies, only three studies reported both the mean age and gender distribution of participants. Based on the available information, the average age of participants was 31.0 to 47.8 years, and the proportion of female participants was 43% to 95%. Excluding one article (Schim et al., 2006), which did not report the number of participants, the sample sizes ranged from 41 to 122 for health professionals and 40 to 7,557 for patients. The number of participants in the intervention group ranged from 21 to 58. Most of the interventions (63.6%) were conducted in health care centers.

3.3 | Intervention characteristics

A variety of theoretical models, such as the 3-dimensional puzzle model (Schim & Doorenbos, 2010), the Campinha-Bacote's cultural competence model (Campinha-Bacote, 2002), the Giger and Davidhizar transcultural assessment model (Giger & Davidhizar, 2002), the explanatory model (Kleinman, 1980), and the LEARN model (Berlin & Fowkes Jr, 1983), were used in the development of the intervention programs. In addition, the ADDIE model (Molenda, 2003) and intervention mapping strategy (Eldredge et al., 2016) were used.

The contents of the education programs were diverse ranging from understanding of concepts such as culture, cultural competence, transcultural nursing, health disparities to improving cultural attitude, cross-cultural communication skills, and cultural assessment skills.

The most common mode of delivery was classroom learning (63.6%), followed by online (Horky et al., 2017; Kutob et al., 2009; Kutob et al., 2013) and blended learning (Kim & Lee, 2016). All the studies that provided online education were for physicians. Among them, Kutob et al. (2013) provided five case-based modules using five virtual patients from different ethnic and cultural backgrounds. In Kim and Lee's (2016) study using blended learning, after providing 8 hr of classroom learning, the researcher provided online education twice a week using email newsletters and social networking service (SNS) activities for the next 3 weeks.

In classroom learning, the most widely used teaching and learning methods were lectures, discussions, and case studies. In addition, role plays, demonstrations, audiovisuals, and reflective exercises were used. However, the common teaching and learning methods were case studies and interactive exercises in the online learning studies. Education duration ranged from less than 1 hr to 3 days. In two studies, researchers provided clinical practice (Berlin et al., 2010) and individual feedback reports (Sequist et al., 2010), after classroom learning. This additional period ranged from 4 weeks to 12 months (Table 2).

3.4 | Outcome measures

3.4.1 | Health professional outcomes

None of the included studies used the same measurement tool to assess health professional outcomes. Self-reported measures were used in all of the studies except for one (Thom et al., 2006) in which the Patient Reported Physician Cultural Competency Scale was the measure. Seven of the included studies measured overall cultural competence using the Cultural Competence Assessment (Schim et al., 2006), Cultural Competence Assessment Tool (Kutob et al., 2009), Modified Cultural Competence Assessment Tool (Kutob et al., 2013), Clinical Cultural

TABLE 1 Characteristics of the eligible studies

First author (year)	Country	Study design	Setting / recruitment sources	Study participants	Sample size and intervention	
					Intervention group	Control group
Thom (2006)	USA	RCT	4 locations: Academic medical center-based family practice, Community-based primary care practice, Rural family medicine residency program, Inner-city family medicine residency program	Physician: Mean age 39.2; 45% female Patient: Mean age 60.1; 54% female	Physician: $n = 23$ Patient: $n = 247$ Training + feedback	Physician: $n = 30$ Patient: $n = 182$ Feedback only
Kutob (2009)	USA	RCT	American Academy of Family Physicians	Physician IG = mean age 30; 43% female CG = mean age 32; 59% female	$n = 58$ Training	$n = 64$ None
Berlin (2010)	Sweden	RCT	Primary child health centers	Nurse Mean age and % of females not reported	$n = 24$ Training	$n = 27$ Not reported
Sequist (2010)	USA	RCT	8 ambulatory health centers	Clinician (physician, nurse practitioner, physician assistant): Mean age not reported; 60% female physicians, 94% female nurse practitioners or physician assistants Patient: IG = mean age 62.5; 50.2% female CG = mean age 62.3; 52.4% female	Clinician: $n = 40$ Patient: $n = 3,784$ Training + monthly written education materials and performance feedback	Clinician: $n = 47$ Patient: $n = 3,773$ Not reported
Kutob (2013)	USA	RCT (post-test-only)	Arizona's Medicaid program	Physician IG = mean age 46; 61.0% female CG = mean age 43; 69.4% female	$n = 49$ Training	$n = 41$ None
Smith (2001)	USA	NRCT	1 county (urban multi-facility healthcare environment)	Nurse Age above 21; 94.7% female	$n = 48$ Training	$n = 46$ Nursing informatics class
Schim (2006)	USA	NRCT	8 hospice agencies	Hospice worker Mean age 47.8; % of females not reported	$n =$ not reported Training	$n =$ not reported Ethical/legal issues class
Park (2013)	South Korea	NRCT	5 hospital maternity units	Nurse IG = mean age 33.2; % females not reported CG = mean age 34.9; % females not reported	$n = 31$ Training	$n = 36$ None

