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Research Article

Development and Psychometric Evaluation of the Korean Version of the Cultural Competence Scale for Clinical Nurses

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SUMMARY

Purpose: To develop and psychometrically test the Korean version of the Cultural Competence Scale for Nurses (K-CCSN).

Methods: A multi-phase questionnaire development method was used to develop the scale from November 2012 to April 2013. The item pool was generated based on literature review, existing scales and in-depth interviews. The content validity was evaluated twice by an expert panel. The scale validation was conducted with a convenience sample of 456 general hospital nurses recruited from five general hospitals and a nursing college in the Seoul Metropolitan Area of South Korea. The construct-related and criterion-related validity and internal consistency reliability of the scale were tested.

Results: The 33-item K-CCSN comprised four subscales—cultural awareness, cultural knowledge, cultural sensitivity and cultural skills—explaining 53.96% of the total variance. The criterion-related validity was supported by a known-group comparison. The reliability analysis showed an acceptable-to-high Cronbach's alpha in total and for subscales ranging from .879 to .932.

Conclusion: This preliminary evaluation of psychometric scale properties demonstrated acceptable validity and reliability. The K-CCSN is able to provide scientific and empirical data regarding the cultural competence of clinical nurses. However, further studies are needed to test the applicability of the scale in different settings and contexts.

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Introduction

Cultural competence is a complex concept that has not reached a universal definition yet. Nursing scholars have mixed the term “cultural competence” with transcultural nursing, culturally congruent care and culturally sensitive nursing care (Suh, 2004). Leininger (1991) was a pioneer in the nursing discipline who gave attention to the cultural dimension in human caring. She coined the term “culturally congruent care” and developed the Culture Care Theory of Diversity and Universality. Leininger stated the purpose of the theory as to discover ways for providing culturally congruent care to promote the health and well-being of clients, families and cultural groups (Leininger, 1985, 1991). Following Leininger, nursing scholars such as Papadopoulos, Tilki and Taylor (1998), Purnell and Paulanka (1998), Campinha-Bacote (1999), and Schim, Doorenbos, Miller and Benkert (2003) defined and developed theoretical models for cultural competence.

Suh (2004, p. 96) conducted a concept analysis of cultural competence and concluded that, “Cultural competence is an ongoing process with a goal of achieving ability to work effectively with culturally diverse groups and communities with detailed awareness, specific knowledge, refined skills, and personal and professional respect for cultural attributes, both differences and similarities.” The American Academy of Nursing (1992, p. 278) defined culturally competent care as being “sensitive to issues related to culture, race, gender, and sexual orientation”. This demonstrates that the understating of cultural diversity has not been limited to culture or race but has broadened to more comprehensive inclusion of minority groups.

Although the existing literature has explained various definitions and subconstructs, cultural competence has generally been understood as a nursing capacity to promote the health and well-being of clients whose cultural backgrounds are different from that of the nurses. Also, four subconstructs of cultural competence, cultural awareness, cultural knowledge, cultural sensitivity and cultural skills, have been commonly recognized (Calvillo et al., 2009; Flowers, 2004; Galanti, 2005; Leonard & Plotnikoff, 2000).

The Korean version of the Cultural Competence Scale for Nurses (K-CCSN) was designed to measure the cultural competence of

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clinical nurses in Korea. It was viewed within the context of a modified “model for developing cultural competence” originally developed by Papadopoulos et al. (1998). Papadopoulos (2003, p. 5) defined cultural competence as “the capacity to provide effective healthcare taking into consideration peoples' cultural beliefs, behaviors and needs...The achievement of cultural competence requires the synthesis of previously gained awareness, knowledge and sensitivity and its application in the assessment of clients' needs, clinical diagnosis and other caring skills.” Papadopoulos et al. presented a four-stage model of circulation: cultural awareness (first stage), cultural knowledge (second stage), cultural sensitivity (third stage) and cultural competence (fourth stage). In the current study, we replaced the cultural competence component with cultural skills. Figure 1 displays the conceptual framework of this study.

