Review Paper:
Measuring Cultural Competence in Nursing: A Review Study

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Citation: Yadollahi S., Ebadi A., & Asadizaker M., 2020. Measuring Cultural Competence in Nursing: A Review Study. *Journal of Client-Centered Nursing Care*, 6(3), pp. 203-212. https://doi.org/10.32598/JCCNC.6.3.338.1

https://doi.org/10.32598/JCCNC.6.3.338.1

Article info:
Received: 19 Mar 2020
Accepted: 12 May 2020
Published: 01 Aug 2020

Keywords:
Competence, Cultural, Scale, Nurse, Review study

ABSTRACT

Background: Cultural competence is an essential factor in providing effective services to care seekers. Providing cultural care is a necessity in nursing; thus, measuring cultural competence in nurses is of great importance. Accordingly, the current study aimed at introducing the scales for measuring cultural competence in nursing.

Methods: The current narrative review study was conducted by searching the internet and library resources through credible databases. The keywords "cultural competence, cultural competency, cultural instruments, the measurement of cultural competency, nursing, nursing students, and cultural sensitivity" were used individually and in combination. The selected articles were in English, without any time limits, and only in the medical fields.

Results: Among 16 articles related to cultural competence scales, 19 scales were discovered; 12 of which were in English and applicable in nursing. Nine tools were designed based on a conceptual framework/model, and only 6 of them received psychometric evaluations.

Conclusion: The comparison of the scales suggested that all of them were developed based on different conceptual frameworks; accordingly, various factors should be considered when using them. The compatibility of the scale with the culture and environmental conditions of the studied population, and the areas of cultural competence it investigates, are among such characteristics.

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Highlights

- The importance of evaluation of cultural competence in nursing was discussed.
- Cultural competency assessment tools for nursing were reviewed.
- The tools were compared in psychometric properties.
- Differences in the use of tools were discussed.

Plain Language Summary

The nurses needs cultural competence for effectively care of patients from different cultures. As regards that cultural competence is composed of different dimensions, there are various tools for measuring it. In this study, these tools and their validity and reliability have been investigated.

1. Introduction

Culture affects not only individuals' health behaviors, but also patients' and healthcare providers' performance (Cruz et al., 2016). Nursing care for patients with diverse cultures is described as a complex and challenging issue; it is associated with multiple individual factors and requires clinical nurses with cultural competence (Khezerloo & Mokhtari 2016). Culturally competent care is defined as care that can be responsive to the diversity of patient populations and their cultural issues; it also affects their health and healthcare (Murphy 2011). Various definitions have been presented in the existing texts; however, cultural competence is generally considered as a nursing capacity to improve the health and wellbeing of care seekers whose cultural background is different from that of nurses. The concept of cultural competence consists of 4 categories, including cultural awareness, cultural knowledge, cultural sensitivity, and cultural skills (Ahn 2017; Blanchet Garneau & Pepin 2015; Chae & Lee 2014).

Providing cultural care is essential in nursing. Therefore, it is necessary to measure cultural competence and its impact on patients' treatment outcomes (Wang et al., 2018). To address this issue, several scales have been developed for measuring cultural competence; however, aspects associated with their psychometric properties remain unclear (Pedrero et al., 2020). Multiple instruments have been internationally developed to assess cultural competence (Jongen, McCalman & Bainbridge 2018; Jongen, McCalman & Bainbridge 2017; Loftin et al., 2013; Rechel et al., 2013); however, it is not easy to choose the most appropriate instrument for a specific purpose (Purnell 2016).

Some studies have suggested that ≥35 instruments can be used to assess cultural competence among healthcare professionals (Alizadeh & Chavan 2016; Gozu et al., 2007; Lin, Lee & Huang 2017; Loftin et al., 2013; Shen 2015). However, these studies included different professional groups (Alizadeh & Chavan 2016; Gozu et al., 2007; Lin et al., 2017). Besides, they were not conducted to report the quality of the psychometric properties of the instruments (Alizadeh & Chavan 2016; Gozu et al., 2007; Shen 2015).

Although some review studies were conducted in this field (Alizadeh & Chavan 2016; Gozu et al., 2007; Loftin et al., 2013; Shen 2015), they failed to compare the psychometric properties of the instruments. Consequently, this review was conducted to systematically identify and critically appraise the psychometric properties of the instruments used to measure cultural competence in nurses.