(Continues)

TABLE 1 (Continued)

First author (year)	Country	Study design	Setting / recruitment sources	Study participants	Sample size and intervention: Intervention group	Control group
Je (2015)	South Korea	NRCT	2 academic hospital maternity and pediatrics units	Nurse Age range 21–40; % females not reported	n = 30 Training	n = 34 None
Kim (2016)	South Korea	NRCT	7 public health centers	Public health nurse IG = mean age 42.3; % females not reported CG = mean age 37.5; % females not reported Migrant women IG = mean age 31.3; 100% female CG = mean age 30.3; 100% female	Public health nurse n = 21 Migrant women n = 20 Training	Public health nurse n = 20 Migrant women n = 20 None
Horky (2017)	USA	NRCT	1 university	Physician Mean age and % females not reported	n = 31 Training	n = 35 None

Abbreviations: CG = control group; IG = intervention group; NRCT, non-randomized controlled trial; RCT, randomized controlled trial.

Competence Training Questionnaire (Berlin et al., 2010), Modified Caffrey Cultural Competence in Healthcare Scale (Park & Kweon, 2013), Cultural Competence Measure for Helping Professions (Je et al., 2015), or a tool that was developed for cross-cultural case studies (Horky et al., 2017). In the remaining three studies, subdomains of cultural competence or similar concepts were measured using the Cultural Knowledge, Cultural Self-Efficacy Scale (Smith, 2001), Korean version of the Transcultural Self-Efficacy Tool (Kim & Lee, 2016), and three questions about awareness of racial disparities developed by the authors (Sequist et al., 2010),

3.4.2 | Patient outcomes

Patient outcomes were reported in three studies (Kim & Lee, 2016; Sequist et al., 2010 ; Thom et al., 2006). Kim and Lee (2016) reported satisfaction and trust. Sequist et al. (2010) reported physiological outcomes (hemoglobin A1c, low-density lipoprotein cholesterol, and blood pressure). Thom et al. (2006) reported both satisfaction and trust and physiological outcomes. Patient satisfaction and trust were obtained from self-reported measures (Kim & Lee, 2016; Thom et al., 2006), and physiological outcomes were derived from patients' medical records (Sequist et al., 2010; Thom et al., 2006).

3.5 | Risk assessment

A summary of the risk of bias for five RCTs and six NRCTs is presented in Table 3. In checking for the risk of bias assessment of five RCTs, 60.0% of the included studies were rated as low risk in four of the six domains. Most of the studies had low risk of random sequence generation, performance bias, and reporting bias. Detection bias was low in three studies that collected data via the Web or mail, but was uncertain in two studies. Three studies with a dropout rate of 18.2–30.0% were rated as having high attrition bias. All studies failed to explicitly describe the allocation concealment. Other bias was related to sample size and controlling equivalence of subjects. Only one study reported that a power analysis was used to determine sample size. Three studies compared baseline characteristics and used statistical adjustments for the differences to ensure the equivalence of intervention and control groups.