Until recently, Korea was a culturally and ethnically homogeneous society. Since the 1990s, the number of international marriages involving women immigrants and foreign workers has been continuously increasing in Korea (Nho & Kim, 2011). Also, foreign patients are becoming increasingly common along with a boom of the medical tourism industry, which combines medical service and tourism (Jin, Kim, Sung, Hwang, & Jung, 2010). In 2009, the Korean government declared that global healthcare was a new growth engine industry. Since then, the average annual growth rate of medical tourism has increased by 42.5% (Ministry of Health & Welfare, 2013). According to recent statistics, foreign residents account for 2.8% of the Korean population, while more than 150,000 patients visit Korea each year (Ministry of Health & Welfare; Ministry of Justice, 2012). As a result, the use of South Korea's healthcare services has expanded to include racially, ethnically and linguistically diverse clients, creating a growing need for developing the cultural competence of nursing professionals. Education and training based on scientific and empirical studies and using a reliable and valid scale are required to provide culturally appropriate nursing care to those diverse clients.

Several scales, such as the Inventory of Assessing the Process of Cultural Competence Among Health Care Professionals (IAPCC; Campinha-Bacote, 1999), the Cultural Competence Assessment (CCA; Schim et al., 2003), Caffrey Cultural Competence in Healthcare Scale (Caffrey, Neander, Markle, & Stewart, 2005),

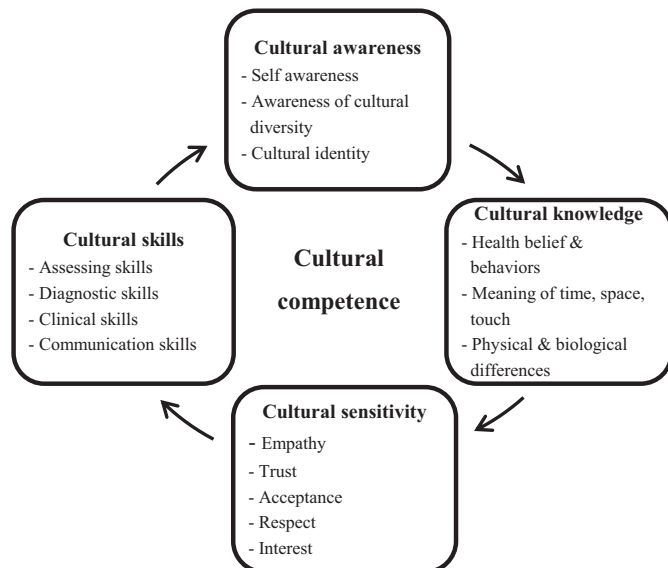


Figure 1. Modified conceptual framework of Papadopoulos, Tilki, and Taylor (1998), a model for developing cultural competence.

Cultural Self-Efficacy Scale (Bernal & Froman, 1987) and Trans-cultural Self-Efficacy Tool (TSET; Jeffreys, 2000) have been developed and used in nursing researches. These scales are intended to measure nursing students (Caffrey et al.; Jeffreys), community health nurses (Bernal & Froman), healthcare professionals (Campinha-Bacote) or more inclusive healthcare workers (Schim et al.). The Cultural Self-Efficacy Scale and TSET were based on Bandura's social cognitive theory (Bandura, 1977), while the IAPCC and CCA were guided by their own theoretical models. The number of items vary from 25 items (CCA) to 83 items (TSET). Response scales are Likert-type scales that vary from 4 points (IAPCC) to 10 points (TSET). The internal consistency was most widely used to test reliability and Cronbach's alpha was more than .70 in most studies, which is considered acceptable (Nunnally, 1978). Additionally, split-half or test-retest reliability methods were reported in limited studies (Campinha-Bacote; Jeffreys). Most of them reported content and construct validity. However, except for the TSET and CCA, the validity was tested in few studies only. Of all scales, IAPCC is the most commonly used in nursing studies.

The most research on cultural competence in nurses was conducted in the United States, Canada, the UK and Australia with long histories of multicultural societies. Globalization increases the need to develop the cultural competence of nurses among those who have lived and cared for clients in a homogeneous society until recently. In the last few years, translated versions of the IAPCC were used in research in countries other than North America, such as Sweden (Henriksson, 2006; Olt, Jirwe, Gustavsson & Emami, 2010), Japan (Kawashima, 2008) and Taiwan (Ho & Lee, 2007).