Identifying precise and credible scales for measuring cultural competence can help medical science researchers and educators address this concept effectively and take steps towards its improvement. This study aimed to introduce different cultural competence scales applicable to nursing and present their psychometric characteristics. Additionally, we described and explain their applications based on credible sources.

2. Materials and Methods

The current review study was conducted by searching the internet and library resources. We also searched articles in databases, such as Science Direct, CINAHL, Magiran, Google Scholar, Proquest, and PubMed which index numerous articles and journals. The keywords "cultural compe-

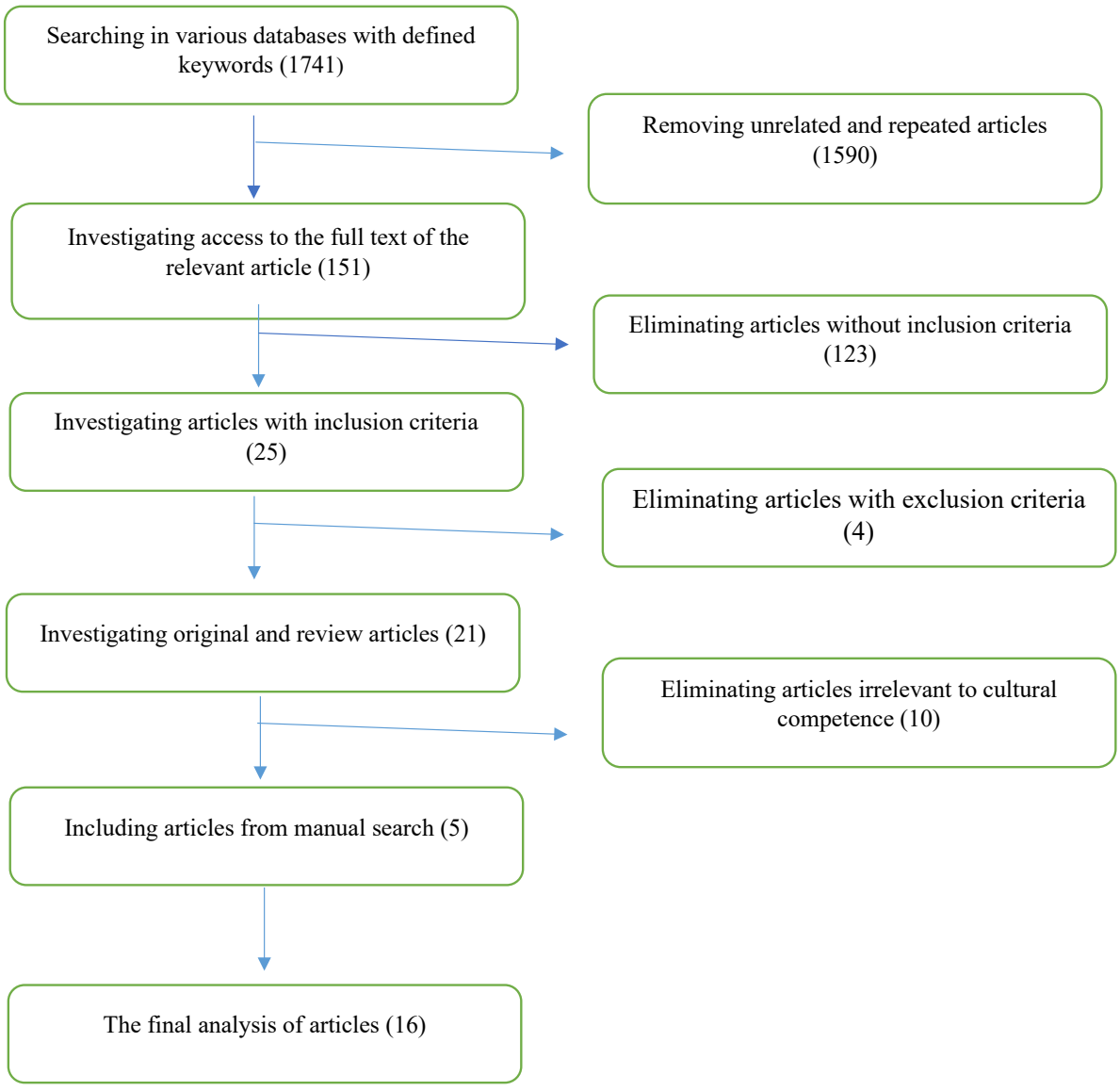

Figure 1. Article selection process

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tence, cultural competency, cultural instruments, the measurement of cultural competency, nursing, nursing students, and cultural sensitivity" were used for searching, individually and in combination. Searching for articles was performed without time limits. The inclusion criteria for the articles consisted of relevance to cultural competence in medical sciences; therefore, articles investigating cultural competence in other contexts were excluded from this research.

In other words, the study inclusion criteria were credible and popular scales in English and Persian, for measuring cultural competence in medical sciences. They are also applicable to nurses or specific to nurses and nursing students. The research exclusion criteria were studies in which the cultural competence scales were inapplicable in nursing, or were in languages other than English and Persian. All of the selected articles were analyzed by the research team. Duplicate articles were removed. All the articles mentioned in this study had a full text. However, some questionnaires were not accessible for direct review.

3. Results

The search results and the process of retrieving final articles are shown in Figure 1. The initial search retrieved a total of 1741 articles. By limiting the articles specific to medical

sciences and removing duplicate articles, the number was reduced to 151. Then, a total of 25 articles were selected considering the research inclusion criteria and the keywords in abstracts and titles. Next, by removing inaccessible articles, 16 articles were selected for final analysis. The full texts of the selected articles were available in English. Five of them were review articles, introducing and explaining several scales; however, others discussed a single scale. Furthermore, no Persian review article or scale was found regarding the cultural competence in medical sciences or nursing.

