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Reliability and Validity of a Korean Version of the Cultural Awareness Scale (K-CAS)

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Few instruments are available to measure nurses' perceptions of cultural competence in South Korea. Furthermore, the equivalence of factors between original and translated instruments has not been evaluated. The specific aims of this study were to identify the validity and reliability of a Korean version of the Cultural Awareness Scale (K-CAS) and to evaluate the equivalence of factors between the original CAS and the K-CAS. A total of 515 nursing students completed the 26-item K-CAS, 28-item Caffrey Cultural Competence in Healthcare Scale (CCCHS), and eight-item Openness to Diversity and Challenge Scale (ODCS). The K-CAS exhibited good reliability (α =.83) and construct validity by correlating with the CCCHS (r=.344, p<.001) and ODCS (r=.394, p<.001). Confirmatory factor analysis results of the K-CAS confirmed the same factor structure as the original CAS. The K-CAS could be a useful tool to assess the concept of cultural competence among nursing students and nurses.

Key Words: Cultural competence, Nursing, Education, Healthcare, Instrumentation, Factor analysis

INTRODUCTION

The modern world is experiencing great diversification. South Korea, a country that prides itself as a society of homogenous ethnicity, is becoming a multicultural society and will only become more so over time. As of 2011, approximately 1.40 million foreigners were residing in South Korea, accounting for 2.8% of the population with about 10.2%(144,214) of them having immigrated to South Korea for marriage[1]. According to a projection based on current data, approximately 1 out of every 10 people living in South Korea will be foreigners in the year 2050[2]. In addition, the number of foreigners visiting South Korea for medical care has increased significantly. Roughly, 155,672 foreigners visited South Korea to receive care in 2012, an increase of 27.3% from the previous year[3]. The total amount of money spent by those foreign patients was in excess of $239 million, up 32.1% from $159 million in the previous year[3].

The growing diversity in Korean society demands that the health care system and professionals meet this diversity in a culturally competent way. Particularly, nurses-who spend more time in direct patient care than do personnel in any other health care field-must play a relevant role in utilizing cultural competence to reduce health disparities and improve health outcomes.

1. Cultural Competence Measures in South Korea

Cultural competence is "the ongoing process in which the health care provider continuously strives to achieve the ability to effectively work within the cultural context of the client (individual, family, community)"(p. 181)[4]

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and it is an essential component in providing effective and sensitive nursing care to patients from diverse cultural backgrounds[5]. Cultural competence is a comprehensive concept embracing five inter-related constructs: cultural encounter, cultural desire, cultural awareness, cultural knowledge, and cultural skills[5].

Cultural competence is an important concept in many areas of research including education, social work, and nursing. The level of cultural competence and related factors has been assessed among college students[6,7], social workers[8], nurses[9,10] and people working at various community centers devoted to the immigrant community[11,12].

To address the issue of cultural competence, various instruments designed to measure this variable have been developed. The majority of instruments used in South Korea are translated versions of the scales originally developed within the United States. Commonly used translated instruments include Cuevas' Cultural Awareness Scale[13], the Cultural Competence Self Assessment Questionnaire (CCSAQ)[14] and the Caffrey Cultural Competence in Healthcare Scale (CCCHS)[9,15]. However, the equivalence of the factor structures between the original and translated versions have not been evaluated[7,9,11]. Furthermore, the translated instruments have not been examined for measurement invariance across different cultural contexts.

Recently, three instruments have been developed specifically for the Korean community[16,17]. However, these instruments are not comprehensive enough to allow for exploration of cultural competence in nurses, and they do not include items assessing nurses' educational experience in cultural competence.

2. Cultural Awareness Scale

Rew, Cookston, Khosropour, and Martinez originally developed a 37-item Cultural Awareness Scale (CAS) based on five key categories that were identified via literature review as central to cultural competence[18]. The content validity of the CAS was assessed by an expert panel consisting of seven nursing faculties of diverse ethnic and racial backgrounds. In addition, 72 nursing students evaluated whether the items were clear and accurately representative of nursing students' experiences. The final version of the CAS consists of five subscales with 36 items: general educational experiences (14 items); cognitive awareness (seven items); research issues (four items); behaviors/comfort with interaction (six items); and patient care/clinical issues (five items)[18,19]. Even if the scale is called Cultural Awareness Scale, the scale covers key constructs of cultural competence, knowledge, awareness, behaviors, and clinical experiences. Each item is rated upon a seven-point Likert response scale (one=strongly disagree to seven=strongly agree). All CAS subscales exhibited good reliability (Cronbach's α), ranging from .71 to .94 with the five factors accounting for 51% of variance in scores[18]. The CAS is unique in that it addresses respondents' perceptions of the multidimensional nature of cultural competence, including various experiences that nurses may have had during their education. Thus, the CAS could be used for both nursing students and nurses.