In the risk of bias assessment of six NRCTs, 50.0% of the included studies were rated as having low risk in four of six domains. Five studies did not blind the data collectors. Half of the studies failed to control confounding variables. Most studies (83.3%) had incomplete data. We

TABLE 2 Intervention characteristics and results summary of the eligible studies

First author (year)	Theoretical framework for intervention	Teaching-learning methods	Education contents	Mode of delivery	Duration of intervention	Measure time point	Outcome measures	Results IG-CG *d* (95% CI)
Thom (2006)	Developed by the authors	• Presentations • Discussion • Role-play • Group exercise	3 modules • Expanding knowledge of ethnic patients • Enhancing communication skills for cultural competency • Use of interpreters and cultural brokering	Classroom	3–4.5 hr (either single half-day training or 3 separate 1–1.5 hr sessions)	Baseline 3 months later 6 months later	*Patient*: PRPCC, satisfaction,trust, weight, Systolic BP, HbA1C	No significant difference in all outcomes between 2 groups PRPCC: 0.10 (−0.088, 0.296) Satisfaction: 0.03 (−0.162, 0.221)trust: 0.05 (−0.141, 0.242) Weight: 0.19 (−0.004, 0.380) Systolic BP: 0.10 (−0.157, 0.354) HbA1C: 0.05 (−0.616, 0.712)
Kutob (2009)	Health belief model Kleinman's explanatory model LEARN model Ask, share, compare, negotiate (ASCN) model	• Case study • Interactive exercise	• General concepts of health disparities, culture, and health • The skills-based approach to cultural competence • Diabetes in Mexican American populations	Online	Less than 1 hr	Baseline 1–4 weeks later	Cultural competence assessment tool (CCAT) (developed by expert group)	Significant improvement of total CCAT score in the intervention group Effect size not calculable
Berlin (2010)	Campinha-Bacote's cultural competence model	• Lecture • Discussion • Case study • Reflection • Clinical practice	• Cultural awareness • Cultural knowledge • Cultural skills • Cultural encounters • Cultural desire	Classroom + clinical practice	3 days + 4 weeks of clinical practice	Baseline 4 weeks and 3 days later	Clinical cultural competence training questionnaire (CCCTQ)	Significant improvement of subscale measuring cultural skills in the intervention group Cultural skills: 0.89 (0.315, 1.468)
Sequist (2010)	Not reported	• Lecture • Discussion • Community engagement activity	• Attitudes of trust and bias • Knowledge about health disparities • Skills to improve delivery of cross-cultural care	Classroom	1 day (physician) or 2 days (NP, PA) training + monthly intervention for 12 months	Baseline 12 months later	*Clinician*: 3 questions about awareness of racial disparities *Patient*: HbA1C, LDL cholesterol, BP	*Clinician*: Significant increase of proportion of clinicians with awareness of racial disparities in the intervention group 0.44 (0.157, 0.718) *Patient*: No significant difference in all patient outcomes between 2 groups HbA1C: 0.05 (0.003, 0.102) LDL cholesterol: 0.01 (−0.042, 0.058) BP: −0.08 (−0.133, −0.024)
Kutob (2013)	ASCN model	• Case study • Interactive exercise	5 case-based modules • ASCN model • Health disparities	Online (virtual patient)	Up to 9 hr for 1 month (complete 3 out of 5 modules)	Post-test only	Modified cultural competence assessment tool	No significant difference of total CCAT score between 2 groups

(Continues)

TABLE 2 (Continued)