One of the first tools in the considered area is the Cultural Self-Efficacy Scale (CSES) (Bernal & Froman, 1993). This scale is used to measure the level of cultural self-efficacy among nurses providing care for patients from three ethnicities of Puerto Rican, Afro-American, and Asian. This scale was later modified for providing care for Hispanic, Indo-Americans, and Middle Eastern patients. This scale's items are divided into 3 categories, including familiarity with cultural concepts; comfort in performing cultural nursing skills; and identifying cultural patterns for specific ethnic groups. The special characteristic of this tool is its implementation for evaluating nurses in care provision for patients from various cultures (Loftin et al., 2013).

This scale is not related to any of the comprehensive models for cultural competence (Capell & Dean 2007); however, it is in line with the transcultural assessment model and the theory proposed by Giger and Davidhizar. This 30-item scale is scored on a 5-point Likert-type scale; from 1 (very little confidence) to 5 (quite a lot of confidence) (Bernal & Froman 1993). The factor analysis of this scale has determined 4 significant factors, including cultural skills, Black cultural self-efficacy, Latino cultural self-efficacy, and Asian cultural self-efficacy. This tool has been extensively tested among hospital nurses, community health nurses, and nursing students (Almutairi & Dahinten 2017).

The next tool, the Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals Revised (IAPCC-R), consists of 25 items, i.e., used for measuring cultural competence in healthcare providers. Moreover, it addresses the areas of cultural awareness, desire, knowledge, skill, and encounters. This tool is based on Campinha-Bacote's model of cultural care. The tool usually takes 10-15 minutes to be completed, with scores falling between 25 and 100.

It is scored on a Likert-type scale from 1 (strongly disagree) to 4 (strongly agree). The scores indicate how healthcare staff act regarding cultural skills, cultural competence, cultural awareness, or cultural incompetence. The content validity of this scale was confirmed by experts in cultural competence in healthcare (Josepha Campinha-Bacote 2002). The construct validity of this scale was assessed by applying the known-group technique with 200 nurses participating in a cultural competence workshop. Its reliability was also examined in various studies (Brathwaite 2005; Campinha-Bacote 2009; Kardong-Edgren et al., 2005). This scale has been extensively used in international healthcare studies. Furthermore, 20 studies were conducted using this scale; many of which have investigated cultural competence among pharmacists, medical students, optometrists, and other healthcare specialists. This scale has been used in numerous medical and healthcare disciplines; however, it has been specifically designed to measure cultural competence in professional nurses and requires knowledge specific to this profession (Loftin et al., 2013).