3. Instruments Used to Determine Validity of the Korean Version of the CAS

Among existing instruments measuring constructs related to the concept of cultural competence, the CCCHS and the Openness to Diversity and Challenge Scale (ODCS) were chosen for the present study. Caffrey et al., [13] developed the CCCHS to measure the level of cultural competence among nursing students and the scale consists of 28 items assessing self-perceived knowledge, self-awareness, and comfort with cultural competence skills. The Korean version of the CCCHS is one of the most commonly used instruments in cultural competence research in Korea[9].

The Openness to Diversity and Challenges Scale (ODCS) developed by Pascarella et al.,[20] was also used to determine the construct validity of the K-CAS. The concept of 'openness to diversity and challenge' refers to an "individual's openness to cultural., racial., and value diversity and the extent to which an individual enjoys being challenged by different ideas, values, and perspectives as well as an appreciation of racial., cultural., and value diversity"(p.179) [20]. This scale was chosen for the present study since the concept has been used as a proximal indicator of cultural sensitivity and competence[21]. Openness to diversity and challenge was positively associated with college students' tolerance of individual differences[22].

The specific aims for the present study were to develop a Korean version of the CAS (K-CAS) and evaluate the equivalence of factor structures between the original CAS and the K-CAS. Assessing the factor structure of the instrument is an important procedure in developing or evaluating instruments, particularly for instruments measuring attitudes, beliefs, behavioral styles, cognitive schema, and other multifaceted psychological constructs[23].

Confirmatory factor analysis is an especially useful method for testing whether a hypothesized factor model provides a good fit to the data[24].

METHODS

1. Study Design

A cross-sectional, descriptive study design was used to evaluate the psychometric properties and factors of the K-CAS.

2. Setting and Sample

The present study was approved by the Institutional Review Board of the S. University as well as the faculties of the participating nursing schools (IRB NO. 2011-55). Prospective participants were recruited from four nursing schools in South Korea. After the participants read and signed the consent forms, they anonymously answered the questionnaire in the classroom, which took approximately 15 minutes to complete. All participants were informed that their participation in the study is voluntary and they could withdraw from the study at any time. All participants were reimbursed with a three-dollar gift for their participation.

3. Measurements/Instruments

For the presents study, Korean versions of the CCCHS and the ODCS were used to determine the construct validity of the K-CAS.

1) Caffrey Cultural Competence in Healthcare Scale (CCCHS)

The 28-item CCCHS measures key constructs of cultural competence[13]. It uses a five-point Likert response scale, ranging from 1 (*not comfortable/not knowledgeable/not aware/not concerned/not interested/no influence*) to 5 (*very comfortable/very knowledgeable/very aware/very concerned/much influence*). Higher scores indicate a higher level of cultural competence.

2) Openness to Diversity and Challenge Scale

The eight-item ODCS was used for the present study to assess this variable (e.g., "I enjoy talking with people who have values different from mine because it helps me understand myself and my values better)[22]. It uses a five-point Likert response scale that ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate that the respondent is more open to diversity and challenge. This scale exhibited Cronbach's αs of .83 to .84 for ethnically diverse college students[22].

3) Sociodemographic questionnaire

Questions assessing participants' sociodemographic characteristics, including age, gender, college year, program (undergraduate or graduate), work experience, and level of English proficiency were included in the questionnaire.

4. Study Procedure

The K-CAS was developed through a series of steps:(1) translation of the CAS using a committee translation method;(2) evaluation of the clarity and readability of the K-CAS items by a Korean linguist; and (3) cognitive interviews with 10 adults including six nursing students. The steps in committee translation method are as follows. First, a bilingual and bicultural translator translated the original instrument from English to Korean, and a reviewer checked for accuracy and consistency. Then, the primary investigator (who is also the adjudicator) compared the translated Korean instrument with the original instruments and determined the accuracy and appropriateness of the translated version.

