

**PSYCHOMETRIC PROPERTIES OF THE NURSE CULTURAL COMPETENCE SCALE
AMONG FILIPINO NURSES**

Gil P. Soriano

College of Nursing, San Beda University, Manila, Philippines

Graduate School, Wesleyan University-Philippines, Cabanatuan City, Nueva Ecija, Philippines

ABSTRACT

Purpose: Assessment of the cultural competence of nurses is becoming an important parameter in assessing the provision of quality care to patients especially in multicultural populations such as the Philippines. The study was conducted to assess the construct validity and internal consistency reliability of the Nurse Cultural Competence Scale (NCCS) among Filipino nurses. **Methods:** A methodological study was utilized and a convenience sample of 124 Filipino nurses were included in the study. An exploratory factor analysis was used to assess the construct validity of the instrument while internal consistency reliability was determined using Cronbach's α coefficient and item-total correlations. **Results:** The 20-item NCCS was loaded on one dimension with factor loadings ranging from 0.72 to 0.95, explaining 79.19% of the total variance. Cronbach's α was 0.986 which demonstrated high reliability and item-total correlations were between 0.811 and 0.929. **Conclusion:** The NCCS is a reliable and valid instrument for the measurement of cultural competencies among Filipino nurses.

Keywords: Cultural competence; Filipino nurses; Reliability; Validity.

Corresponding Author:

Gil P. Soriano, **MHPed, RN.**

Address: College of Nursing, San Beda University, 638 Mendiola St., San Miguel, Manila

E-mail: gil.p.soriano@gmail.com

ORCID: 0000-0002-6349-5560

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INTRODUCTION

There is an ever-growing concern regarding cultural diversity in healthcare settings. Studies have shown that those from racially and ethnically diverse populations suffer from higher rates of illness and disability and have reduced access to health care as compared to the overall population [1-2]. Hence, the provision of care that is appropriate and culturally sensitive to all patients becomes a necessity [3]. This has been supported by international nursing literatures as they emphasized the need for culturally competent care [4-5].

Culturally competent care is defined as the care that is responsive and reactive to the diversity of the patient population and cultural factors that can affect health and healthcare, such as languages, communication styles, beliefs, attitudes, and behaviors [6]. Nurses, in particular, should be encouraged to understand more about the cultural needs of their patients and to provide culturally appropriate treatment [7-9]. This is due not only to

the fact that registered nurses make up the largest group of healthcare workers, accounting for more than half of the global health workforce [10], but also to the fact that they devote more time personally caring for patients than all other members of the healthcare team [11].

Cultural competence is commonly seen as a foundational pillar for reducing health disparities through the delivery of culturally sensitive and unbiased quality care [12]. It was also shown to improve patient satisfaction and health outcomes [13]. Given its importance, the challenge in measuring cultural competence among nurses should be addressed.

The development of instruments related to the cultural competence qualities of health care professionals rather than patient impressions of their care or health outcomes has facilitated the assessment of cultural competence in nursing practice and education [5]. Several researches have emphasized that a valid measurement tool is necessary in order to assess the cultural

competencies of nurses [14-15]. For this reason, Perng and Watson [16] developed the Nurse Cultural Competence Scale (NCCS) using the Mokken scale. It consists of twenty items that evaluate the cultural skills, cultural knowledge, and cultural sensitivity of nurses.

The nurses' cultural competence is difficult to determine; however, with the changing demographics in the Philippines, assessing quality care for individuals in different groups has become an increasingly important issue. However, to the best of my knowledge, there has been no studies conducted yet which ascertain the validity and reliability of an instrument in determining the cultural competence of Filipino nurses. Hence, this study was conducted in order to assess the construct validity and internal consistency reliability of the Nurse Cultural Competence Scale (NCCS) among Filipino nurses.

METHODS

Design and Participants

This methodological study was conducted between the period of January to March 2019 and recruited Filipino nurses working in medical-surgical wards in selected hospitals in Manila through convenience sampling. The inclusion criteria included nurses who voluntarily participated in the study. The sample size was estimated based on the criterion that at least 5 participants per item were needed for conducting an explanatory factor analysis [17]. Consequently, since there were a total of 20 items in the instruments consisting of three sub-scales, the study needed to include 100 participants. One hundred fifty questionnaires were given to nurses for determining the final sample size. A total of one hundred twenty four nurses returned their questionnaires, which has a response rate of 83%. Further, since all of the participants can understand the English language, backward and forward translation were not done and content validity index was not checked.