However, in these studies, the study participants expressed their difficulties in understanding some items and perceived meaning differently from that of the original tool (Kawashima, 2008; Olt et al., 2010). For example, the term “cultural competence” was especially difficult for Swedish and Japanese nurses to understand (Henriksson, 2006; Kawashima; Olt et al.) because cultural competence is a relatively unfamiliar issue and the knowledge of cultural competence is limited in these countries (Jirwe, Gerrish, Keeney & Emami, 2009; Kawashima). Swedish and Japanese nurses perceived the culturally or ethnically diverse client as a foreign patient. Nonetheless, the IAPCC was based on expanded conceptions of cultural diversity, including socioeconomic status, education, religion and sexual orientation. Thus, no cultural and construct equivalence was established between the original and translated scales. For these reasons, studies from Japan, Taiwan and Sweden reported weak reliability and validity (Henriksson; Ho & Lee, 2007; Kawashima; Olt et al.).

Like in Japan, Taiwan and Sweden, the academic interest on nurses' cultural competence is at a very early stage. The same is the case in Korea. Since 2011, three studies (Chae, Park, Kang & Lee, 2012; Lee, Kim & Lee, 2012; Yang, Kwon & Lee, 2012; Kim, 2013) have been reported in peer-reviewed journals. They used a scale that was originally developed for social workers (Yang et al.) or nursing students (Kim). In addition to this, they composed a new scale using a part of previous instruments (Chae et al.; Lee et al.). Although Kim reported a translation process and obtaining content validity of the translated scale, an appropriate validation process of the translated scales has not been sufficiently addressed in these studies.

Recently, two cultural competence scales (Choi, 2010; Nho & Kim, 2011) were developed in Korea to measure the cultural competence of human service workers, mainly social workers. Although these scales have an acceptable validity and reliability, they are not appropriate for measuring the cultural competence of clinical nurses. This may be because the nurse and culturally or ethnically diverse client interaction occurs with different care expectations as well as in different situational contexts. Thus, the

purpose of this study was to develop and test the psychometric properties of a Korean version of the K-CCSN.

Methods

Development of scale

Items were derived from three sources: (a) extensive literature reviews, (b) consideration of items from existing scales and (c) in-depth interviews with 16 nurses with caring experiences for foreign patients. Interviews were tape recorded and transcribed verbatim. Two researchers read transcriptions, debated themes and reduced the data to key phrases or words under four major categories: cultural awareness, knowledge, sensitivity and skills, by consensus. Items were written to correspond with verbatim phrases.

The item pool derived from three sources consisted of 186 items at this point. The principle investigator and four master or doctoral nursing students read items and discarded redundant items. Finally, we developed a tentative questionnaire with 83 items to measure cultural awareness (20 items), cultural knowledge (14 items), cultural sensitivity (24 items) and cultural skills (25 items).

We conducted two rounds of content validity testing. Lynn (1986) recommended to include 5–10 experts and to design a 10–14-day period between assessments when using the same experts. In the first round, six experts (4 nursing professors, 1 psychology professor and 1 nurse with more than 10 years' experience in caring for foreign patients) examined the preliminary K-CCSN. They were asked to rate the clarity and relevance of each item on a 4-point scale (1 = *not relevant*; 2 = *unable to assess relevance without item revision*; 3 = *relevant but needs minor alteration*; 4 = *very relevant*). Comments were elicited on each item. The content validity index (CVI) for each item was the proportion of experts who rated it a 3 or 4. The CVI for the entire scale was the proportion of the total items of determined content validity. A CVI above .80 is generally considered to be valid (Lynn).

As suggested by the experts, 13 items were deleted and 6 items were added. Two weeks later, 10 experts (in addition to the original 6 experts, 4 nursing doctoral students with experiences in cultural competence or cultural awareness studies were invited) evaluated the second draft of the 76-item K-CCSN. The item-level CVIs ranged from .60 to 1.00 and the scale-level CVI was .96. One item with a CVI of .60 was deleted and another item was split into two items because the expert panel suggested that it had two meanings. The final revised 76-item K-CCSN was pilot-tested in a general hospital using a convenience sample of 26 nurses. Items were also reviewed by a Korean language and literature expert. In this step, 40 items were rephrased to ensure precise and comprehensive wording. Finally, a 76-item pool was established for further analysis consisting of 16 items addressing cultural awareness, 15 items addressing cultural knowledge, 22 items addressing cultural sensitivity and 23 items addressing cultural skills.