The Nurse Cultural Competence Scale (NCCS) was developed by Watson and Perng (Perng & Watson 2012). As reported in various studies, it is based on the works of Jeffreys, Campanha-Bacote, and so on. This scale includes 4 areas of cultural awareness, cultural knowledge, cultural sensitivity, and cultural skills. Its 41 items are scored using a 5-point Likert-type scale, ranging from "strongly agree" to "strongly disagree". The face validity of this scale has been approved by nursing experts (Bernal & Froman 1993).

The Cultural Competency Instrument (CCI) was designed to assess cultural knowledge and skills among clinical researchers, including nursing researchers. This scale was developed to address cultural competency needs in researchers for participating in a research program on the differences of minority populations in the field of healthcare and medicine. This tool consists of 20 multiple-choice items. No specific conceptual framework is employed in this instrument and it received no psychometric evaluation (O'Brien et al., 2006).

The Cultural Competence Assessment (CCA) scale was designed to assess cultural competence among healthcare providers, including nurses. Based on the cultural competence model of Schim and Miller, this scale includes the subscales of cultural diversity, cultural awareness and sensitivity, and proper cultural behaviors (Schim et al., 2003). This 25-item tool is scored on a 7-point Likert-type scale, ranging from "strongly agree" to "strongly disagree" and consists of "no opinion" (Doorenbos et al., 2005). When conducted on hospital nurses, this scale indicated desirable psychometric characteristics. It is an accurate scale for measuring cultural competence in healthcare providers (Bernal & Froman 1993).

The Cultural Awareness Scale (CAS) was developed to measure cultural awareness among nursing students (Rew et al., 2003). Its developers believed that cultural awareness is the minimum acceptable level for cultural competence. This scale is based on the Purnell model for cultural competence. The CAS consists of 36 items. It uses a 7-point Likert-type scale, varying from 1 (strongly disagree) to 7 (strongly agree). This scale contains 5 subscales of general educational experience; awareness of attitudes; classroom and clinical instruction; research issues, and clinical practice. The internal consistency reliability of this scale was calculated as 0.91 and 0.82 for students and faculty members, respectively (Doorenbos et al., 2005).

The Transcultural Self-Efficacy Tool (TSET) was generated and tested by Jeffreys and Smodlaka (Jeffreys & Smodlaka 1996, 1998). The TSET measures various aspects of transcultural self-efficacy. This scale includes 83 items in three cognitive, practical, and affective categories. Its cognitive subscale evaluates self-efficacy in terms of knowledge concerning factors affecting nursing care for patients from different cultural backgrounds. The practical subscale explores cultural self-efficacy in respondents while facing individuals from different cultures. Besides, it includes factors, such as language, religion, and attitude toward health and disease. Finally, the third subscale investigates self-efficacy among respondents concerning cultural awareness and acceptance, as well as respect for other cultures (Jeffreys 2000; Lim, Downie & Nathan 2004).

This inventory is answered on a Likert-type scale, ranging from 1 (not confident) to 10 (fully confident) (Jeffreys 2000). According to the researchers, this tool is conceptually based on Bandura's social learning theory (Jeffreys & Smodlaka 1996). This model is designed for nursing instructors; it is an approach for teaching cultural skills to nursing students in the university environment. Jeffreys and Smodlaka measured the content and construct validity and reliability of this scale in a test study and 5 more subsequent studies (Jeffreys 2000; Jeffreys & Dogan 2012; Larsen & Reif 2011). The statistical analysis of the data obtained from 1260 nursing students with different cultural backgrounds revealed that all items' correlations ranged between 0.30 and 0.70 (Jeffreys & Smodlaka 1998).

This finding indicates that all items can properly assess the transcultural self-efficacy construct. Lim et al. (2004) used this scale in their study on 196 nursing students. In later tests, Jeffreys and Dogan used 69 of the main 83 items, by performing exploratory factor analysis on 272 undergraduate nursing students from different cultures (Jeffreys & Dogan 2010).