First author (year)	Theoretical framework for intervention	Teaching-learning methods	Education contents	Mode of delivery	Duration of intervention	Measure time point	Outcome measures	Results IG-CG *d* (95% CI)
			• Definitions of race, ethnicity, and culture • Nonverbal communication • Health literacy • Health beliefs • Culture of medicine • Cultural sensitivity • Motivational interviewing					Total CCAT: 0.16 (−0.253, 0.578)
Smith (2001)	Giger and Davidhizar transcultural assessment model and theory (GDTMT)	• Simulation • Demonstration	Guidelines and intervention strategies • Commutation • Space • Social organization • Time • Environmental control • Biological variations	Classroom	8.5 hr	Baseline 8.5 hr later 3 weeks later	Cultural self-efficacy scale (CSES), Cultural knowledge	Baseline vs. 8.5 hr later Significant improvement of CSES in the intervention group 1.06 (0.628, 1.496) Significant improvement of cultural knowledge in the intervention group 1.53 (1.063, 1.988) Baseline vs. 3 weeks later Significant improvement of CSES in the intervention group 1.09 (0.658, 1.530) Significant improvement of cultural knowledge in the intervention group 1.03 (0.597, 1.463)
Schim (2006)	Cultural competence model	• Lecture • Discussion	• Definitions of concepts • Awareness, sensitivity, and competence and the role of each in supporting hospice care • Ways to expand the depth and scope of cultural knowledge, attitudes, and skills • Cultural assessment • Common service barriers	Classroom	1 hr	Baseline 1 hr later 3–4 months later	Cultural competence assessment (CCA)	Significant improvement of CCA in the intervention group Effect size not calculable
Park (2013)	3-D puzzle model developed by Schim and Dorrenbos	• Case-based small-group learning	• Introduction of multicultural status in Korea and transcultural nursing • Understanding cultural differences • Accommodation of cultural differences • Negotiating cultural differences	Classroom	9 hr (6 separate 90 min session)	Baseline 5 weeks later	Modified Caffrey cultural competence in healthcare scale (CCCHS)	Significant improvement of cultural competence in the intervention group 1.08 (0.783, 1.380)
Je (2015)	Analysis, design, development, implementation, and evaluation (ADDIE) model	• Lecture • Discussion • Case study • Using audiovisuals • Writing reflection note	• Multicultural nursing and cultural competency • Cultural knowledge • Effective communication • Multicultural nursing care about pregnancy, childbearing and infant care	Classroom	4 hr (4 separate 60 min session)	Baseline 4 weeks later	Cultural competence measure for helping professions (CCMHP)	Significant improvement of cultural competence in the intervention group 2.11 (1.759, 2.468)

(Continues)

TABLE 2 (Continued)

First author (year)	Theoretical framework for intervention	Teaching-learning methods	Education contents	Mode of delivery	Duration of intervention	Measure time point	Outcome measures	Results IG-CG *d* (95% CI)
Kim (2016)	Intervention mapping	*Offline training* • Lecture • Discussion • Case study • Using audiovisuals • Role-play • Demonstration and practice *Online training* • Email newsletter • SNS activity • Reflective writing	6 modules of offline training • Concept and importance of cultural competence • Cultural issues and change of multicultural policy and healthcare policy • Culture and nursing care • Recognizing and accepting one's own culture and others • Effective communication • Cultural assessment skills	Blended	8 hr (1 time) offline training +3 week online training (2 weekly intervention)	Baseline 4 weeks later 8 weeks later	*PHN* Korean version of Jeffrey's transcultural self-efficacy tool (TSET) *Migrant women:* Trust satisfaction,	*PHN* Baseline vs. 4 weeks later Significant improvement of transcultural self-efficacy in the intervention group 0.70 (0.065, 1.326) Baseline vs. 8 weeks later Significant improvement of transcultural self-efficacy in the intervention group 0.88 (0.241, 1.523) *Migrant women* Significant improvement of trust and satisfaction in the intervention group Trust: 0.71 (0.067, 1.344) Satisfaction: 0.94 (0.284, 1.589)
Horky (2017)	Not described	• Lecture • Case study • Interactive exercise	6 modules • Basic concepts in cultural competence • Social and emotional factors affecting care • Interpreter services and limited English proficiency • Normative cultural values and folk medicine • Cultural and religious factors • Disparities in healthcare	Online	6 hr (6 separate 1 hr module)	Baseline 2 weeks later	Questions for case studies (knowledge, attitude, skills)	Significant improvement of knowledge, attitude, and skills in the intervention group 0.93 (0.631, 1.220)

Abbreviations: BP, blood pressure; CI, confidence interval; *d*, Cohen's *d*; HbA1c, hemoglobin A1c; IG-CG, intervention group-control group; LDL cholesterol, low-density lipoprotein cholesterol; LEARN, Listen, Explain, Acknowledge, Recommend, Negotiate; PRPCC, Patient Reported Physician Cultural Competency; PHN, public health nurses; SNS, social networking service.

