PSYCHOMETRIC PROPERTIES OF THE CULTURAL AWARENESS SCALE: NORTHERN CYPRUS SAMPLE

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ABSTRACT

Purpose: The study was carried out a descriptive-correlational to determine the validity and reliability of the "Cultural Awareness Scale" on nursing students studying in the Turkish Republic of Northern Cyprus.
Material and Methods: The research was carried out with 559 students studying in a Faculty of Nursing located in the Turkish Republic of Northern Cyprus where medium of instruction is Turkish. Data were collected with Cultural Awareness Scale and demographic questionnaire. Data were analysed content validity index, factor analysis, cronbach's alpha, split-half and item-total correlation.
Results: The student mean age was 22.38, $\pm$ 2.67. Of all the students, 71.4 % (n = 399) were female, 85.5% (n = 478) did not take inter-cultural nursing lessons, and 62.3% (n = 348) gave patients from different cultures care. The scale consisted of five subscales accounting for 59.4 % of the total variance. The factor loading of items varied from 0.31 to 0.88. In CFA, all fit indices are greater than 0.90. The RMSEA value is less than 0.08. All factor loading was above 0.30. The Cronbach alpha of co-efficient (CAC) of the overall scale and sub-scales were 0.86, 0.86, 0.89, 0.89, 0.87 and 0.93 respectively.
Conclusion: By using this scale; researchers may measure the student cultural awareness levels, may create course curricula, and examine the change in students' cultural awareness over the years. Cross-cultural comparisons and experimental studies can be made using the scale.

Keywords: Cultural awareness, scale, validity, reliability, nursing student

INTRODUCTION

The world is facing a significant increase within the context of the immigrant population (1). Pursuant to World Migration Report (2020), 3.5% (272 million) of the world's population comprises of immigrants (1). As in all developed and developing countries, Cyprus (that incorporates a multicultural structure since its establishment) is also experiencing a serious population mobility. Immigrants constitute 15.8% (190 thousand people) of the population of Cyprus (1). Increasing population mobility leads to the development of multicultural societies. Because of the increasing cultural diversity due to globalization, each patient brings in his/her own values, beliefs, traditions, behaviours, ethical and moral perspectives in addition to individual historical, political, and economic conditions. This situation brings forth cultural factors, thus cultural awareness.

Cultural awareness requires individuals to realize that their past affects their behaviour, attitudes, and interpersonal relationships and to be able to distinguish and define differences in this respect (2-

5). This concept, reflecting respect for cultural needs and beliefs, may solely be acquired by being aware of one's own cultural point of view (2-6). Cultural awareness, which can also be referred to as the ability to critically examine personal bias towards the lifestyles, beliefs, and responses of individuals with different cultural backgrounds, constitutes the grounds for developing nurses' open views and attitudes towards their patients (7-9).

It is crucial for nurses to understand that their own cultural perspectives may affect patients' experience with healthcare services (10-11). Patient satisfaction is known to improve when nurses consider differences in patients' age, gender, disabilities, ethnicity, beliefs, norms and perspectives and they provide culture-specific/sensitive care to their patients (12). Providing adequate care for a multi-cultural population requires in-depth knowledge and awareness among nurses. Nursing is one of important professions that require continuous development of this awareness to overcome the difficulties that may arise due to cultural conflicts (10-12).

Nurses equipped with cultural knowledge and skills should be trained to get positive health outcomes as a result of the care service provided by meeting the cultural needs of the individual, family and society. Raising awareness about different cultural contexts is one of the major goals aimed to be achieved at the end of nursing education (13). Studies have revealed that students' prejudice will moderate as they acquiesce other cultures, so they suggest that cultural awareness may be developed in this way (14-15). Campinha Bacota (2002) stated that students' internalization of their cultural experiences affects their current and future perception and reactions towards patients. For this reason, it is essential to follow an approach that focuses on improving students' attitudes and beliefs towards other cultures. Thus, it will be possible to achieve common global goals in terms of nursing and to bring the nursing discipline to ethical ideals (16).

Reviewing the published literature; a total of 11 tools related to cultural competence and two tools specific to cultural awareness were found (17-18). CAS has been adapted in many different cultures (19-21). Taking into consideration that tools for measuring cultural awareness have been tested in a few studies, the questions of whether the tools are specific and whether they can be used to further expand our knowledge on cultural awareness still remain

unanswered. There is still a need to conduct psychometric testing for the scale on different cultures (22). This research study aims to test the scale in Cyprus, which has a multicultural structure and currently incorporates a high rate of international immigration, and thus will contribute to the generalizability and usability of the tool.