Item analysis

The item analysis was conducted with (a) a corrected item-to-total correlation coefficient, (b) inter-item correlation matrix, and (c) information about the alpha estimate if this item was deleted from the scale. The corrected item-to-total correlation was between .085 and .650 among the 76 items. Items with corrected item-to-total correlations below .30 (10 items) were deleted and the remaining 66 items were between .316 and .650. The correlation matrix was above .70 ($r = .705-.832$) for a total of 14 inter-item correlations among 22 items (Ferketich, 1991). After items review, 4 items that were sufficiently replaced by other items were deleted. The information about the coefficient alpha if this item deleted

from the scale provided that removal of 7 items increased the coefficient alpha. However, these 7 items were already deleted from the corrected item-to-total correlation analysis. A total of 14 items were deleted and 62 items remained through the item analysis.

Validity testing

After the item analysis, the 62 remaining items were used to estimate the construct validity. We used exploratory factor analysis (EFA) to find factors that represent the variables. The criterion-related validity was assessed by using known-group validation. Previous studies showed a positive relation between the cultural competence of the care provider and patient satisfaction (Beach et al., 2005; Castro & Ruiz, 2009; Paez, Allen, Beach, Carson, & Cooper, 2009). Based on these research findings, we hypothesized that nurses who had received compliments or thanks for their care had higher levels of cultural competence than nurses who had not. It was assessed using a dichotomous yes/no item and a single question asking nurses if they received compliments or thanks for their care from foreign patients. We tested the K-CCSN for internal consistency and calculated Cronbach's alpha for each subscale and the overall K-CCSN.

Study design, setting and sample

This was a methodological study that aimed to develop and validate the K-CCSN. We recruited a convenience sample of 456 nurses from 5 general hospitals and a nursing college offering RN-BSN and graduate programs in the Seoul Metropolitan Area. The inclusion criteria were as follows: clinical nurses who were currently working at a general hospital sized over 100 beds. The data collection period was from November 2012 to April 2013.

Ethical considerations

An approval was obtained from the Ethical Committee of the School of Nursing, Yonsei University (approval no. 2012-1027). The researcher explained the purpose and the procedures of the study and possible participants were informed that they were not obliged to participate in the study and could withdraw at any time. A written informed consent was obtained from each study participant before the data collection procedure.

Instruments

The survey consisted of demographic information (9 items), cultural experience (6 items) and the K-CCSN. The K-CCSN used a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The item scores were summed to give a total instrument score, with higher scores representing higher levels of cultural competence.

Data analysis

The analysis was conducted using SPSS version 18.0. Data were first analyzed using descriptive statistics, linear correlation analysis and independent *t* test. EFA was performed by using principle component analysis with varimax rotation. For factor extraction, parallel analysis (PA), the eigenvalue greater than 1 rule and the scree test were used. PA implies the comparison of eigenvalues from the actual study data with randomly generated eigenvalues. The number of factors to retain is equal to the number of actual study eigenvalues that exceed randomly produced eigenvalues. We used PA with 1,000 random data sets and 95th percentile of eigenvalues in this study. Items having primary factor loadings below 0.40 or cross-loading above 0.32 were deleted (Brown, 2006).

Results

Demographic characteristics

Table 1 presents the demographics and cultural experience levels of the 456 participants. Mean age and mean work experience were 31.17 years ($SD = 6.14$) and 8.42 ($SD = 6.71$) years, respectively. The majority (66.6%) were working at medical or surgical units. Most (91.6%) had limited or no ability to speak a foreign language. Only 34.8% had previously heard the term “cultural competence”. Few participants (6.6%) received education for caring for foreign patients. Most (94.3%) had experienced caring for foreign patients and the frequency was not often (66.3% few times per year). The most common type of foreign patients was the medical tourism patient (29.3%) followed by migrant worker (15.4%) and Korean national abroad (13.5%).

Validity

Construct validity

We determined the sampling adequacy for factor analysis using Bartlett's chi-square test of sphericity ($\chi^2 = 18587.34$, $p < .001$) and the Kaiser-Meyer-Olkin measure (0.937) and found it acceptable.

Table 1 General Characteristics of Participants ($N = 456$).

