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Translation and Evaluation of the Cultural Awareness Scale for Korean Nursing Students

Abstract

Background: To evaluate the effectiveness of a curriculum for achieving high levels of cultural competence, we need to be able to assess education intended to enhance cultural competency skills. We therefore translated the Cultural Awareness Scale (CAS) into Korean (CAS-K). The purpose of this study was to evaluate the cross-cultural applicability and psychometric properties of the CAS-K, specifically its reliability and validity.

Methods: A cross-sectional descriptive design was used to conduct the evaluation. A convenience sample of 495 nursing students was recruited from four levels of nursing education within four universities in the city of Daejeon, South Korea.

Results: This study provided beginning evidence of the validity and reliability of the CAS-K and the cross-cultural applicability of the concepts underlying this instrument. Cronbach's alpha ranged between 0.59 and 0.86 (overall 0.89) in the tests of internal consistency. Cultural competency score prediction of the experience of travel abroad ($r = 0.084$) and the perceived need for cultural education ($r = 0.223$) suggested reasonable criterion validity. Five factors with eigenvalues >1.0 were extracted, accounting for 55.58% of the variance; two retained the same items previously identified for the CAS.

Conclusion: The CAS-K demonstrated satisfactory validity and reliability in measuring cultural awareness in this sample of Korean nursing students. The revised CAS-K should be tested for its usability in curriculum evaluation and its applicability as a guide for teaching cultural awareness among groups of Korean nursing students.

Keywords: nursing education, student learning, measurement of cultural awareness, curriculum evaluation

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Introduction

As populations continue to diversify around the world, healthcare professionals confront a growing number of patients from various cultures (Jeffreys & Dogan, 2012). This demographic change is a global phenomenon, and providing culturally competent health care to a multitude of diverse patients is both challenging and important (Jeffreys & Dogan, 2012; Suurmond, Seeleman, Rupp, Goosen, & Stronks, 2010).

The country of South Korea has supported a homogenous culture for over 5,000 years. However, in recent decades South Korea has been rapidly evolving into a multicultural and multi-ethnic society, as the numbers of international marriages, foreign workers, and visitors have increased under the influence of globalization and internationalization (Oh, 2011). The foreign resident population has increased by approximately 3.6% (Ministry of Justice, 2011), and the number of visitors, including international students and tourists seeking quick, quality medical services at lower prices, is increasing in Korea (Yu & Ko, 2012). This major change in ethnic demographics challenges healthcare with various socio-cultural backgrounds. Despite changes in the rapidly changing multicultural society, however, current nursing education programs in South Korea do not focus on cultural aspects or diversity (Oh, 2011).

In order to provide culturally competent care, nurses should be sensitive to and accepting of the different cultural backgrounds of patients. Researchers agree that cultural competence starts with cultural awareness (Krainovich-Miller et al., 2008; Rew, Becker, Cookston, Khosropour, & Martinez, 2003), the ability to perceive differences and similarities in diverse cultures and to learn and apply transcultural communication and interaction skills with patients (Clinton, 1996; Kuehn et al., 2011; Rew et al., 2003). Experts in transcultural nursing education have emphasized the importance of cultural awareness in cultural competency (Kardong-Edgren & Campinha-Bacote, 2008). Since cultural awareness is an integration of the multidimensional domains of cultural sensitivity, skills, and knowledge (Rew et al., 2003), content on this subject has been identified as a critical component of nursing practice, education, and research.

There are currently 202 nursing schools in South Korea. Examination of cultural competency is critical as one of the core nursing competencies in nursing education (Oh, 2011); however, there is no validated cultural competency instrument for Korean nursing students. Following culturally appropriate translation of the Cultural Awareness Scale (CAS) into Korean, we undertook investigation to examine the validity and reliability of the Korean version (CAS-K). Following the guidelines proposed by Paunonen and Ashton (1998), the evaluation focused on a comparison of the mean and variance of scores between the subscales of the CAS and CAS-K, as well as the reliability, criterion validity, and construct validity of the CAS-K.