MATERIAL AND METHODS
Participants
The study was carried out methodological-descriptive-correlational to determine the validity and reliability of the "Cultural Awareness Scale" on nursing students in the Turkish Republic of Northern Cyprus.

There are 650 students studying in the Faculty of Nursing, where means of instruction is Turkish. To determine the number of samples to be included in the research, a graded scale with multiplies of 5, 10 and 100 referred to in scale development studies was applied. The scale used in this study consists of 36 items. Considering 10 people per item, the sample should consist of 360 nursing students in total. 579 nursing were included in the study. Since 20 students were selected for pre-application, study analysis was carried out with 559 students. Sampling rate is 89%.

Sampling criteria are;
- Being a Faculty of Nursing student
- To voluntarily agree to participate in the study.

Study Design and Procedure
The data were collected with "Demographic Data Collection Form" and "Cultural Awareness Scale". Data were collected during a course hour in the classroom.

Demographic Data Collection Form: The form consists of age, gender, grade, the school they graduated from, whether they have taken courses on cultural awareness or sensitivity, whether they have ever been in a country other than their own, and whether their parents are from the same culture (17-22).

Cultural Awareness Scale: The scale was developed by Rew et al. (2003) in 2003 to measure the cultural awareness levels of nursing students. The scale is a 7-point Likert-type scale consisting of 36 items. The scale consists of five sub-scales: General Experiences at School of Nursing, Cognitive Awareness, Research Topics, Interaction Behaviour/Comfort and Patient Care/Clinical Issues. The overall alpha of the original scale is 0.82 and the

Table 1. Results of the exploratory factory analysis (n = 559)

Sub-Scale	Factor Loads range	Explain Variance by Sub-scale	Total Explained Variance	KMO	the Bartlett Test
General Experiences at this Faculty of Nursing	0.67-0.80	14.3			
General Awareness and Attitudes	0.31-0.88	13.9			
Nursing Classes and Clinical	0.38-0.74	12.9	59.4 %	0.893	16866.876 $p < 0.01$
Research Issues	0.55-0.67	12.4			
Clinical Practice	0.73-0.83	5.9			

alpha of the sub-scales is between 0.71 and 0.94 respectively. The psychometric properties of the scale were re-evaluated by Krainovich- Miller et al. in 2008 who reported that Cronbach alpha of the sub-scales is between 0.69 and 0.90 (23). Rew et al. re-tested the developed scale in 2014 and reduced the scale to three sub-scales (6). These sub-scales are General Attitudes, Research Topics, and Clinical Experience. The alpha values of these sub-scales vary between 0.70 and 0.89 respectively. Fit indices were found to be RMSEA = 0.065, CFI = 0.868 and TLI = 0.854.

Research Steps
Language Validity of the Scale
While doing translation during scale adaptation, it is necessary to use the appropriate sentence structure to update the items that are completely foreign to the culture (24-27). For this purpose, written permission was obtained from Lynn Rew via e-mail to adapt it to Turkish and use it. After obtaining the permission, the Scale was translated into Turkish by three linguists. Following the translation into Turkish, Turkish scale was created in a group study by the researchers based on the translation of three scales and the final form was reviewed by a Turkish linguist. Final form was re-translated from Turkish into English by a different linguist.

Taking Expert Opinion
The literature recommends seeking expert opinion to determine whether the items in the original language and the items in Turkish are equivalent (24-27). The original scale and Turkish translation were submitted to the experts at the same time, and they were asked to give a score between 1 and 4 to evaluate the appropriateness of the items of the scale. These experts are faculty members who have worked in the field of intercultural nursing and have scientific studies.

Pre-application
Following the translation, the Turkish form was applied to a sample of 20 participants who have similar characteristics to the persons to be evaluated but were not included in the research sample. The forms were applied in a classroom environment by researchers, to students from Near East University Faculty of Nursing, who voluntarily accepted to participate in the study. It took approximately 20-25 minutes to fill in the forms.

Ethical Considerations
Approval to conduct the study was obtained from the ethics committee of Near East University (approval date/number: 12.07.2018, YDU/2018/60-620). After obtaining the ethics committee's approval, permission was obtained from the nursing faculty, where the study would be conducted. Written and verbal consents were obtained from the students.

