Original Article

Intercultural Communication Apprehension Scale (PRICA): Validity and Reliability Study in Turkish

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Abstract

Background/aim: The aim of this research is to adapt the Intercultural Communication Apprehension Scale to Turkish and to examine its psychometric properties.
Materials and methods: This methodological study was conducted to investigate the validity and reliability of the Intercultural Communication Apprehension Scale. The research was conducted on 348 university students from Nursing Faculty of Ataturk University, Turkey.
Results: In order to determine the construct validity of Intercultural Communication Apprehension Scale, factor analysis was conducted using principal components analysis with varimax rotation. The factor analysis resulted in two factors; focus on positive and negative sub-scale. The Cronbach's alpha for the Intercultural Communication Apprehension Scale was .89. Item analyses showed corrected item-total correlations were between .33 and .71.
Conclusion: Based on these results, it can be concluded that Turkish version of Intercultural Communication Apprehension Scale is a valid and reliable measurement in assessing university students' intercultural communication apprehension.

Keyword: Intercultural Communication, Scale, Validity, Reliability

Introduction

The cultural perceptions, beliefs, values and traditions of each culture have a direct influence on the ways of communication of the individuals and society. For this reason, semantical challenges or obstacles may emerge when people of different cultures communicate with each other (Zhan 2010). Those who wish and are willing to gain intercultural competence should first be aware of the differences between cultures, recognize different cultural values, and be culturally sensitive for respecting other cultures, accepting differences and valuing them in the learning process (Matveev 2002). Knowing a language is considered a means of communication, and knowing the language of a culture is considered quite important factor in terms of understanding a culture since it leads to making a sense of the messages (Lopez-Rocha 2016). Intercultural communication takes place when people from two different cultures come together and exchange verbal and nonverbal symbols (Neuliep 2009). For an intercultural communication, the knowledge of a culture

produced in accordance with the values, norms and rules of that culture needs to be used by a member of a different culture (Samovar 2010). Language develops in line with the very same field emphasized and focused by the culture. Hence, if a culture has many words reflecting various aspects of a particular situation, then one can get clues about that culture (Everett 2012). In the process of intercultural communication, at least one of the interacting individuals must know a second language (Samovar 2010).

Culture, which is a concept that has been addressed, studied and interested since the last quarter of the twentieth century in line with the cultural differences and communication problems due to accelerated globalization, refers to all the characteristics and features that characterize and distinguish human and human behavior from others in the broadest sense (Kartari 2014). Intercultural communication anxiety is defined as fear and anxiety in the face of the possibility of communicating with people from different cultures (Neuliep 1997). It has been observed that those who have high intercultural communication anxieties feel confused in the face of people from other cultures or ethnicities, and this confusion causes the anxiety levels of these individuals to rise further (Bozkaya 2010).

The fact that societies are now transforming into increasingly multicultural structures in the world and the need for providing a culture-specific care has significantly influenced nursing (Hitchcook 2003). In multicultural societies, healthcare professionals need to be culturally competent (Eunyoung 2004). It is very important for nurses to know and understand the cultures of patient groups to provide effective nursing care (Vydelingum 2006).

Material and Methods

This methodological study was conducted to investigate the validity and reliability of the Intercultural Communication Apprehension Scale. The study population consisted of 1156 students studying at the Faculty of Nursing between September and December 2017. And, the study sample consisted of 348 students, which is at least 10 times of the number of items (Hilton 2002) of the Intercultural Communication Apprehension Scale.

Data Collection Instruments and Collection of Data

The study data were collected by the face-to-face interviews using a personal information form and Intercultural Communication Apprehension Scale.

Personal Information Form

The form, developed by the researcher in line with the literature, contains 10 items. The form includes questions identifying students' introductory information, foreign language knowledge and overseas experiences.

Intercultural Communication Apprehension Scale

The scale has been developed by McCroskey in 1997 to determine whether there is communication apprehension. among individuals to provide effective and sustainable communication. The scale consists of 14 items. Each item on the 5-point Likert type original scale is rated between "Strongly disagree" (1 point) and "Strongly agree" (5 points). The scale items are scored between 1-5 points. The total score of the scale is calculated as follows:

Step 1: Scores of 1st, 3rd, 5th, 7th, 9th, 10th and 12th items are added.

Step 2: Scores of 2nd, 4th, 6th, 8th, 11th, 13th and 14th items are added.

Step 3: Total Score equation: 42 - (Total score in the 1st step + Total score in the 2nd step)

The total score of the scale ranges from 14 to 70 points. A total score less than 32 indicates low intercultural communication anxiety, and a score over 52 indicates a higher intercultural communication apprehension. A score between 32 and 52 indicates a medium-level intercultural communication apprehension.