Literature review

The original Cultural Awareness Scale (CAS) was developed by Rew et al. (2003) to measure outcomes of a nursing education program. Its validity and reliability have been verified using the student populations of the University of Texas (Rew et al., 2003, 2014) and New York University (Krainovich-Miller et al., 2008) in the United States. This version of the CAS consists of 36 items (Rew et al., 2003) and emphasizes the acknowledgment of one's own cultural background to enhance cultural sensitivity. The items are grouped into five subscales: General Educational Experience, Cognitive Awareness, Research Issues, Behaviors/Comfort with Interactions, and Patient Care/Clinical Issues. CAS items are scored on a 7-point Likert-type rating scale (1 = strongly disagree to 7 = strongly agree) and are worded positively or negatively. To further reduce the possibility of response bias, the subscale items also are randomly ordered under different sub-headings: General Experiences at this School of Nursing, General Awareness and Attitudes, Nursing Classes/Clinicals, Research Issues, and Clinical Practice. Based upon surveys of nursing students in the United States, the mean score for the original total scale was 5.32. The Cronbach alpha was 0.82, indicating satisfactory reliability.

The translation process for an instrument being used with people who speak different languages and come from different cultural contexts can result in distorted meanings of the items. In the context of cross-cultural research, a few principles have been established to minimize this potential problem (Jones, Lee, Phillips, Zhang, & Jaceldo, 2001). The translating of a scale in cross-cultural research does not rely on exact translation of the original words. Instead, the task is to revise words

for the target language respecting relevant linguistic and cultural differences such as colloquial phrases, jargon and idiomatic expressions (Hilton & Skrutkowski, 2002). *Decentering*, through translation and revisions in both languages rather than direct translation, may be undertaken if the content and meaning can be kept (Cha, Kim, & Erlen, 2007; Sperber, Devellis, & Boehlecke, 1994).

For cross-cultural research, Brislin's well-known model (Brislin, 1970) is the most widely used by bilingual experts for translation into a different language. Brislin (1970) suggested four techniques to maintain content equivalence: back translation, the bilingual technique, the committee approach, and pretest procedures. *Back translation* is a process that requires translating a different language version back into the original language, then comparing the two versions for concept equivalence. The *bilingual technique* requires bilingual participants to administer the two language versions of a scale, one in the original and one in the language into which it has been translated, and then comparing the results. The *committee approach* involves a minimum of three bilingual experts in the translation process. The *pretest procedure* is a pilot test used to help identify potential clarity and comprehension problems in the target population (Brislin, 1970; Cha et al., 2007). In particular, culture-related concepts should be carefully addressed both during the translation process and in the use of the instrument.

Even if linguistic equivalence is achieved through the use of a culturally sensitive translation technique, any new instrument may not function equivalently due to cultural differences (Hsueh, Phillips, Cheng, & Picot, 2005). Therefore, psychometric properties, including the validity and reliability of the translated scale, are examined and compared with those of the original scale (Byrne & Campbell, 1999). Translated instruments are considered valid when the psychometric properties are comparable to those of the originals (Paunonen & Ashton, 1998). Psychometric components such as scale means, variance, reliability, criterion validity, and construct validity should be similar to those of the original version so that the translated version can be judged rigorous relative to the reliability and validity of the original measure (Paunonen & Ashton, 1998).

Methods

Ethics protocol approval for the translation and evaluation of the CAS-K was obtained from the University Institutional Review Board (IRB).

Procedures

Before the translation began, the translators discussed the purpose of the translation, and the importance of cultural context, target audiences, and particular language styles. The double-translation method (Beck, Bernal, & Froman, 2003; Brislin, 1970; Jones et al., 2001) and a revised version of Brislin's translation model were adopted for the translation of the CAS from English into Korean. The revised version of Brislin's translation model follows the group approach in each step (Jones et al., 2001). In the first step, translation from English to Korean was performed by two PhD prepared bilingual nursing faculty. In addition to semantic translation, cultural meaning was carefully considered. Where possible, to render the translated items less awkward, more natural wording was used. At the completion of the translation process, group discussion enabled the translators to reach consensus and draft the revised instrument.

Back translation was performed by a third professional translator, who did not have prior information about the scale. All three translators then compared the original English version to the back-translated English version. As judged by the translators, the original and back-translated versions did not differ appreciably. The differences that did occur were grammatical. There were no significant differences in meaning.