Statistical Analyses
Descriptive statistics were evaluated by number, percentage, and mean. Whether the data were normally distributed or not was examined with the Shapiro-Wilks test, and it was determined that the scale scores were normally distributed. Content validity analysis (CVI), explanatory (EFA)/confirmatory factor analysis (CFA), and floor/ceiling effect (FCE) were used for validity analysis. Cronbach alpha of co-efficient (CAC), MacDonald's Omega (MOC), item-total score analysis (ITC), and split-half analyses were used to determine reliability. The significance level was accepted as 0.05.

RESULTS
The student age was 22.38, $\pm$ 2.67. Of the students, 71.4 % (n = 399) were female, 27.7 % (n=155) were three-year students and were 62.4% (n = 349) equal income and expenses. It was determined that 8.6% (n = 48) of the students were married, 72.6% (n = 406)

Table 2. Results of the confirmatory factory analysis

	X^2	DF[a]	X^2/DF	RMSEA[b]	GFI[c]	CFI[d]	IFI[e]	RFI[f]	NFI[g]	TLI[h]
five-Factor Model	2339.709	565	4.141	0.075	0.90	0.90	0.89	0.88	0.89	0.90

A=Degree of Free; B=Root Mean Square Error of Approximation; C=Goodness of Fit Index; D=Comparative Fit Index; E=Incremental Fit Index; F=Relative Fit Index; G=Normed Fit Index; TLI=Trucker-lewis Index

had nuclear families, 86.8% (n = 485) went to another country, 85.5% (n = 478) did not take intercultural nursing lessons, and 62.3% (n = 348) gave a patient from different culture care.

The I- CVI was found to be 0.91-0.99, whereas the S-CVI was constant at 0.97.

In the EFA, the Kaiser-Meyer Olkin (KMO) coefficient was 0.893, the Bartlett X^2 was < 0.01. The scale consisted of five subscales and the subscales accounted for 59.4 % of the total variance. The factor loadings of the subscales were determined to vary from 0.31 to 0.88 (Table 1).

The fit indices of CFA were X^2/df = 4.141, RMSEA = 0.0752, GFI = 0.90, CFI = 0.90 (Table 2). The factor loads of the sub-scale were determined to vary from 0.38 to 0.99 (Table 2, Figure 1).

The CAC of total scale was determined as 0.86. The CAC of the subscales were 0.86, 0.89, 0.89, 0.87 and 0.93 respectively. The MOC of the total scale was determined as 0.89. The MOC of the sub-scales were determined as 0.87, 0.88, 0.88, 0.87 and 0.91 respectively.

As a result of the split half analysis, the CAC of the first and second half was found to be 0.90 and 0.92, respectively. The Spearman Brown was found to be 0.85. The correlation between the two halves was 0.74. No FCE effect was determined for the scale.

The Hotelling T^2 value was 401.755, F =10.779 and p <0.01, which indicated the scale had no response bias, (Table 3).

Item- total and item-subscale total scores correlations were 0.40-0.66 and 0.45-0.87, respectively (Table 3).

DISCUSSION

The most common method used to evaluate the consistency between expert opinions in validity and reliability studies is content validity. Content validity indexes are required to be above 0.80 on both item and scale basis (28-29). Content validity values in this study, on both item and scale basis, were found to be above 0.80. This result indicated that the scale has a content suitable for measuring the cultural awareness of nursing students.

Whether the data set in this research is suitable for EFA is evaluated with a Bartlett X^2 test and whether the sample size of this research was sufficient or not was evaluated via KMO. To perform an EFA, Bartlett test should be significant and KMO value should be above 0.60 (24-27). Based on a significant Bartlett test result and a KMO value above 0.60 in this study, it was concluded to perform an EFA (24-27).

As a result of the EFA, it was determined that the scale consists of five sub-scales. Five sub-scales explained more than half of the total variance. The literature requires the explained variance in multidimensional scales to be at least 40% (24-27). The explained variance in this study is found to be above the desired level. Original scale study yielded that the explained variance is 51% and the scale consists of five sub-scales (2,6). This study revealed that the original scale and revised study results were compatible with each other (2,6). The results of the analysis showed that the structure of the original and Turkish forms was similar.

All factor loads in the study were found to be greater than 0.30. The results of the study were similar to the original scale (2,6). Both the explained variance and the factor loads derived in the validity and reliability studies conducted in other cultures were found out to be similar to the outcomes of the study (19,21). Literature review emphasized that factor load above 0.30 is considered as sufficient for the items to remain in the scale (24-27). The results showed that the scale preserves the original structure for the Turkish sample, has good construct validity, and there is no need to exclude items.