Research Instrument

Demographic Information Questionnaire. The questionnaire forms involving demographic characteristics of the participants which includes age, sex, and length of service as a nurse in the hospital.

Nurse Cultural Competence Scale. NCCS is a 20 item tool consisting of three subscales which includes cultural knowledge, cultural sensitivity,

and cultural skills. Twelve statements measure cultural skills, six statements measure cultural knowledge, and two statements measure cultural sensitivity. The statements are rated using a Likert scale with agreement levels of *strongly disagree* (1), *disagree* (2), *not sure* (3), *agree* (4), and *strongly agree* (5); ratings may vary between 20 and 100. A higher rating indicates a high cultural competence. The original form of the scale was prepared using Mokken scale analysis with Cronbach's alpha reliability coefficient of 0.96 [16].

Ethical Consideration

Approval from the Ethics Review Board of Arellano University was secured in order to conduct the study.

Data Analysis

Data management and statistical analyses were conducted by using the SPSS version 21.0 (IBM Corporation, Armonk, NY). Demographic characteristics were analyzed using descriptive statistical analyses. Internal consistency using Cronbach's alpha coefficient and item-total correlations were measured to assess the reliability of NCCS among Filipino nurses. An item-total correlation higher than 0.30 [18] and Cronbach's alpha coefficient of more than 0.70 [19] were the required criteria.

In order to assess the construct validity of the instrument, an exploratory factor analysis was performed. Specifically, principal component analysis method with promax rotation was performed and factors with eigenvalue of more than 1.0 was used to examine the factors in each sub-scale. The adequacy of the samples was measured using Kaiser-Meyer-Olkin (KMO) test and the recommended value was 0.60 [20]. In order to assume factorability of correlation matrix, Bartlett's test of sphericity must be significant at $\alpha < 0.05$ [21] while factor loading coefficient of 0.30 and higher was accepted as the criteria to retain an item in a scale [22].

RESULTS

Demographic characteristics

The mean age of the respondents was 29.37 (± 6.94) years old and the majority of the respondents were female (80.65%). On the other hand, the mean length of service of the respondents was 4.55 years (± 5.91) (**Table I**)

Table I: Demographic characteristics of the participants (n=124)

Profile	n	%	Mean (SD)
Age			29.37 (6.94)
Gender			
Male	24	19.35	
Female	100	80.65	
Length of Service			4.55 (5.91)

Reliability

The item mean of the scale, standard deviation, item-total correlation and Cronbach alpha coefficients were determined. The corrected item-total correlation of each item varied between 0.81 and 0.92, and the Cronbach's coefficient of the 20-item NCCS was found to be 0.986 (**Table II**).

Table II. Factor Loadings, Item Analysis, and Item-Total Correlations for the NCCS

Item	Factor Loading	Item Mean (SD)	Corrected Item-Total Correlation	Cronbach's α if item deleted
1. I can teach and guide colleagues about the differences and similarities of diverse cultures.	0.81	3.35 (1.16)	0.82	0.985
2. I can teach and guide colleagues about planning nursing interventions for patients from different cultures	0.79	3.36 (1.13)	0.81	0.985
3. I can use examples to illustrate communication skills with patients from different cultures	0.81	3.33 (1.17)	0.83	0.985
4. I can teach and guide colleagues about the communication skills for patients from different cultures.	0.87	3.24 (1.05)	0.87	0.985
5. I can explain the influences of cultural factors on one's beliefs/ behavior toward health/illness to patients from diverse ethnic groups.	0.88	3.22 (0.99)	0.88	0.985
6. To me, collecting information on each patient's beliefs/behavior about health/illness is very easy	0.83	3.16 (1.02)	0.82	0.985
7. I can teach and guide colleagues about the cultural knowledge of health and illness.	0.92	3.23 (1.03)	0.92	0.985
8. I can teach and guide colleagues to display appropriate behavior, when they implement nursing care for patients from different cultures	0.91	3.28 (1.06)	0.90	0.985
9. I am familiar in health and/or illness related cultural knowledge and/or theory.	0.86	3.16 (0.90)	0.86	0.985
10. I can explain the influence of culture on a patient's beliefs/behavior about health/illness.	0.89	3.28 (0.96)	0.88	0.985
11. I can list the methods or ways of collecting health, illness, and cultural-related information	0.88	3.15 (0.95)	0.87	0.985
12. I can compare health/illness beliefs among patients from different cultures	0.88	3.23 (0.95)	0.88	0.985
13. I can easily identify the care needs of patients from different cultures	0.89	3.21 (1.01)	0.88	0.985
14. When implementing nursing activities, I can fulfil the needs of patients from different cultures	0.93	3.27 (1.03)	0.91	0.985
15. I can explain the possible relationships between the health/illness beliefs and culture of patients	0.92	3.23 (0.99)	0.91	0.985
16. I can establish nursing goals according each patient's cultural background.	0.94	3.29 (1.06)	0.92	0.984
17. I usually actively strive to understand the beliefs of different cultural groups.	0.88	3.19 (1.11)	0.86	0.985
18. When caring for patients from different cultures, my behavioral response usually will not differ much from the patient's cultural norms.	0.89	3.18 (1.11)	0.88	0.985
19. I can employ the communication skills necessary for patients from different cultures	0.92	3.28 (1.08)	0.91	0.985
20. I usually discuss differences between the patient's health beliefs/behavior and nursing knowledge with each patient	0.84	3.27 (0.98)	0.83	0.985