Of the 36 items, four were considered problematic since the cultural context of Korean nursing education differs from that of American nursing education. Following a group discussion between the authors and a nursing instructor who specializes in transcultural nursing, items 8, 13, 14, and 16 were deemed to be inappropriate for the Korean nursing education context and/or student body and therefore were removed. For example, item 13 stated, "I have noticed that the instructors at this nursing school call on students from minority cultural groups when issues related to their group come up in class". This item was judged not applicable for the Korean nursing students, since the cultural makeup of the student body is homogenous in Korean nursing schools.

A pilot test was conducted at one university in order to further determine the comprehensibility and clarity of the CAS-K for Korean students. Eight students completed the questionnaire. All were able to answer the items, although three items were identified as requiring further consideration of the students' understanding of the wording of questions. For example, item 19, "My nursing instructors seem interested in learning how their classroom behaviors may discourage students from certain

cultural or ethnic groups", was determined to be too long for respondents to follow. Students explained that the translated verb "seem" and "may discourage" were difficult to understand. This item therefore was reworded into two sentences to promote clarity and comprehension.

A descriptive survey was then conducted to determine the validity and reliability of the finalized CAS-K instrument. The investigation of reliability focused on internal consistency, while the focus on validity emphasized both criterion and construct validity.

Sampling and sample recruitment

A convenience sample of 506 nursing students representing four levels of nursing education in four universities located in Daejeon, South Korea, were recruited. Two of the universities had 4-year baccalaureate, masters and doctoral programs, while the other two had 3-year Associated Degree programs.

To conduct exploratory factor analysis, a ratio between participants and variables of 10: 1 is recommended (Nunnally & Bernstein, 1991); hence, this sample was determined to be adequate for the planned analysis of the 32-item CAS-K. A total of 495 of 506 students completed the survey in full (response rate = 98%).

Data collection

After the approval of the revised version of the scale by the original author (Rew et al., 2003), the Principal Investigator (PI) approached the Deans of participating nursing schools to seek permission to access students. With informed consent, both undergraduate and graduate nursing students currently enrolled in the four institutions were invited to complete the researcher-administered paper-based CAS-K after class. Completion of this paper survey took approximately 15 minutes.

Data analysis

The Statistical Package for Social Science (SPSS) Version 18.0 (SPSS Inc., Chicago, IL) was used for data analyses. Means and standard deviations were calculated in order to examine the descriptive statistics for each subscale and the total scale. Cronbach's alpha coefficients were calculated for each subscale, as well as the total scale of

the CAS-K, in order to determine its reliability, specifically, its internal consistency.

Criterion validity was measured by computing the predictive relationship between the instrument and two criteria, specifically, “experience of travel abroad” and “perceived need for cultural education”. Significant positive correlation between scores on the CAS-K and these two items was considered to afford some indication of criterion validity.

To facilitate direct comparisons, the design of the exploratory factor analysis conducted on the original CAS (Rew et al., 2003) was examined. Accordingly, before undertaking exploratory factor analysis of the CAS-K, the Kaiser–Meyer–Olkin measure of sampling adequacy was used to determine the appropriateness of doing this analysis. Bartlett’s test of sphericity, a test for overall significance of correlations within a matrix, was statistically significant ($p < 0.001$), thus supporting the use of factor analysis. In keeping with factor analysis of the CAS, principal component analysis with an orthogonal varimax rotation was used for the creation of factors. Generally, factor loadings of >0.30 are considered to meet a minimal level of acceptability, and loadings >0.50 are considered to be statistically significant (Munro, 2005). For the evaluation of the CAS-K, the factor loading criterion was set at >0.40 , which is generally accepted as psychometrically relevant, and all 32 items were included. The cut-off criterion of eigenvalue >1.0 was used for selection of the factors. The results of the

exploratory factor analysis of the CAS-K were then compared to those obtained from factor analysis of the original CAS (Rew et al., 2003).

Results

Of the 495 participants, 88.3% were women, most in their early twenties. More than 90% were undergraduates. Just over one-half of the participants had traveled abroad, but 88% had not experienced living abroad. Approximately 58% of the participants reported no experiences of interaction with foreigners. Many of the students (74.3%) reported that they had received no classroom content related to culture. Approximately 63% expressed the need for cultural education. Significant differences were observed in the Experience of Travel Abroad and the Perceived Need for Cultural Education (Table 1).