It is emphasized that performing exploratory factor analysis alone is not sufficient and examined structure should also be supported by CFA in cases where the scale is adapted across cultures (24-27). The CFA results revealed that degrees of freedom divided by the value of chi square is less than five; RMSEA was found out to be less than 0.08; fit indices are over 0.90 and factor loads are over 0.30. CFA was
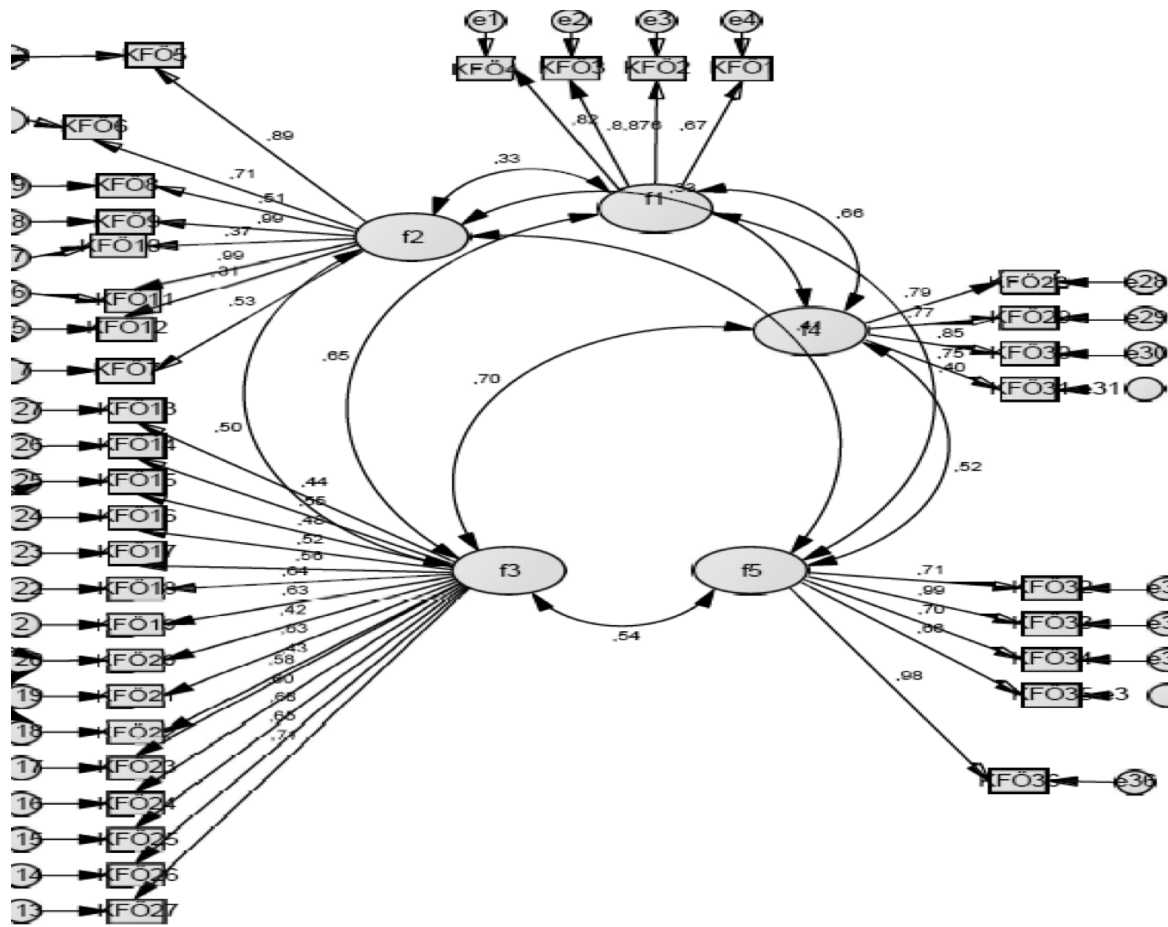
Figure 1. CFA analysis of scale

not performed in the original study, but it was performed in the revised study; thus, CFA results in this research and in the revised research were found to be compatible with each other (2,6). Literature review indicated that CFA fit indices above 0.90, RMSEA below 0.08, a value below five derived when dividing degrees of freedom by the value of chi square and factor loads over 0.30 confirm the factor structure of the scale. The CFA results obtained in the study revealed that the scale confirms factor structure, that items are correlated with the subject to be measured and is able to adequately measure the subject of the study (24-27). In addition, the results of this study were found to be consistent with the validity and reliability results of the studies conducted in other cultures (19,21).