TABLE 3 Quality assessment of included studies

Study design and quality assessment tool	First author	Sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective outcome reporting	Other bias	
								Baseline homogeneity	Sample size calculation
RCT using Cochrane risk of bias	Thom	Low	Unclear	Low	Unclear	High	Low	Low / low	
	Kutob	Low	Unclear	Low	Low	Unclear	Low	Low / unclear	
	Berlin	High	High	Unclear	Unclear	Low	Low	Low / unclear	
	Sequist	Low	Unclear	Low	Low	High	Low	High / unclear	
	Kutob	Low	Unclear	Low	Low	High	Low	High / unclear	
	First author	**Selection of participants**	**Confounding variables**	**Measurement of intervention**	**Blinding for outcome assessment**		**Incomplete outcome data**	**Selective outcome reporting**	
NRCT using risk of bias assessment tool for non-randomized studies	Smith	Low	Low	Low	Unclear		High	Low	
	Schim	Low	High	Low	High		High	Low	
	Park	Low	Low	Low	High		High	Low	
	Je	High	High	Low	High		High	Low	
	Kim	Low	Low	Low	High		Low	Low	
	Horky	High	High	Low	Low		High	Low	

Abbreviations: RCT, randomized controlled trial; NRCT, non-randomized controlled trial.

considered incomplete data to be used in studies where the dropout rate was higher than 10%, or there was a large difference in the number of dropouts in the experimental and control groups. Fortunately, many studies (66.7%) reported no differences between experimental and control groups at baseline and they were considered to have low risk of selection bias. All studies utilized the structured questionnaires for data collection and reported data without reporting bias.

3.6 | Narrative synthesis on the outcomes of the cultural competence educational interventions

3.6.1 | Health professional outcomes

Nine of the 11 included studies reported significant intervention effects in terms of improved cultural competence compared to the control group (Berlin et al., 2010; Horky et al., 2017; Je et al., 2015; Kim & Lee, 2016; Kutob et al., 2009; Park & Kweon, 2013; Schim et al., 2006; Sequist et al., 2010; Smith, 2001). Sequist et al. (2010) provided primary care clinicians with 1 or 2 days of training and monthly performance feedback and education material for 12 months. They reported a significant increase in the proportion of primary care clinicians with awareness of racial disparities in the intervention group ($d = 0.44$, 95% CI = 0.157–0.718). Smith (2001) reported that cultural self-efficacy ($d = 1.06$, 95% CI = 0.628–1.496) and cultural knowledge ($d = 1.53$, 95% CI = 1.063–1.988) improved significantly in the intervention group immediately after the 8.5-hr program and the effects were maintained at the 3-week follow-up (cultural self-efficacy $d = 1.09$, 95% CI = 0.658–1.530; cultural knowledge $d = 1.03$, 95% CI = 0.597–1.463). In the study by Horky et al. (2017), knowledge, attitudes, and skills of the intervention group, which completed six online modules in 2 weeks, significantly improved. On comparing the summarized total scores of the intervention and control groups, the effect size was $d = 0.93$ (95% CI = 0.631–1.220).

All three studies conducted in Korea reported significant intervention effects. Two of these provided educational programs for obstetric or pediatric nurses (Je et al., 2015; Park & Kweon, 2013), and one (Kim & Lee, 2016) for public health nurses. Park and Kweon (2013) provided a 9-hr program using a case-based small-group learning method. The intervention group demonstrated significantly higher cultural competence ($d = 1.08$, 95% CI = 0.783–1.380). Kim and Lee (2016) conducted blended learning comprising 8-hr offline training and 3-week online training. The intervention group demonstrated significantly higher transcultural self-efficacy immediately after 4 weeks of intervention ($d = 0.70$, 95% CI = 0.065–1.326) and the effect was maintained at the 8-week follow-up ($d = 0.88$, 95% CI = 0.241–1.523). Je et al. (2015) provided a total of 4 hr of education for 4 weeks, resulting in a significant improvement in the cultural competence of the intervention group, with a large effect size of $d = 2.11$ (95% CI = 1.759–2.468). However, the risk of bias in this study was high for the four quality assessment items.