Variable	Category	n (%)	M (SD)
Age (year)			31.17 (6.14)
Education ^a	Associate degree	186 (40.9)	
	BSN	222 (48.8)	
	Above MSN	47 (10.3)	
Religion ^a	Yes	293 (65.0)	
	No	158 (35.0)	
Work experience (year)			8.42 (6.71)
Job position ^a	Staff nurse	354 (78.3)	
	Charge or head nurse	98 (21.6)	
Clinical unit	Medical/Surgical	304 (66.6)	
	Pediatric/Women's health	39 (8.5)	
	Out patients	27 (5.9)	
	International clinic	13 (2.9)	
	Miscellaneous	73 (16.1)	
Stayed abroad for more than a month ^a	Yes	85 (18.7)	
	No	370 (81.3)	
Foreign language ^a	Fluent	38 (8.4)	
	Limited	185 (40.8)	
	No	230 (50.8)	
Previous information about cultural competence ^a	Yes	158 (34.8)	
	No	296 (65.2)	
Having education in caring for foreign patients ^a	Yes	30 (6.6)	
	No	424 (93.4)	
Caring experience with foreign patients	Yes	430 (94.3)	
	No	26 (5.7)	
Caring frequency ^a	≥1–2 times per week	59 (13.8)	
	1–2 times per month	85 (19.9)	
	Few times per year	283 (66.3)	
Type of foreign patients ^b	Medical tourism patients	240 (29.3)	
	Migrant workers	126 (15.4)	
	Korean national abroad	111 (13.5)	
	US armed forces in Korea	74 (9.0)	
	Marriage immigrants	73 (8.9)	
	International students	57 (7.0)	
	Miscellaneous	139 (17.0)	
Receiving compliments or thanks from foreign patients ^a	Yes	294 (64.5)	
	No	130 (28.5)	

Note. ^aIncluded missing values; ^bIncluded multiple responses.

BSN = Bachelor of Science in Nursing; MSN = Master of Science in Nursing.

After the initial EFA for the 62 items, we retrieved 11 factors with eigenvalues greater than 1.0. The scree plot showed that four or five factors could be interpreted as just above the elbow of the curve. The PA revealed that the eigenvalues of five factors were bigger than the 95th percentile in the distribution of eigenvalues derived from the random data. Applying these multiple factor extraction criteria, we retrieved five factors with 38 items. After repeating the EFA for the 38 items, we retrieved four factors with 34 items. We deleted one item with cross-loading above 0.32. All 33 items met the criterion of a factor loading of 0.40 or above and accounted together for 53.96% of the total variance (Table 2; Figure 2).

Factor 1 consisted of 12 items, such as “desire for education or training to provide effective care for foreign patients”, “listening with patience when talking with foreign patients even if it takes a long time”, and accounted for 17.08% of the variance. This factor was named as cultural sensitivity. Factor 2 represented the cultural knowledge including seven items, such as “touch”, “sensitivity to pain”, “patience for fasting”, “space” and accounted for 13.60% of the variance. Factor 3 represented cultural skills including eight items, such as “can communicate comfortably with foreign patients using a translator”, “provide a document in foreign patient's own language when explaining important information” and accounted for 11.91% of the variance. Factor 4 represented the cultural awareness including six items, such as “awareness of differences in healthcare behavior”, “awareness of difference in thoughts about causes of illness and treatment”, and accounted for 11.37% of the total variance.

The correlations of cultural sensitivity with cultural knowledge ($r = .46$), cultural sensitivity with cultural skills ($r = .64$) and cultural knowledge with cultural skills ($r = .57$) were at least .40. However, cultural awareness had rather low correlations (.16–.30) with other factors.

Criterion-related validity

We assessed the criterion-related validity by using the known-group comparison method. The mean cultural competence of nurses who received compliments or thanks for their care from foreign patients showed a higher level of cultural competence than those who did not ($p < .001$). Of the four subscales, cultural awareness ($p = .042$), cultural sensitivity ($p = .001$) and cultural skills ($p < .001$) showed significant differences also (Table 3).

Reliability

Cronbach's alpha values for the overall scale and the subscales were high: .932 for overall, .905 for cultural awareness, .907 for cultural knowledge, .921 for cultural sensitivity and .879 for cultural skills (Table 4).

The final scale consists of 33 items and 4 subscales, including 6 items of cultural awareness, 7 items of cultural knowledge, 12 items of cultural sensitivity and 8 items of cultural skills. The four subscales can be combined into one scale or applied individually. The participants' mean cultural competence was 4.80 and cultural awareness was the highest at 5.69 among the four subscales, followed by cultural sensitivity at 5.00, cultural knowledge at 4.33 and cultural skills at 4.29 (Table 4).