The Cross-Cultural Evaluation Tool (CCET) developed by Freeman, is applied to measure cultural sensitivity among nursing students (Hughes & Hood 2007). This 20-item scale explores cultural attitudes and behaviors in a 5-point Likert-type scale, ranging from "always" to "never". The obtained score reflects the students' ability in making culturally sensitive decisions. Higher scores indicate higher degrees of cultural sensitivity. According to Hughes and Hood (Jeffreys & Dogan 2010), this scale was designed by Freeman (1993), but was not published. The pretest Cronbach's alpha coefficient varied from 0.73 to 0.84 in different nursing courses; while the posttest Cronbach's alpha coefficient fell between 0.74 and 0.87. This tool was analyzed by implementing Principal Component Analysis (PCA). Its 4 components of cross-cultural interaction explained 51.9% of the total variance.

The Cultural Diversity Questionnaire for Nurse Educators (CDQNE) was developed by Lorinda Sealey in 2003 to measure cultural competence in nurse educators (Sealey, Burnett & Johnson 2006). This scale includes 5 subscales of cultural awareness; cultural knowledge; cultural skill; cultural encounter, and cultural teaching behaviors. Furthermore, it is based on Campinha-Bacote's model of cultural competence. Its 55 items are scored using a 5-point Likert-type scale, ranging from 1 (strongly agree) to 5 (strongly disagree). The content validity of this questionnaire was confirmed by an expert panel; however, its psychometric evaluation remains unreported (Reneau 2013).

To measure the perceived cultural skills in mental healthcare staff, the Ethnic Competency Skills Assessment Instrument (ECSAI) was generated as a self-report scale, containing 23 items (Napholz 1999). Napholz modified this scale for use by nursing students in their first few semesters. This questionnaire is scored using a 5-point Likert-type scale (from never to always), with higher scores indicating better cultural competence. The validity of this tool was not discussed; however, its reliability was presented by a Cronbach's alpha coefficient of 0.94 (Reneau 2013). There is also no discussion of the general conceptual frameworks or specific conceptual contexts on which this scale is based.

The Cultural Knowledge Scale (CKS) was developed to measure the effectiveness of a cultural competency training program for public health nurses (Brathwaite & Majumdar 2006). This scale is designed using the items of the two previously developed tools; IAPCC-R and CSES (Bernal & Froman 1993; Campinha-Bacote 2002). This 24-item scale is scored on a 5-point Likert-type scale, ranging from: 1: Strongly agree; to 5: Strongly disagree. Besides, it contains 4 subscales of health behaviors; understanding of health and illness; response to health and illness, and the

treatment of illnesses (Capell & Dean 2007). Campanha-Bacote's model of cultural competence (Campinha-Bacote 2009) was used as a guide for designing educational interventions and combining the items on this scale. The validity and reliability of this scale were reported to be high. This is because it consists of two scales with high validity and reliability (Bernal & Froman 1993).

The Critical Cultural Competence Scale (CCCS) was generated to measure the healthcare providers' self-concept of critical cultural competence in a multicultural situation. This scale was developed based on a regular and orderly process. The CCCS probes the theoretical components of the critical cultural competence model and turns them into scale items. Accordingly, it was reviewed by experts for calculating content validity, and relevant test studies were conducted on graduated nursing students in Canada and nurses working in Saudi Arabia with different cultures. Exploratory factor analysis supports 4 factors with the theoretical principles of subscales, as follows: critical awareness (12 items); critical knowledge (7 items); critical skills (7 items), and critical empowerment (17 items). This 43-item scale is scored using a 7-point Likert-type scale, ranging from 1: Strongly disagree; to 7: Strongly agree for most items, and from 1: Never to 7: Always for items studying specific topics. Additionally, 16 items of it have reversed scoring. To determine the weight of each of the 4 factors, the mean score for 4 subscales (scores from 1 to 7) was calculated. Then, the total mean score of the scale was measured based on the mean scores of the subscales (Wang et al., 2018).

One of the most comprehensive criteria for selecting measurement scales is the Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) designed by Mokkink and associates. It has been developed with the international and multidisciplinary cooperation of experts in this field, using the Delphi method. In this scale, tools' characteristics, such as internal consistency, reliability, measurement error, content validity, structural validity, cross-cultural validity, criterion validity, responsiveness, and interpretability are investigated (Mokkink et al., 2010). The results of the consideration of the instruments based on the COSMIN checklist are presented in Table 1.