A summary of the reliability findings is presented in Table 2. Cronbach alpha coefficients ranged between 0.59 and 0.86 for the subscales of the CAS with a total scale reliability of alpha 0.89. Reliability coefficients for most the subscales were comparable to those of the original CAS (Table 2).

Significant correlation coefficients between the CAS-K total score and Experience of Travel Abroad ($r = 0.084$; $p < 0.10$) and between the CAS-K total score and Need for Cultural Education ($r = 0.223$; $p < 0.001$) suggested reasonable criterion validity.

Table 1: Demographic characteristics and comparison of mean CAS-K scores by demographic sub-group ($N = 495$).

Characteristics	Categories	N (%)	CAS		
			Mean	Test statistic	p-Value
Gender	Male	38 (7.7)	149.36	$t = 0.98$	0.12
	Female	398 (88.3)	143.70		
Program	Undergraduates	448 (90.5)	144.20	$t = -1.22$	0.23
	Graduates	47 (9.5)	148.15		
Experience of overseas trip	Yes	262 (52.9)	146.41	$t = 2.04$	0.04
	No	231 (46.7)	142.57		
Experience of living abroad	Yes	58 (11.7)	146.90	$t = 0.86$	0.39
	No	435 (87.9)	144.30		
Experience of interaction with foreigners	Yes	203 (41.0)	146.57	$t = 1.83$	0.09
	No	289 (58.4)	143.30		
Participating class related to culture	Yes	125 (25.3)	147.00	$t = 1.49$	0.14
	No	368 (74.3)	143.81		
Need of cultural education	Yes	310 (62.6)	147.97	$F = 7.82$	0.00
	No	47 (9.5)	140.31		
	not sure	134 (27.1)	138.61		

Table 2: Means, SDs, and reliability of scores in the CAS and the CAS-K.

	CAS ^a			CAS-K		
	<i>M</i>	<i>SD</i>	Cronbach's alpha	<i>M</i>	<i>SD</i>	Cronbach's alpha
General educational experience	5.18	0.87	0.85	3.95	0.82	0.84
Cognitive awareness	5.54	0.95	0.79	5.24	0.85	0.81
Research issues	4.41	1.61	0.94	4.17	0.98	0.86
Behaviors/comfort with interactions	5.39	0.99	0.71	4.32	1.00	0.59
Patient care/clinical issues	5.99	0.88	0.77	5.24	0.95	0.86
Total	5.32	0.53	0.82	4.34	0.61	0.89

Notes: Tabular data presented under the heading "CAS" are from the evaluation of the original version of the Cultural Awareness Scale (Rew et al., 2003); those under the heading "CAS-K" are from the evaluation of the Korean version presented herein.

^aOriginal CAS developed by Rew et al. (2003).

Five factors with eigenvalues >1.0 were extracted, accounting for 55.58% of the variance. The number of factors was verified using the scree test; the steep line related to the first five factors represented the highest proportions of variance. Results of the factor analysis are presented in (Tables 3 and 4).

Among the five factors identified, two factors kept the same items as in the original research. In this study, Educational Experiences were divided into factors 2 and 4, and Cognitive Awareness and Patient Care/Clinical Issues were condensed into factor 1. A significant positive correlation between the experience of travel abroad and the need for cultural education suggested the criterion validity of the CAS-K (Table 4).

Discussion

The findings from this investigation suggest that the CAS-K is an appropriate instrument for the measurement of cultural awareness among Korean nursing students. The mean scores on the three subscales and overall scores of the CAS-K were lower in this study than for the CAS in previous investigations conducted in the United States (Krainovich-Miller et al., 2008; Rew et al., 2003). These mean differences between the CAS and the CAS-K may be due in part to differences in the characteristics of the participants and in the cultural context and content of nursing education in these nations. In the CAS-K, the sample consisted entirely of an ethnically homogeneous group of participants. Significant correlation of the experience of travel abroad and the perceived need for cultural education afforded a measure of criterion validity of the CAS-K.