Discussion

Scale development

Most Korean nurses thought the term “culturally diverse clients”—*Damunwha* in Korean—implied limited groups such as foreign workers or women in international marriages who resided in Korea. However, medical tourism patients were the most

Table 2 Factor Loading of Questionnaire.

Item	Factor loadings			
	F1	F2	F3	F4
<i>Cultural sensitivity</i>				
Q 46	.769			
Q 43	.766			
Q 41	.738			
Q 39	.708			
Q 40	.706			
Q 45	.705			
Q 36	.672			
Q 47	.659			
Q 37	.641			
Q 44	.613			
Q 38	.597			
Q 50	.548			
<i>Cultural knowledge</i>				
Q 24		.805		
Q 25		.779		
Q 26		.776		
Q 23		.770		
Q 22		.758		
Q 28		.705		
Q 21		.656		
<i>Cultural skills</i>				
Q 73			.745	
Q 74			.741	
Q 69			.713	
Q 71			.689	
Q 68			.647	
Q 72			.646	
Q 70			.596	
Q 65			.518	
<i>Cultural awareness</i>				
Q 2				.887
Q 4				.849

Table 2 (continued)

Item	Factor loadings			
	F1	F2	F3	F4
Q 1				.845
Q 3				.837
Q 7				.759
Q 8				.701
Eigenvalues	6.32	5.03	4.41	4.21
Percentage of variance	17.08	13.60	11.91	11.37
Total variance of factors				53.96

Note. FP = foreign patients.

frequently encountered at their practice settings. As such, nurses defined culturally, racially and ethnically diverse clients as “foreign patients” in the present study. This was the same as with Swedish and Japanese nurses (Jirwe et al., 2009; Kawashima, 2008).

Historically, the development of cultural competence among healthcare professionals was motivated by health and socioeconomic disparities between minority and white majority groups (Jacob, 2010; Jirwe et al., 2009). Also, previous instruments placed their emphasis on a broader cultural diversity including the socioeconomic status, education, religion and sexual orientation. Therefore, differences or similarities between cultural groups had been included. However, in the present study, health disparity issues did not emerge and cultural diversity was limited to racial or ethnic diversity. Differences or similarities within or across cultural group had not been addressed in the K-CCSN.

As is the case for Swedish and Japanese nurses (Jirwe et al., 2009; Kawashima, 2008; Olt et al., 2010), for most Korean nurses the term “cultural competence” was new, and they did not grasp the concept. Also, most participants (93.4%) had not received education or training in caring for foreign patients. This is in contrast with the American nursing program, which requires caring for culturally diverse groups in accredited undergraduate programs (Jacob, 2010). We could not use terms such as “cultural competence”, “cultural assessment”, “cultural informants”, “cultural needs”, or “ethnic pharmacology” which were commonly used in the previous instruments and western studies because of the contextual differences between Korean and American nurses (Caffrey et al., 2005; Campinha-Bacote, 1999; Schim et al., 2003).

The language barrier was reported as the most difficult problem in caring for foreign patients. Furthermore, Korean nurses reported differences in time, space, touch, medical decision-maker and sensitivity for pain or fasting between Korean and foreign patients. For example, they think that Korean patients generally bore better with pain or fasting procedures than foreign patients did. Consequently, foreign patients asked for pain medication more often and their expressions were more dramatic than that of Koreans. These thoughts were added to the K-CCSN like “I am aware that patience with fasting may differ in different cultures.” Previous studies indicated effective communication skills as a core attribute of culturally competent care (Jirwe et al., 2009; Papadopoulos et al., 1998). Also standards of practice for American nurses indicated the importance of understating nonverbal communication such as time, space, touch, eye contact and silence when caring for culturally diverse clients (Douglas et al., 2011). Therefore, we concluded that there were differences as well as similarities between the K-CCSN and previous instruments.

Raw Data Eigenvalues, Mean, and Percentile of Random Data Eigenvalues

Root	Raw Data	Means	Percentile
1.000000	12.242534	1.603568	1.668589
2.000000	4.269922	1.531225	1.580778
3.000000	3.225023	1.477055	1.521679
4.000000	2.156332	1.430266	1.469061
5.000000	1.339580	1.389753	1.426226
6.000000	1.049154	1.351868	1.385157
7.000000	.989953	1.316637	1.350565

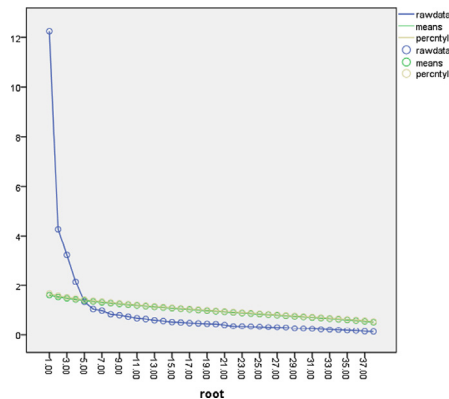


Figure 2. Parallel analysis results of the 38 items.