Linguistic validity, content validity and construct validity were examined for validity of the scale. Group translation and back translation methods were used in the development of the Turkish version of the scale. In terms of content validity, opinions were obtained from experts in the subject field, and factor analysis was carried out for construct validity. Internal consistency and item total score correlations were examined for the reliability of the scale. For internal consistency,

Cronbach's alpha reliability, which is recommended for Likert-type scales, was calculated. Item total score correlations were analyzed by Pearson's correlation coefficient.

Ethical matters

Cooperation was provided by obtaining written permission from the necessary persons for the use of PRİCA. The permission of the study was received. In the process of gathering data, questions of the students who agreed to participate in the study were answered and individual counselling was conducted in line with care necessities.

Linguistic Validity

In order for a measurement instrument to be valid, linguistic validity must first be ensured. The language adaptation is the standardization of a measurement tool in a foreign language according to the norms of the target language without changing the nature of the original tool or changing it at a minimum level by minimizing the conceptualization and expression differences during translation (Gozum 2003). A six-step translation method was adopted in accordance with international methodological recommendations for linguistic and cultural adaptation during the translation process (Hilton 2002).

1. Two independent, forward translations from English to Turkish,

2. Merging the two forward translations by three academics, who have good command of English language, in order to obtain a single tool that is agreed upon,

3. Back-translation of the scale into English, which is the original language of the scale, by a bilingual translator who have good command of Turkish and English languages,

4. Comparison of the scale back-translated into English with the English original and evaluating its Turkish version,

5. Submitting the final version of the translation agreed upon and the original form to the expert lecturers for evaluation in terms of the suitability of translation,

6. Finalizing the questionnaire as a result of the reviews made in line with the recommendations of the lecturers.

Content Validity

The content validity is the extent that the scale as a whole and each item of the scale serves to purpose (Ercan 2004, Okzan 2006). Expert opinions is one of the frequently used methods to determine content validity, which indicates the quantitative and qualitative adequacy of the items used for the properties to be measured (Kurnaz 2010). Erefe (2002) suggests that the draft prepared for validity of the content validity should be presented to at least three experts, and that these experts should meet after independent evaluation to present their opinions (Erefe 2002). After being translated, the Intercultural Communication Apprehension Scale was presented to six experts for their opinions. For the content validity, the content validity index was determined by the Davis technique (Yurdugul 2005). Experts were asked to evaluate each item in terms of language appropriateness, clarity, and understandability for the Turkish community by giving a score of 1 to 4 (1 = very appropriate, 2 = appropriate, but small changes required, 3 = item need to be changed for appropriateness, 4 = inappropriate). When evaluating each item, the number of experts who selected option (a) or (b) was divided by the total number of experts, and the threshold value for the Content Validity Index (CVI) for each item was accepted to be 0.80. In this study, no item was removed since all the items were had a CVI value above 0.80. This result shows that there is a consensus among experts, as recommended by Yurdugul (2005) to take 0.80 CVI as the criterion.

Results

In the study, the Personal Report of Intercultural Communication Apprehension Scale (PRICA) scale developed by McCroskey was used. The scale consists of 14 items. The Cronbach's alpha value of the scale has been 0.88. In this study, Cronbach's alpha value was found to be 0.89. Of the study participants, 73.6% was female, 52.9% was 20 years old and over, and 44.3% was freshman student. Considering the foreign language knowledge of the students, 50.6% had no foreign language competency. And, 94.8% has never been abroad. Of the students, 59.2% had primary school graduate father, and 83.6% had primary school graduate mother (Table 1).

Table 1. Socio-demographic Characteristics of Participants

Characteristics	S	(%)
Age		
19 and under	164	47.1
20 and over	184	52.9
Gender		
Female	256	73.6
Male	92	26.4
Academic Year		
1st year	154	44.3
2nd year	60	17.2
3rd year	99	28.4
4th year	35	10.1
Knowing a foreign language		
None	176	50.6
One	142	40.8
Two or more	30	8.6
Abroad Experience		
Yes	18	5.2
No	330	94.8
Father Education		
Primary school	206	59.2
High school	91	26.1
University and over	51	14.7
Mother Education		
Primary school	291	83.6
High school	48	13.8
University and over	9	2.6
Total	**348**	**100.0**

Table 2. Test-Repeat Test Correlation Analysis

Test-Repeat Test	X± SS	r	p
First	29.25±9.88		
Second	32.35±8.78	0.542	0.001

Table 3. Internal Consistency and Homogeneity of Personal Report of Intercultural Communication Apprehension