The main purpose of the cognitive interview was to explore the cognitive processes that respondents use to answer K-CAS questions (i.e., how respondents understand, process, and respond)[23,24] and to identify potential problems that may arise in survey questions[27]. Cognitive interviewing is an essential step in measurement development, particularly when testing the age and cultural appropriateness of questions[27]. The cognitive interview helped us to clarify the intention of the questions and to identify and resolve problems with wording, readability, item and section sequence and overall length of the K-CAS.

Items that were deemed not to be appropriate or relevant to Korean nursing schools were excluded from the K-CAS. For example, with very few students from different ethnic/racial backgrounds in Korean schools, certain items were removed (e.g., "In my nursing classes, my instructors have engaged in behaviors that may have made students from certain cultural backgrounds feel excluded."). In addition, items belonging to the research issues subscale were excluded since nursing research on cultural issues is still not yet active in Korean nursing schools. The final version of the K-CAS consists of 26 items.

5. Data Analysis

Descriptive statistics, Pearson's correlation, and Cronbach's α coefficients were calculated with the use of statistical software (Statistical Product and Service Solutions/SPSS Version 20.0). Using simulation-based power analysis, we calculated the statistical power to evaluate whether the confirmatory factor analysis (CFA) achieved the minimum power of .8. For the estimation of CFA, the maximum likelihood method was employed and an asymptotic distribution free method was applied when the multivariate assumption was violated. Model fit statistics were used to assess the appropriateness of the model. Congruence between the original and the replicated CFA results were confirmed with the congruence test[28]. This model was estimated using statistical software (Stata Version 12 and R-psych).

RESULTS

1. Sample Characteristics

A total of 515 nursing students were recruited from four nursing schools and participated in the present study (364 undergraduate and 151 graduate students). Table 1 describes the general characteristics of the participants. Undergraduate students consisted of 71 (19.5%) first year students, 75 (20.6%) second year students, 137 (37.6%) third year students, and 81 (22.3%) fourth year students. Among those enrolled in the graduate program, 116 (22.5%) were completing their master's degree and 35 (6.8%) were completing their doctorate. A vast majority of the participants (495, 96.1%) were female. Just under half (237, 46%) reported no religious affiliation, and the remaining reported affiliation with Christianity, Roman Catholicism, Buddhism, and other religions.

Regarding experiences in foreign countries, only 83 (16.1%) participants reported that they had stayed in a foreign country for more than three months. Participants were asked questions regarding their cultural encounters with people from different backgrounds, specifically those who speak foreign languages and are part of a foreign culture. Most participants (453, 88.1%) had never taken a course related to multiculturalism or globalization. When asked about their perceived level of proficiency in the English language in reading, writing, listening, and speaking on a four-point Likert response scale, more than half of the participants answered that they have limited proficiency in all four domains. A majority of the participants reported that they were not proficient in writing (408, 79.7%) and speaking English (426, 83.2%). When asked if they ever had experienced working with clients from a different cultural background, more than half of the participants answered that they sometimes (302, 69.1%) or often (24, 4.7%) encounter clients from a different cultural background.

Table 1. General Characteristics of the Participants (*N*=515)

Variables	Categories	n (%)
Type of program	Undergraduate	364 (70.7)
	Master's	116 (22.5)
	Doctorate	35 (6.8)
Gender	Male	20 (3.9)
	Female	495 (96.1)
Religion	Christian	146 (28.3)
	Roman catholic	86 (16.7)
	Buddhism	40 (7.8)
	Others	6 (1.2)
	None	237 (46.0)
Have you stayed in a foreign country for over three months?	Yes	83 (16.1)
	No	432 (83.9)
Have you taken college courses that are related to foreign studies?	Yes	61 (11.8)
	No	453 (88.0)
	Missing	1 (1.9)
Do you have contact with patients or clients from different cultural backgrounds?	Often	24 (4.7)
	Sometimes	302 (58.6)
	None	185 (35.9)
	Missing	4 (0.8)
Do you have contact with other health care professionals from different cultural backgrounds?	Often	7 (1.4)
	Sometimes	165 (32.0)
	None	340 (66.0)
	Missing	3 (0.6)
Have you worked as a nurse?	Yes	149 (28.9)
	No	363 (70.5)
	Missing	3 (0.6)

2. Mean Ranges and Number of Missing Values for K-CAS Items

All participants marked each item of the K-CAS with scores ranging from one (strongly disagree) to seven (strongly agree), except for item number 25, which ranged from two to seven. All of the items' means were a maximum of six and were not less than 2.71. This lowest scoring item was "The instructors at this nursing school adequately address multicultural issues in nurs-

ing,"(item number two). Item number six was the highest scoring item, with a M±SD of 5.66 (1.08). This item was "I think my behaviors are influenced by my culture." Overall, there were few missing values, only six among five items of the questionnaire (items number seven and 11 had three missing scores; items number 15 and 19 had two missing scores; and item number 25 had one missing score).