4. Discussion

Patients' cultural diversity brings the concept of cultural competence forward (Lin, Wu & Hsu 2019), measuring which requires proper and relevant tools (Lin, Lee & Huang 2017). Therefore, this study was conducted to report the cultural competence scales and present their psychometric properties concerning medical sciences, i.e. also applicable in nursing.

The questionnaires mentioned in this study are used to assess the ability of the healthcare staff to provide care for patients with different cultures. There are similarities in assessing these tools. This is because most of them study cultures within different groups, and fail to distinguish between cultural groups. However, the CSES and CCI are developed for specific cultures (Lin, Lee & Huang 2017; Miskin et al., 2015).

Numerous researchers have developed theoretical frameworks and scales for measuring cultural competence among healthcare providers (Almutairi & Dahinten 2017); many of which have been translated into different languages, such as Chinese, Japanese, Hebrew, Swiss, and German (Coffman, Shellman & Bernal 2004). Some of these scales, such as NCCS, CDQNE, CKS, and IAPCC-R are designed based on conceptual frameworks. Besides, some of them are modified for application in medical sciences. A number of them are also developed for specific nations and cultures, matching the characteristics of native groups, such as the CSES and CCA. Some of these scales have been thoroughly tested at the design phase, including ECSAI, CSES, TSET, CAS, and CCA. However, other scales, like CCI are used to explore cultural knowledge and competence in clinical researchers, including nurse researchers. The CDQNE scale received no psychometric evaluation (Quine, Hadjistavropoulos & Alberts 2012). These scales, in the form of questionnaires, logs, checklists, etc. may investigate one, several, or all cultural competence dimensions.

Scoring these inventories is almost similar, with 11 out of 12 scales using 4- to 10-point Likert-type scales. The main application of the above scales is to measure the effectiveness of a cultural competency training program and care for individuals with different cultural backgrounds. For example, the scales, such as IAPCC-R and CCI are also applicable in these cases despite not being specifically designed for evaluating educational performance (Kosoko-Lasaki et al., 2006; Loftin et al., 2013).

The cultural competence areas defined in these scales differ from one another, but overlap in some cases. Eight of the scales evaluate the confidence of healthcare providers regarding their cultural competence or their understanding of their skills of caring for patients of different cultures. All of the scales evaluate cultural knowledge, i.e., based on cultural competence skill and awareness-knowledge model. The scales NCCS, CDQNE, CKS, and IAPCC-R are designed based on Campinha-Bacote's model which encompasses 5 areas of cultural awareness, desire, knowledge, skill, and encounters (Chen et al., 2018).

Table 1. Cultural competence measurement scales in the COSMIN checklist

No.	Scale	Year & Authors	Content Validity	Criterion Validity	Structural Validity	Internal Consistency	Stability	Measurement error	Accountability	Interpret-
1	Inventory for Assessing the Process of Cultural Competency (IAPCC and IAPCC-R)	Campinha Bacote (2009)	Expert group CVI=0.88	-	Variance 51%	Cronbach's Alpha 0.57-0.90 Guttman Split-half 0.77-0.83	0.83	-	-	-
2	Nurse Cultural Competence Scale (NCCS)	Perng & Watson (2012)	√	-		Cronbach's alpha coefficient 0.96	0.78-0.96	-	-	-
3	Cultural Competency Instrument(CCI)	Kosoko-Lasaki et al. (2006)	-	-	-	-	-	-	-	-
4	Cultural Competence Assessment(CCA)	Schim et al. (2003)	√	-	Variance 42%	Cronbach's alpha coefficient 0.89-0.92	0.82-0.87	-	-	-
5	Cultural Awareness Scale(CAS)	Rew et al. (2003)	CVI=0.88	-	51%	Cronbach's alpha coefficient 0.86-0.91 0.56-0.78	0.82-0.91	-	-	-
6	Transcultural Self-Efficacy Tool (TSET)	Jeffreys & Smodlaka (1996)	√	-	83 for phrase 0.30-0.70	Cronbach's alpha coefficient 0.92-0.98	0.63-0.75	-	-	-
7	Cross Cultural - Evaluation Tool (CCET)	Hughes & Hood (2007)	-	-	51.9%	Cronbach's alpha coefficient 0.74-0.78	-	-	-	-
8	Cultural Diversity Questionnaire for Nurse Educators—CDQNE	Lorinda Sealey (2003)	√	-	-	-	-	-	-	-
9	Ethnic Competency Skills Assessment Inventory—(ECSAI)	Napholz (1999)	-	-	-	Cronbach's alpha coefficient 0.94	-	-	-	-
10	Cultural Self-Efficacy Scale (CSES)	Bernal and Froman (1993)	Expert group	-	Variance 33-90%	Cronbach's alpha coefficient 0.86-0.97	-	-	-	-
11	Cultural Knowledge Scale (CKS)	Brathwaite & Majumdar (2006)	Expert group	-	-	Cronbach's alpha coefficient 0.71-0.96	-	-	-	-
12	Critical Cultural Competence Scale (CCCS)	Almutairi et al. (2015)	√	√	42%	Cronbach's alpha coefficient 0.59	0.74	-	-	-