One of the methods suggested in the literature for the purpose to determine the internal consistency of Likert-type scales is to calculate the CAC. It is emphasized in the literature that a CAC higher than 0.70 is sufficient for internal consistency (24-27). The

CAC of the overall scale and sub-scales in this study were higher than 0.80. In addition, it is further suggested to examine the MOC as well as the composite reliability calculated in accordance with CFA results on the grounds that CAC alone is not sufficient for internal consistency. These values are evaluated like CAC and are required to be higher than 0.70. The CAC, MOC, and CR in the study were found out to be higher than 0.70. The study results were determined to be higher than the coefficients in the original scale (2,6). Furthermore, the results obtained in this study revealed that the scale has similar reliability coefficients with the results of studies conducted in other cultures (19,21). The reliability coefficients higher than 0.80 obtained in this study indicated that the scale has a high reliability, items are interrelated and are fit to measure the same subject. In split-half analysis, all values are required to be greater than 0.70 (24-27). All values in this study were found to be greater than 0.70, as desired in the literature. The results indicate that each item is

Table 3. The scale and subscales' reliability analysis results (*n* = 559)

| Scale and Sub-scale | Cronbach α | SEM-Based McDonald ω | Composite Reliability | Split-Half Analysis | | | | | Corrected Item-Total Correlation | Corrected Item- Sub-Scale Total Correlation | M±SD | Floor Effect % | Ceiling Effect % |
				First Half of Cronbach α	Second Half of Cronbach α	Spearman-Brown	Guttman Split Half	Correlation Between Two Halves					
Scale Total	0.95	0.89		0.90	0.92	0.85	0.85	0.74	0.40-0.66	-	4.93+1.10	-	0.5
General Experiences at This School of Nursing	0.86		0.87							0.63-0.79	4.64+1.64	4.1	10.0
General Awareness and Attitudes	0.89		0.88							0.46-0.83	5.12+1.52	0.9	13.4
Classes and Clinical	0.89		0.88							0.45-0.66	4.82+1.16	-	3.2
the Research Issues	0.87		0.87							0.69-0.78	4.74+1.48	1.6	12.3
Clinical Practice	0.93		0.91							0.73-0.87	5.33+1.58	2.7	13.8

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correlated with the scale, the scale adequately measures cultural awareness in various situations. The results in this research study further revealed that the scale had similar reliability coefficients with the results of studies conducted in other cultures (19,21). Response bias (RB) is an important factor affecting the validity-reliability of the scales. RB is the fact that participants fill in the scale according to the expectations of society (24-27). This situation both disrupts the homogeneity of the scale and affects its validity and reliability (24-27). Analysis result determined that there is no RB. The result confirms that the scale is valid and reliable.

It is further suggested to use the FCE while evaluating the validity and reliability of the scales and its effects should be below 15% (24-27). No FCE has been identified in this research. Low FCE indicate that the scale is a reliable measurement tool and is fit to measure the targeted concept (24-27).

One of the tests recommended to be used in determining reliability is item-total score correlation (ITS) (24-27). ITS analysis represents how closely the items are related to the scale and how adequately the items measure the concept aimed to be measured (24-27). This analysis requires item-total score correlations to be above 0.20 and positive (24-27). ITS correlations obtained through this research were found to be over 0.20 and positive. It was determined that all items in the scale are highly correlated with the total score of the scale, adequately measures the qualification to be measured and that scale items have a high level of reliability. In addition, the results obtained through this study indicated that the scale had similar reliability coefficients with the results of studies conducted on other cultures (19,21).

Limitations
There are a few limitations to this research study. The first is that a convenience sample was used. This may affect the generalizability of the results. The second limitation is that the answers were collected based on self-reporting. Test-retest was not performed in this study. Test-retest analysis can be performed to evaluate stability.

CONCLUSION
It was concluded as a result of the study that the scale indicates a high level of validity and reliability in determining the cultural awareness levels of nursing students studying in the Turkish Republic of Northern Cyprus. By using this scale, researchers may measure the cultural awareness levels of nursing students, may create course curricula and examine the change in students' cultural awareness over the years. This scale may further be used to conduct cross-cultural comparative studies and to plan long-term interventional studies as it has been considered valid and reliable in many cultures.

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