3. Reliabilities and Validity of the K-CAS

All scales of the K-CAS exhibited acceptable reliabilities (α=.75~.83). These were comparable to those of the original CAS (α=.82). The K-CAS also exhibited good construct validity by correlating with CCCHS (r=.344) and ODC (r=.394). All correlations between the constructs were statistically significant ($p<.001$).

4. Confirmatory Factor Analysis of the K-CAS

The multivariate normality test, x^2 (52)=605.365, $p<.001$, indicated that the assumption of normality had been violated. Thus, an asymptotic, non-parametric method was applied for the estimation of CFA, as it assumes multivariate normality. The model fit statistic was significant, x^2 (288)=748.599, $p<.001$. Test statistics with non-parametric data may invalidate the test result, therefore, this test statistic was not used[29]. It is recommended that the goodness-of-fit index (GFI) and comparative fit index (CFI) must be greater than 0.9, and the root mean squared error of approximation (RMSEA) less than .07. The CFI (0.912), GFI (.90) and RMSEA (0.058) of the model indicated that there was a good fit to the data.

A CFA of the K-CAS indicated an equivalent factor structure between the K-CAS and the original CAS. The K-CAS has four factors (except for the research issues subscale which was not included in the present study): general educational experiences (nine items), cognitive awareness (seven items), behaviors/comfort with interaction (five items), and patient care/clinical issues (five items)(Table 2). Standardized coefficients for three items on the cognitive awareness subscale (items five, six, and seven) were lower than those in the original scale. Standardized coefficients for the original items were .843 (item five), .811 (item six), and .631 (item seven). The estimated coefficient of item 18 (.409) was higher than that for the original CAS (.271) reported by Rew et al.,[18]. However, the congruence coefficient was .985, indicating high congruence between the original CAS and the K-CAS. A statistical post-power analysis of the K-CAS confirmed the power of the CFA results (the estimated power of all factor loadings, excluding one item, with a model fit index in excess of .8).

DISCUSSION

Our findings confirmed that the K-CAS is a reliable and valid instrument for measuring the cultural competency of Korean nursing students and nurses. In addition, the results demonstrated that the factor structure of the K-CAS matched that of the original CAS. In our study, the standardized coefficients of three items of the cognitive awareness subscale were lower than those of the original CAS. This finding implies that Korean nursing students and nurses may respond less sensitively to the items measuring cognitive awareness of cultural competence than do nursing students and nurses in the United States. A possible explanation for this response pattern would be a lack of understanding of the concept among Korean nursing students and nurses. While cultural diversity and cultural competence have emerged as critical social issues, the concept of cultural competence is not well defined in the Korean nursing literature, and it has not been incorporated into the nursing curriculum.

A lack of understanding of the concept of cultural competence among nursing students and nurses is not surprising since the concept of multiculturalism is not well understood in Korean society in general[30] and social policies and health care services for people from diverse cultural backgrounds are not well established yet[31]. Rather than acknowledging the unique differences, our society tends to both explicitly and implicitly expects people from different cultures to assimilate to Korean culture[31].

Choi revealed that nurses had lowest level of cultural competence in comparison to other professionals (e.g., social workers, teachers, nurses, and social work civil servants) particularly cultural knowledge and skills[32]. In addition, nurses were found to have less education, training and organizational support related to cultural competence. Thus, the concept of cultural competence in nursing needs to be redefined and explored in a Korean cultural context.