Berlin et al. (2010) reported significant intervention effects only in the cultural skills subdomain ($d = 0.89$, 95% CI = 0.315–1.468), but there was no significant difference in the domains of awareness, knowledge, encounters, and desires. This study was also considered to have high risk of bias in four of the six domains. Kutob et al. (2009) reported that physicians in the intervention group demonstrated significant improvement in cultural competence after receiving less than 1 hr of online education ($p = .004$). Schim et al. (2006) provided a 1-hr education for multidisciplinary hospice staff with significant improvement in cultural competence seen in the intervention group ($p = .034$). Both studies (Kutob et al., 2009; Schim et al., 2006) did not report appropriate standard deviations or sample sizes, and hence, the effect size could not be calculated.

Of the 11 studies reviewed, two studies reported no significant intervention effects (Kutob et al., 2013; Thom et al., 2006). Both studies were RCTs and their interventions were for physicians. In the study by Thom et al. (2006), unlike all the other studies, health professional outcome was measure by patient-reported physician behaviors. Kutob et al. (2013) used the post-test-only design, making it therefore impossible to determine whether the two groups' cultural competence was homogenous before the intervention.

3.6.2 | Patient outcomes

Two studies reported no significant intervention effect on patient physiological outcomes (Sequist et al., 2010; Thom et al., 2006). In terms of satisfaction and trust, two studies presented conflicting outcomes (Kim & Lee, 2016; Thom et al., 2006). Kim and Lee (2016) included 40 marriage migrant women living in the community who received primary health services more than two times from the participating public health nurses. As a result, the study reported that cultural competence educational interventions had a significant effect on trust ($d = 0.71$, 95% CI = 0.067–1.344) and patient satisfaction ($d = 0.94$, 95% CI = 0.284–1.589). On the other hand, Thom et al. (2006) who included 429 patients who had been seen in the past 12 months by the participating

physicians for diabetes or hypertension, concluded otherwise.

4 | DISCUSSION

This systematic review aimed to identify, appraise, and synthesize the best available evidence for the effectiveness of cultural competence educational interventions on health professional and patient outcomes. Eleven studies met the criteria for inclusion in the review. All the studies included in the review reported health professional outcomes, but only three reported patient outcomes. Nine of the 11 included studies showed that cultural competence educational interventions were effective in changing cultural knowledge, attitudes, skills, and awareness. Similar results were reported in previous literature reviews (Beach et al., 2005; Horvat et al., 2014). We also calculated effect sizes of health professional outcomes between the intervention and control groups for nine studies, which revealed that the effect sizes ranged from small ($d = 0.10$) to large ($d = 2.11$).

In two (Kim & Lee, 2016; Smith, 2001) of the nine studies that reported significant intervention effects, follow-up measurements were performed after 3 to 4 weeks of interventions. Both studies reported that the intervention group maintained significantly higher cultural competence than the control group. Although the long-term effects of cultural competence education on health professional outcomes are unclear, the effect is apparently maintained for a certain period of time. Future studies need to determine whether the improved cultural competence is sustained over the long term.

In this review, all studies that provided interventions to nurses alone or to groups with some nurses reported significant effects, whereas only half the studies that provided interventions to physicians reported significant effects. Similarly, Gallagher and Polanin (2015) compared effects of educational interventions among practicing nurses with those among nursing students and reported that the practicing nurses benefited more from cultural competence education. It is assumed that nurses are more interested in cultural competence education because they directly interact with migrants compared to other health professionals. However, the measurement method and study design of the two physician-trained studies (Kutob et al., 2013; Thom et al., 2006) differed from the rest of the studies included in the review. Therefore, it is difficult to conclude that interventions for nurses are more effective than interventions for physicians.