Scale validation

Items with redundancy or low discrimination function were removed through item analysis to develop a simple and reliable scale (Ferketich, 1991). A total of 14 items were deleted and all 5 negatively worded items were removed in this step. Although these items were analyzed after inverse coding, the corrected item-to-total correlations were below .30. Positively as well as negatively worded items were developed to avoid an acquiescence or agreement bias. However, as DeVellis (2012) indicated, the opposite direction items might be confusing to respondents and perform poorly.

Table 3 Criterion-related Validity.

	Receiving thanks or compliments		t	p
	Yes (n = 286)	No (n = 127)		
	M (SD)	M (SD)		
Overall scale	4.92 (0.71)	4.57 (0.70)	4.65	<.001
F1 (Cultural sensitivity)	5.10 (0.89)	4.76 (1.00)	3.43	.001
F2 (Cultural knowledge)	4.40 (1.15)	4.18 (1.11)	1.85	.065
F3 (Cultural skills)	4.47 (0.95)	3.88 (0.94)	3.43	<.001
F4 (Cultural awareness)	5.76 (0.77)	5.56 (0.99)	2.05	.042

Table 4 Descriptive Statistics and Internal Consistency of Factors.

	No. of items	M (SD)	Skewness	Kurtosis	Cronbach's α
Overall scale	33	4.80 (0.72)	.01	-.03	.932
F1 (Cultural sensitivity)	12	5.00 (0.93)	-.27	.28	.921
F2 (Cultural knowledge)	7	4.33 (1.14)	-.27	-.05	.907
F3 (Cultural skills)	8	4.29 (0.98)	-.25	-.07	.879
F4 (Cultural awareness)	6	5.69 (0.85)	-.59	.73	.905

The cultural awareness showed different characteristics among the four subscales. It presented with a relative low corrected item-to-total correlation with a range of .316–.460, compared to cultural knowledge (.434–.605), cultural sensitivity (.438–.648) and cultural skills (.463–.650). Furthermore, cultural awareness (5.69 ± 0.85) showed a relatively lopsided mean and low variance, compared with cultural knowledge (4.33 ± 1.14), cultural sensitivity (5.00 ± 0.93) and cultural skills (4.29 ± 0.98). It is desirable that a scale item has a relatively high variance and a mean close to the center of the possible score range. It is generally known that items with means near the extreme and those that vary over a narrow range correlate poorly with other items (DeVellis, 2012). One possible cause of those differences is social desirability. Most items for cultural awareness asked how much respondents were aware of the influence of culture on health, healthcare behaviors and expectations of care. The participants, as professional nurses, might have considered what other people think of them if they did not show awareness of cultural influences.

We tested the construct validity of the K-CCSN using EFA. After the second round of EFA, four factors were extracted, and the cumulative contribution was 53.96% of the total variance. Among Korean nurses, cultural sensitivity was the strongest factor which accounted for 17.08% of the total variance. Cultural sensitivity is with empathy, trust, acceptance, respect or interest on cultural difference in the attitudinal dimension. This finding may suggest that to respect and trust individuals from different cultures, and to accept and be interested in diversity is the first and the most important aspect of cultural competence in Korean nurses who have only lived and cared for clients in a homogeneous society until recently. The cultural knowledge and skills as well as the awareness of differences in people based on knowledge of their cultures (Rew, Becker, Cookston, Khosropour, & Martinez, 2003) were less prominent than their sensitivity, as only 6.6% of the participants had previous education and training for cultural competence.

EFA is a statistical method that extracts a small number of theoretical and meaningful latent variables from a large group of

items. Therefore, the most important step in EFA is to determine the number of factors (DeVellis, 2012; Henson & Roberts, 2006). Costello and Osborne (2005) described EFA as a complex process with few absolute criteria and multiple options. It allows researchers to be flexible in their selection of factors. However, since different numbers of factors can be determined, the reliability of results may be threatened from the same dataset, depending on researchers.