The growing diversity in Korean society has increased the demand for nurses to possess appropriate knowledge and skills to care for those who seek health care services regardless of their cultural background. Patient-centered nursing practice necessitates nurses to tailor

Table 2. Confirmatory Factor Analysis of the Korean Version of the Cultural Awareness Scale

Factors (Subscales)	Item	Coefficient	SE	z	95% CI
E (General educational experiences)	1. The instructors at this nursing school adequately address multicultural issues in nursing.	.761	0.023	33.01	0.715~0.806
	2. This nursing school provides opportunities for activities related to multicultural affairs.	.638	0.030	21.40	0.574~0.694
	3. Since entering this nursing school, my understanding of multicultural issues has increased.	.763	0.023	32.62	0.722~0.814
	4. My experiences at this nursing school have helped me become knowledgeable about the health problems associated with various racial and cultural groups.	.691	0.027	25.39	0.635~0.743
	15. My instructors at this nursing school seem comfortable discussing cultural issues in the classroom.	.552	0.035	15.98	0.482~0.620
	17. I believe the classroom experiences at this nursing school help students become more comfortable interacting with people from different cultures.	.489	0.037	13.13	0.403~0.552
	19. My clinical courses at this nursing school have helped me become more comfortable interacting with people from different cultures.	.477	0.038	12.46	0.397~0.548
	20. The instructors at this nursing school model behaviors that are sensitive to multicultural issues.	.737	0.025	29.36	0.685~0.785
	21. The instructors at this nursing school use examples and/or case studies that incorporate information from various cultural and ethnic groups.	.664	0.029	22.81	0.605~0.721
C (Cognitive awareness)	5. I think my beliefs and attitudes are influenced by my culture.	.654†	0.031	20.89	0.600~0.722
	6. I think my behaviors are influenced by my culture.	.659†	0.031	21.23	0.607~0.727
	7. I often reflect on how culture affects beliefs, attitudes, and behaviors.	.474†	0.039	11.98	0.413~0.566
	11. I believe nurses' own cultural beliefs influence their nursing care decisions.	.658	0.031	21.24	0.591~0.714
	13. I think students' cultural values influence their classroom behaviors (e.g., asking questions, participating in groups, offering comments).	.567	0.035	16.10	0.496~0.635
	14. I think it is the nursing instructor's responsibility to accommodate students' diverse learning needs.	.620	0.033	18.92	0.555~0.684
	16. I think the cultural values of the nursing instructors influence their behaviors in the clinical setting.	.690	0.029	23.54	0.631~0.747
B (Behaviors/ Comfort with interaction)	8. When I have an opportunity to help someone, I offer assistance less frequently to individuals of certain cultural backgrounds.	.503	0.042	11.96	0.436~0.598
	9. I am less patient with individuals of certain cultural backgrounds.	.590	0.038	15.51	0.541~0.685
	10. I feel comfortable working with patients of all ethnic groups.	.498	0.041	12.07	0.415~0.577
	12. I typically feel somewhat uncomfortable when I am in the company of people from cultural or ethnic backgrounds different from my own.	.722	0.033	21.73	0.668~0.793
	26. I feel somewhat uncomfortable working with the families of patients from cultural backgrounds different than my own.	.683	0.034	19.96	0.632~0.762
P (Patient care/ Clinical issues)	18. I feel comfortable discussing cultural issues in the classroom.	.409‡	0.042	9.80	0.339~0.503
	22. I respect the decisions of my patients when they are influenced by their culture, even if I disagree.	.637	0.032	20.15	0.573~0.698
	23. If I need more information about a patient's culture, I would use resources available onsite (e.g., books, videotapes).	.802	0.024	33.68	0.747~0.843
	24. If I need more information about a patient's culture, I would feel comfortable asking people I work with.	.758	0.026	29.30	0.695~0.800
	25. If I need more information about a patient's culture, I would feel comfortable asking the patient or family member.	.629	0.033	18.91	0.557~0.690

† Standardized coefficients for the bold values were lower than those in the original scale; ‡ Standardized coefficient for the bold value was higher than that in the original scale.

culturally competent nursing care delivery to individual patients. The findings reported herein suggest the need for cultural competence education for nursing students and nurses, as well as reliable and valid instruments to measure the outcomes of such education. Development of the K-CAS would be a meaningful first step. In addition, further cross-cultural studies evaluating the factorial invariance of the CAS with Korean and U.S. samples in one study are required.

CONCLUSION

The present study introduced an instrument with sound psychometric properties, one of few valid instruments evaluating cultural competence among nursing students. The present study has enhanced our understanding of the nature and dimensionality of the K-CAS. The K-CAS could be a useful tool to assess the quality of nursing education in terms of cultural competence, as well as the level of cultural competence among nurses and nursing students themselves.

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