Items	Average of scale if item is removed	Variance of scale if the item is removed	Corrected Item-Total Correlation	Cronbach alpha coefficient of the scale if the item is removed
1.	27,40	84,73	,671	,877
2.	27,76	86,53	,635	,880
3.	26,62	90,79	,229	,901
4.	27,78	85,62	,660	,878
5.	27,42	85,21	,629	,879
6.	27,81	84,12	,712	,876
7.	27,24	84,13	,633	,879
8.	27,70	82,89	,705	,875
9.	27,37	83,76	,700	,876
10.	27,10	85,41	,561	,883
11.	27,55	84,48	,629	,879
13.	27,28	90,05	,345	,893
14.	27,74	85,58	,576	,882

Table 4. Bartlett's Test and Kaiser-Meyer-Olkin (KMO) Measure of Sample

Test (N=348)	**Results**	
KMO	0.90	
Bartlett's Test	X^2=2368.410	p=0.000

Table 5. Factor Structure, Explotary Variance Values and Eigenvalues of the Scale

Factors	Items	Factors Loading
Factor 1	2. I am tense and nervous while interacting with people from different cultures.	.575
	4. Engaging in a group discussion with people from different cultures makes me nervous.	.718
	6. While participating in a conversation with a person from a different culture, I get nervous.	.778
	8. Ordinarily I am very tense and nervous in a conversation with person from a different culture.	.771
	11 I am afraid to speak up in conversations with a person from a different culture.	.707
	13. My thoughts become confused and jumbled when interacting with people from different cultures.	.596
	14. Communicating with people from different cultures makes me feel uncomfortable.	.782
Factor 2	1. Generally, I am comfortable interacting with a group of people from different cultures.	.826
	3. I like to get involved in group discussion with others who are from different cultures.	.491
	5. . I am calm and relaxed with interacting with a group of people who are from different cultures.	.632
	7. I have no fear of speaking up in a conversation with a person from a different culture.	.732
	9. Ordinarily I am very calm and relaxed in conversations with a person from a different culture.	.747
	10. While conversing with a person from a different culture, I feel very relaxed.	.707

	Explotary Variance Values of Factors	Eigenvalues
Factor 1	30.207	3.927
Factor 2	26.612	3.460
Total Variance	**% 56.819**	

Reliability Analysis of the Intercultural Communication Apprehension Scale

The test-retest reliability is a method used to examine the temporal stability and result-consistency of a measurement instrument in different applications (Tavsancil 2002). In the literature, it is reported that the number of individuals to be re-tested should be at least 30 (Can 2013). In order to determine the reliability of the test, test-retest was applied to 52 individuals after two weeks. Considering the relationship between the intercultural test-retest score averages in Table 1, it was found that the correlation between the first and second application scores was r=0.542, and there was a statistically significant correlation between the two measurements (p <0.005) (Table 2).

The internal consistency and homogeneity of the Intercultural Communication Apprehension Scale items were evaluated by Cronbach's alpha coefficient and item-total score correlation. The item-total score correlation coefficients of Intercultural Communication Apprehension Scale in Table 3 were determined to be between 0.16 and 0.70. The 12th item was removed from the scale since its item total score correlation within the scale was below 0.20 and there was a change in the Cronbach's alpha values when the item was removed (Table 3). The Cronbach's alpha reliability coefficient of the Intercultural Communication Anxiety Scale was found to be 0.88. This finding suggests that the scale is a reliable scale with internal consistency.

Validity Analysis of the Intercultural Communication Apprehension Scale

The Kaiser-Meyer-Olkin (KMO) test used in order to determine whether the data were suitable for factor analysis, and the Bartlett's test was used to determine whether the relationships between the variables to be analyzed were significant and non-zero, and the KMO value was found to be 0.90, and the Chi-square value of the Bartlett's test was found to be highly significant (p<0.001). And, it was determined that the data were appropriate and sufficient for factor analysis (Table 4).

In order to determine the factor structure of the Intercultural Communication Apprehension Scale, varimax rotation method and principal component

analysis were applied among the explanatory factor analysis methods. And, the factor analysis revealed a two-factor structure with eigenvalues greater than 1.00 that explains 57% of the total variance (Table 5).