The evidence on whether cultural competence educational interventions delivered to health professionals can change patient outcomes was unclear. Only three of the included studies reported patient outcomes, and there was a lack of consistency in measured outcomes. Only one study (Kim & Lee, 2016) reported significant intervention effects on patients' satisfaction and trust, while no significant intervention effect was reported on physiological outcomes. This is similar to findings from previously reported systematic reviews (Beach et al., 2005; Chipps et al., 2008; Horvat et al., 2014; Price et al., 2005; Renzaho et al., 2013; Truong et al., 2014). During the intervention period, the average number of visits ranged from 2.8 (for 6 months) to 4.4 (for 1 year). It was not possible to determine whether there were any changes in the interaction between health professionals and patients. In order to capture changes in the health outcomes of chronic illnesses such as diabetes and hypertension, future studies may require long-term observations. It is also necessary to consider measuring the preceding factors that affect patient health outcomes. Most importantly, future studies need to include patient outcomes.

Studies that conducted the educational intervention were highly heterogeneous in terms of the theoretical framework, education contents, teaching-learning methods, duration, and frequency of delivery. The most often form of delivery was classroom learning (72.7%). Among three studies that provided online education (Kutob et al., 2009; Kutob et al., 2013), one study used virtual patients (Kutob et al., 2013). A recent study on Korean public health nurses (Kim & Lee, 2016) used blended methods. Simonsen, Daehlin, Johansson, and Farup (2014) compared learning outcomes and risk of error among nurses after their participation in a course in drug dose calculations, and there were no differences between e-learning and classroom learning students. Härkänen, Voutilainen, Turunen, and Vehviläinen-Julkunen (2016) evaluated the effectiveness of educational interventions designed to increase the medication administration skills and safety of nurses and found that the most effective interventions were blended learning programs. While this study did not identify the method of teaching delivery that was the most effective, it clearly indicates how online education produces a steady increase in the cultural competence development of health professionals in practice.

Numerous outcome measures were used in the 11 studies analyzed in this review. Among the 11 studies, only a few reported reliability and validity. This limitation has been repeatedly pointed out in previous review studies (Beach et al., 2005; Gallagher & Polanin, 2015; Truong et al., 2014). The COSMIN initiative (Mokkink et al., 2018; Prinsen et al., 2018; Terwee et al., 2018), which provides guidelines for selection of the most suitable outcome measurement instruments, offers

guidelines on searching for and conducting systematic reviews. Future systematic reviews and quality evaluations should be conducted to identify available cultural competence tools and to evaluate the evidence for their measurement properties using COSMIN methodology.

4.1 | Study limitations

This review has a few limitations. The heterogeneity of the interventions and outcome measures prevented performing a meta-analysis. The high degree of heterogeneity in the education content, teaching and learning method, mode of delivery, and duration, makes it impossible to synthesize evidence that supports a relationship between type of intervention and effect on health professional outcomes. All studies, except one, used self-report measures, making it difficult to ignore the effects of social desirability. Although this review included only the more rigorously designed RCTs or NRCTs, there were differences in the methodological quality of the studies. Research supporting the long-term effects of cultural competence education is lacking. In addition, publication bias may have occurred because non-English or non-Korean language literature and unpublished trials were not explored.

5 | CONCLUSION

With the transition to multicultural societies accelerating, continuing education to improve the cultural competence of health professionals in practice becomes increasingly important to reduce health disparities. This review provides a more complete interpretation of findings on the effectiveness of cultural competence education by synthesizing Korean domestic and international research. The heterogeneity of the interventions and outcome measures hinders the synthesis of evidence. Overall, cultural competence educational interventions were effective in improving cultural knowledge, attitudes, skills, and awareness among health professionals. There is a considerable lack of research on patient outcomes, and the evidence on whether interventions can change patient outcomes is unclear. Future research is needed to determine the effectiveness of cultural competence education on patient outcomes and their prevalence in the long term.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

D.C. conceived the study, and J.L. and S.P. extracted articles from the databases. D.C., J.K., J.L., and S.P. were involved in assessments of the quality of each study and S.K. in evaluating the available evidence. All five authors were involved in the writing of this manuscript and have approved the final submitted version.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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