Construct Validity

Explanatory factor analysis was performed to test the construct validity of the 20-item NCCS among Filipino nurses. Bartlett's test and KMO measure of sampling adequacy were carried out to ensure the characteristics of the data were proper in terms of the factor analysis. The results revealed that the KMO test was 0.963, and the Bartlett's test was 3668.765 ($df=190$, $p=0.000$). The items were loaded on one factor which explained 79.19% of the total variance. The twenty-item loaded on one factor ranged from 0.72 to 0.95 (Table 2).

DISCUSSION

The NCCS scale is an instrument that assesses a nurse's ability to provide holistic care to culturally patients. The NCCS scale has been validated in several countries where improving nurses' cultural competence is seen as a major obstacle in practice and vocational education.

The reliability of the NCCS among Filipino nurses showed an acceptable internal consistency ($\alpha=0.986$) which implies that all the items are closely related to each other as one scale. This value is higher than the recommended Cronbach's alpha coefficient (0.70) for an instrument [19]. Following this recommendation, the NCCS had a high internal consistency and was relatively appropriate for use among Filipino nurses. The internal consistency of the instrument was also comparable to the Cronbach's alpha of the Turkish version of the NCCS which showed a coefficient of 0.96 among 235 nurses [23], the Arabic version with alpha coefficient of 0.96 [24], the Spanish version with alpha coefficient of 0.95 [25], the Polish version with alpha coefficient of 0.94 among 238 nurses [26] and the Italian version with the alpha coefficient of 0.91 [27]. The most commonly recorded indicator of internal consistency in scale growth is Cronbach's α . Higher Cronbach's alpha values suggest greater reliability and, as a result, greater measurement precision [28]. In addition, items in the NCCS among Filipino nurses demonstrated an acceptable corrected item-total correlations which is higher than 0.30 [18]. For the construct validity, an exploratory factor analysis using principal component analysis with Promax rotation was performed. The results revealed a KMO value of 0.963 and Bartlett's test of 3668.765 ($df=190$, $p=0.000$). In order to ensure the adequacy of samples, a recommended value of 0.60 [20] was needed whereas correlation must be significant at $\alpha < 0.05$ to assume factorability of matrix [21]. This satisfy the set criteria which indicates an excellent sampling adequacy and suitability for factor analysis. On the

other hand, items in the instrument were all loaded into one dimension and have factor loadings ranging from 0.72 to 0.95 which showed an acceptable value of higher than 0.30 [22]. The Turkish version of the instrument has a factor loading ranging from 0.70 to 0.83 [23], the Arabic version had factor loadings ranged from 0.495 to 0.828 [24] while the Spanish version had factor loadings ranging from 0.490 to 0.780 [25] where all the items were also loaded in one dimension and showed acceptable factor loadings supporting the findings of this study. However, the original NCCS consists of three dimensions namely: cultural skills, cultural knowledge and cultural sensitivity with Mokken scale ranging from 0.49 to 0.74 [16] while the Polish version includes the factor structure in the original NCCS with the addition of the cultural awareness as its fourth structure [26].

STUDY LIMITATIONS

One of the limitations of the study is that convenience sampling was used and that the participants were recruited in Manila, which limits the generalizability of the results. Also, confirmatory factor analysis and other validity and reliability measure were not conducted, hence, including other measures in future studies is needed.

CONCLUSION

The NCCS was shown to be a valid and reliable instrument for assessing cultural competencies among Filipino nurses. Hence, this instrument can be provide nurses with efficient evaluation of their clinical competence. Also, this can be used as a basis for the development of in-service training programs.

CONFLICTS OF INTEREST

The author declare that there are no conflicts of interest in the publication of this study.

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