When the factor structure of the Intercultural Communication Apprehension scale was examined, it was found that the first factor explains 30.20%, the second factor explains 26.61%, and all of these factors explain 56.81% of the total variance. The items of the two-factor structure of the 13-item Intercultural Communication Anxiety Scale were named as follows:

1. Reverse-Coded Sub-Scale: This factor group consists of 7 items in total consisting of the items numbered 2, 4, 6, 8, 11, 13,

2. Positive Sub-Scale: This factor group consists of 6 items; including the items numbered 1, 3, 5, 7, 9, and 10.

Discussion

The reliability of the data collection tool can be tested by looking at time invariance, independent interrater agreement, and internal consistency. In order to test the reliability of the scale in this study, Cronbach's alpha coefficient, item-total scale score analysis and test-retest measures with two-week intervals, for time invariance, were used. Test-retest analysis is performed to evaluate the time-invariance of the scale (Aksayan 2004, Polit 2010).

In this study, it was found that there was no difference between the two-week test-retest score averages of 52 participants, and the correlation between the first and second application score (r = 0.542) and the statistically significant correlation between the two measurements (p <0.005) indicate that there was a consistency between the measurements.

The basic qualities in a good measurement are the validity and reliability of the scale. Validity is the extent of measurability of the thing to be measured (Karasar 1995). The first condition that a measure can be valid is its reliability. Reliability is a concept that reveals the consistency of all the items in a measurement tool and the homogeneity in measuring the problem being addressed (Akgul 2003). There are several ways to estimate the validity of the scale. Here, the Cronbach's Alpha

value, which is an indication of internal consistency of the measurement tool, was calculated. The Cronbach's Alpha value shows the internal consistency and a value greater than 0.70 is considered adequate for test reliability. In our study, internal consistency and homogeneity of the items were assessed by Cronbach's alpha coefficient and item-total score correlation. The Cronbach's alpha reliability coefficient of the Intercultural Communication Anxiety Scale was found to be 0.89. This suggests that the scale is a reliable scale with high degree of internal consistency. In the literature, the Cronbach's alpha reliability coefficient of the original scale developed by McCrosky's has been 0.88 according to its validity and reliability study (8). The results regarding the Cronbach's alpha reliability coefficients in our study were similar to those obtained by McCroskey et al. In the light of these findings, it can be said that the internal consistency and homogeneity of the Turkish version of the Intercultural Communication Apprehension Scale is adequate.

In the item analysis carried out during the factor analysis, the correlation values of the scale items were found to be between 0.16 and 0.70. In the literature, items with an item-total score correlation of less than 0.20 are recommended to be removed from the scale (Buyukozturk 2012, Alpar 2010). In our study, the 12th item was removed from the scale since its item total-score correlation was below 0.20. It was determined that the correlation values of the scale items after the removal of the 12th item were between 0.23 and 0.71. This finding is in line with the literature.

In order to determine the construct validity of the Intercultural Communication Anxiety Scale and to reveal its factor structure, principal component analysis and varimax rotation methods were applied among the explanatory factor analysis methods. And, the factor analysis revealed a two-factor structure with eigenvalues greater than 1.00 that explains 57% of the total variance. During the factor analysis, the adequacy of the sampling is determined by looking at the Kaiser-Meyer-Olkin (KMO) value. If the KMO value is between 0.90 and 1.00 it is considered excellent, if it is between 0.80 and 0.89 it is considered very good, if it is between 0.70 and 0.79 it is considered good, medium if it is between 0.60 and 0.69, and it is

considered weak if it's between 0.50 and 0.59; and it is unacceptable below 0.50. For a good factor analysis, KMO value needs to be greater than 0.60. In the study, the KMO value calculated for the sampling adequacy was found to be 0.90, and Bartlett's Test of Sphericity was $X^2 = 2368.410$ (p<0.001). These results show that the studied sample is adequate and the data are appropriate for factor analysis.

In the literature, it is recommended that the number of participants should be at least 5-10 times the number of scale items, or the ratio of observations per variable should be 1:10 to 1:20 in order to be able to generalize the results of the factor analysis (Buyukozturk 2005). The purpose of factor analysis is to divide the items in the scale into subgroups. Items that measure the same factor are grouped. For each factor group, a factor name is given according to the properties of the items within (Erefe 2002, Karasar 2004). In scale adaptations, confirmatory factor analysis is carried out since it tests a hypothesis about the structure of the items in the scale. When the factor structure of the Intercultural Communication Anxiety Scale was examined, a two-factor structure was emerged that explains 57% of the total variance and has an eigenvalue of over 1.00. In the two-factor analysis of the scale, eigenvalues were 3.927 for factor 1 and 3.460 for factor 2. The fact that McCroskey's original scale also has two factors support this finding.

Conclusion

In conclusion, it can be said after the validity and reliability analysis that the Intercultural Communication Scale is a measuring instrument with high validity and reliability to be used in Turkey, and that this scale can be used reliably in order to determine the cultural communication anxiety, which emerges in line with the cultural differences and communication problems due to accelerated globalization.

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