The CAS-K demonstrated good internal consistency as noted by the total scale score of $\alpha = 0.89$. One of the subscales, Behaviors/Comfort with Interactions, had

an alpha of 0.59, falling below the predetermined minimum ($\alpha = 0.70$). The alpha measurements for the other four subscales ranged from 0.81 to 0.86. These results are consistent with the internal consistency coefficients of 0.71 to 0.94 from the original CAS (Rew et al., 2003) and the overall alpha coefficient of 0.87 (Krainovich-Miller et al., 2008). These psychometric properties provide evidence indicating that the overall CAS-K has adequate internal consistency for use with Korean nursing students.

Of particular note, compared to the alpha score for the same construct of the CAS, the alpha score was moderately smaller on the CAS-K for Behaviors/Comfort with Interactions. One possible explanation for this discrepancy is that two of the six original items were removed during the cross-cultural acceptability check, and having so few items comprising the subscale in the CAS-K may have contributed to the low alpha. However, in the original study (Rew et al., 2003), this subscale also had a low alpha score. The authors of the original scale explained that, since most items on the subscales are worded negatively, the tendency to answer negatively may have been a contributory factor. In the evaluation of the CAS-K, another more likely possibility is the influence of the homogenous nature of the nursing student sample. Previous study samples were ethnically diverse. For example, in the study by Rew et al. (2003), 76% of participants were Anglo and 10% were Hispanic. The original CAS was developed in a context of culturally and ethnically diverse faculty, students, and patients. The education environment of Korea, particularly that of its nursing schools, is different from that in Western societies. While patient populations are becoming more diverse, most healthcare professionals are Korean.

The research issues and the behaviors/interactions subscales of the CAS-K were the same as those contained

Table 3: Comparison of factor loadings and factor structure for the CAS and CAS-K.

Item	Rew et al. (2003)					Oh (2011)				
	General	Cog ¹	Research ²	Behavior ³	Patient ⁴	F1	F2	F3	F4	F5
CAS 1	0.77								0.60	
CAS 2	0.64								0.79	
CAS 3	0.76								0.90	
CAS 4	0.71								0.82	
CAS 5		0.84				0.76				
CAS 6		0.81				0.79				
CAS 7		0.63				0.59				
CAS 9				0.79						0.53
CAS 10				0.54						0.53
CAS 11		0.68				0.55				
CAS 12				0.70						0.77
CAS 15		0.52				0.68				
CAS 17		0.41				0.56				
CAS 18	0.61						0.51			
CAS 19	0.47						0.64			
CAS 20		0.45				0.62				
CAS 21	0.64						0.63			
CAS 22	0.47									0.50
CAS 23					0.27	0.51				
CAS 24	0.51						0.61			
CAS 25	0.64						0.48			
CAS 26	0.72						0.62			
CAS 27	0.67						0.51			
CAS 28			0.81					0.61		
CAS 29			0.89					0.75		
CAS 30			0.95					0.81		
CAS 31			0.94					0.77		
CAS 32					0.71	0.70				
CAS 33					0.72	0.70				
CAS 34					0.76	0.71				
CAS 35					0.76	0.62				
CAS 36				0.60						0.65
% of Variance	15	10	9.7	8.2	8.1	17.5	11.2	10.1	9.83	6.99
Cumulative %: 51.11					Cumulative %: 55.58					

Note: Items 8, 13, 14 and 16 of the original CAS were removed from the CAS-K during the translation process.

1. Cognitive Awareness; 2. Research Issues; 3. Behaviors/Comfort with Interaction; 4. Patient Care/Clinical Issues

Table 4: Pearson intercorrelations among subscales of the CAS-K.

	Cognitive awareness	Research issues	Behaviors/Comfort with interaction	Patient care/clinical issues	Travel abroad	Need for cultural education ^a
General educational experience	0.26***	0.59***	0.18***	0.34***	0.04	0.11*
Cognitive awareness	–	0.33***	0.06	0.63***	0.09	0.23***
Research issues	–	–	0.11*	0.43***	0.04	0.09
Behaviors/comfort with interactions	–	–	–	0.24***	0.12*	0.09*
Patient care/clinical issues	–	–	–	–	0.10*	0.26***
Total score	–	–	–	–	0.08	0.22***

Note: ^aCoded 1 for “yes” and 0 for “no” or “not sure.”