We used the PA in addition to the eigenvalue rule and the scree test to avoid any subjective interpretation in this important process. PA assumes bigger eigenvalues from the real dataset than from randomly generated datasets if nonrandom factors exist (Brown, 2006; Henson & Roberts, 2006; Schmitt, 2011). Therefore, researchers extract factors until the eigenvalues from the real data set are bigger than those from a random dataset (O'Connor, 2000). In the first round of EFA, four or five factors could be determined if we applied the eigenvalue rule and scree test only. However, by taking PA into account, we concluded that selecting five factors was more appropriate than four factors. Although PA is the most accurate factor extraction method, it has not been widely used in published studies (Henson & Roberts; Schmitt). Conventional statistical programs, such as SPSS or SAS, do not provide PA, but we can analyze PA using a simple syntax (O'Connor). Therefore, PA needs to be actively applied in addition to traditional factor determination criteria to improve the validity and reliability of the study results.

Reliability tests found an overall Cronbach's alpha of .932 and the values of Cronbach's alpha subscales ranged from .879 (cultural skills) to .921 (cultural sensitivity). Generally, a reliability of .70 or higher is acceptable for a new instrument (Nunnally, 1978). On the other hand, DeVellis (2012) indicated a respectable reliability between .70 and .80 and a very good reliability between .80 and .90. However, if the reliability is higher than .90, there is a need to review for redundant items. Applying this criteria, a Cronbach's alpha at .932 is too high. Among the subscales, cultural sensitivity consists of 12 items and accounts for 36% of the total number of items. Further studies are needed to determine item redundancy.

This study has several limitations. First, the study findings present an initial support for the reliability and validity of the K-CCSN and its use as a measurement of general hospital nurses in a large city. However, further testing of the K-CCSN is necessary across a diverse study population to validate its use in multiple settings. For example, nurses working at a clinic in a small-sized to moderately-sized hospital or a community health facility might encounter culturally diverse groups with different health care needs or expectations.

Given the nature of cultural competence, there is the possibility of a social desirability response set. Although anonymity was maintained during the data collection procedure, respondents may have chosen answers that they perceived to meet social norms as professional nurses. We compared the group of participants who received thanks or compliments from foreign patients to those who did not to test criterion-related validity. However, this criterion was subjective, representing how the participants perceived patient responses. Further studies are needed to use objective and empirical criteria. Since the K-CCSN was developed on the theoretical basis of a modified "model for developing cultural competence", a confirmatory factor analysis using different samples is necessary to test the hypothesized model and to check the cross validation. Although multiple approaches were used to test the validity of the K-CCSN, the reliability was tested by internal consistency using Cronbach's alpha only. Additional studies should include a test–retest of the K-CCSN to test the stability of the scale.

In this study, the cultural competence focused on racially and ethnically diverse groups. However, with the growing numbers of

minority members and the history of a multicultural society, the concept can be further expanded to include socioeconomic status, gender and sexual orientation. Further studies are needed to test and modify the scale to reflect the substantive nature of the cultural competence of Korean nurses.

Implications for nursing

Caring for culturally diverse clients is a neglected area of nursing education, research and practice in traditionally homogeneous societies including Korea. However, multiculturalism is a global phenomenon and cultural competence is considered an essential nursing capacity. Despite possible limitations of this study, the K-CCSN was found to be valid and reliable and may be the first validated scale to be developed in a newly transformed multicultural society.

The assessment of the K-CCSN may assist clinical managers and nursing educators in selecting intervention areas for a continuous professional development to enhance the provision of culturally competent care. In addition, K-CCSN may assist in the content development of intervention programs and the effectiveness evaluation of such programs with the goal to improve the cultural competence of nurses.

Conclusion

This study developed and tested the K-CCSN with clinical nurses. This self-reported questionnaire consists of 33 items and its completion only takes 10–15 minutes for nurses. Using a 7-point Likert scale, the summed score ranged from 33 to 231. It is sensitive enough to detect differences in cultural competence. The K-CCSN can provide scientific and empirical data for evaluating the effectiveness of intervention programs that develop nurses' cultural competence. Although the K-CCSN was found to be reliable and valid, the instrument requires further testing in different settings and contexts.

Conflict of interest

No conflict of interest has been declared by the authors.

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