The majority of authors have not mentioned certain psychometric levels of the above scales. The scales, like ECSAI, i.e., developed for measuring cultural competence in mental healthcare workers and modified for nursing students, were psychometrically evaluated and provided appropriate validity and reliability (Bernal & Froman 1993). Five of these scales were fully tested at the time of design, including ECSAI, CCA, CAS, TSET, and CSES. However, some other scales, like CCI, used for measuring cultural knowledge and competence in clinical researchers, including nursing researchers, and CDQNE have not been psychometrically evaluated (Bernal & Froman 1993). If tools used to evaluate the effectiveness of cultural competence training programs in medical and healthcare experts (students or professional physicians) lack the necessary validity and reliability, cultural knowledge, attitude, and skill levels measured may be incorrect (Chae et al., 2018).

The current study emphasized the necessity for developing cultural competence scales with high validity and reliability. Only limited scales mentioned in this article were available for further investigation. The majority of the investigated tools focused on the general and specific concepts of culture, language, and interactions between patients and care providers. However, few of them explored other aspects of cultural competence. Such dimensions included racism and stereotypes, access to resources, and socioeconomic status. This finding indicates that the existing tools may not consider all essential topics and aspects of cultural competence. The precise evaluation of each item in these scales highlights challenges existing in the form and content. For example, some items are difficult to understand or more than one question is asked in a single item. Such issues can lead to confusion for respondents and analysts.

It is suggested for a more accurate evaluation of cultural competence to use objective and standard assessment methods with high validity and reliability. Despite their limitations, the existing scales can be a starting point for developing and improving cultural competence scales (Almutairi & Dahinten 2017).

The strength of this study was evaluating the psychometric properties of instruments based on the COSMIN checklist. Additionally, useful cultural competence tools for nurses were introduced. Despite the thorough search, some relevant articles may have been overlooked. This study only investigated English and Persian articles and excluded articles and scales in other languages. Furthermore, numerous scales were unavailable; thus, the researchers had to rely on the data provided by the authors and were unable to offer a detailed description of these scales.

5. Conclusion

This study conducted a general review of the psychometric characteristics of cultural competence measurement scales, i.e., used for nurses. Different instruments have been developed in this field; however, it is critical to choose appropriate tools with acceptable psychometric properties. Several factors should be considered in the selection and application of suitable scales for measuring cultural competence. One of such characteristics is the compatibility of the scale with the culture and the environmental conditions of the explored individuals. The second matter is to determine which domain of cultural competence we are considering. This is because some tools solely address specific areas of cultural competence.

Ethical Considerations

Compliance with ethical guidelines

The Ethics Committee of Ahvaz Jundishapur University of Medical Sciences approved this study (Code: IR.AJUMS.REC.1396.832).

Funding

This study was part of the PhD. dissertation of the third author at the Department of Nursing, Nursing Care Research Center in Chronic Diseases, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz. (Proposal number: 96137-U)

Authors' contributions

Conceptualization: Abbas Ebadi and Safoura Yadollahi; Data analysis and Writing – original draft: Safoura Yadollahi; Study consultation: Abbas Ebadi, Marziyeh Asadizaker; Writing – review & editing: Safoura Yadollahi, Asadizaker Marziyeh; Study validation, Project administration, and Supervision: Asadizaker Marziyeh.

Conflict of interest

The authors declared no conflict of interest.

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