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

within the original CAS scale. However, in the CAS-K, the General Educational Experience subscale was divided into factors 2 and 4 in the CAS-K, and the Cognitive Awareness and Patient Care/Clinical Issues subscales were condensed into factor 1. Korean nursing students may have interpreted the original scale items differently even if the subscales of the CAS and CAS-K had been identical constructs. The concepts within these constructs may have been constituted differently or more concretely interpreted by members of the two cultures (Rew et al., 2003). For example, the General Educational Experience subscale of the original CAS asks participants to respond to statements about two separate factors of cultural awareness, namely, general educational experiences within their nursing school (factor 4 – items 1, 2, 3, 4) and nursing classroom experiences (factor 2 – items 18, 19, 21, 24, 25, 26, 27). Korean participants in the evaluation of the CAS-K might have found it difficult to differentiate between nursing school and classroom experiences, especially faculty experiences, as they relate to cultural awareness. As well, item 1 for the CAS states, “The instructors at this nursing school adequately address multicultural issues in nursing”, while item 18 reads, “My instructors at this nursing school seem comfortable discussing cultural issues in the classroom”. While these two items are from the same subscale in the CAS, participants scoring these items on the CAS-K perceived them as totally different.

Another culture-related finding was that subscales of Cognitive Awareness and Patient Care/Clinical Issues were condensed into factor 1 in this Korean study. The Cognitive Awareness subscale addresses items about cultural beliefs, and the Patient Care/Clinical Issues subscale deals with cultural issues that arise during patient care. For example, item 11 is “I believe nurses’ own cultural beliefs influence their nursing care decisions”, and item 32 is “I respect the decisions of my patients when they are influenced by their culture, even if I disagree”. In the original study, these two items came from different subscales. In this study, participants perceived them as conceptually similar. These findings suggest the need for further investigation to define cultural differences in the interpretation of the CAS-K.

Overall, the different factor loadings in this Korean study may reflect both differences in the items of the five subscales/factors and presentation of subscales under different headings in a random sequence. The five subscales/factors of the CAS-K include: General Education Experience, Cognitive Awareness, Research Issues, Behavior/Comfort with Interactions, and Patient Care/Clinical Issues. These five subscales/factors are presented

in the instrument under different headings, namely: General Experience at this School of Nursing, General Awareness and Attitudes, Nursing Classes/Clinical, Research Issues, and Clinical Practices.

Since this evaluation of the CAS-K, the author of the original CAS and her colleagues have reanalyzed the CAS (Rew et al., 2014) as recommended by Krainovich-Miller et al. (2008), using confirmatory factor analysis and structural equation modeling. The results of these analyses did not replicate findings from earlier investigations (Rew et al., 2014), although they supported the reliability of the CAS and validated its three-factor measurement of cultural awareness. The three original subscales (General Educational Experience, Cognitive Awareness, Behaviors/Comfort with Interactions) were compiled as one subscale labeled General Attitudes. The Research Issues subscale remained the same, but the last item in the Patient Care/Clinical Issues subscale was deleted. The revised English version, now comprised of 35 items with 3 subscales, has been reported to be reliable and valid (Rew et al., 2014).

Conclusion

As patient populations continue to be more diverse, healthcare providers will be called on to treat a growing number of patients from various cultures, many of whom have differing cultural perspectives and values. This study provides an evaluation of the validity and reliability of the CAS-K with due consideration of the cross-cultural applicability of the concepts underlying the instrument. The CAS-K may be useful for both assessment of cultural awareness in nursing students in Korea and evaluation of the effectiveness of Korean nursing curricula in preparing culturally competent nursing professionals. Although this study determined the CAS-K to be a reliable and valid instrument for the measurement of cultural awareness among Korean nursing students, the sample for the pilot test was recruited from only one nursing school in South Korea. The generalizability of the CAS-K therefore may be limited to nursing students in South Korea with characteristics similar to those of the study population. Cultural awareness may also differ with differing personal cultural experiences. Conceptual differences between the CAS and the CAS-K and different views on some constructs of the scale also need to be considered in any future use of the CAS-K. Empirical evidence related to these aspects should be further examined using scales developed in culturally different contexts and with more diverse student populations, as well as with students from all levels of nursing education in

different cities of South Korea. Finally, future studies using qualitative methodologies are recommended to uncover in depth, the unique cultural characteristics of South Koreans.

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