Original Article

Development and validation of a cultural competence questionnaire for health promotion of Iranian midwives

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Abstract:

INTRODUCTION: Cultural competence is the main component of cultural care; therefore, it is necessary to be aware of its levels. The lack of a suitable tool that can measure cultural competence levels among midwives led us to carry out the present study aiming to develop and validate a cultural competence questionnaire for health promotion of Iranian midwives.

METHODOLOGY: This methodological study was performed on 302 midwives selected through three-stage cluster sampling method in 2018 in East Azarbaijan Province. The initial tool was designed after qualitative study and searching similar studies. Then, the tool validity was assessed through evaluating the face and content validity in midwives and performing survey and psychometrics. Finally, the data were statistically analyzed by SPSS version 19 through exploratory factor analysis, item analysis, Cronbach's alpha coefficient, and Pearson correlation, at the significant level of <0.05.

RESULTS: The initial tool was constructed with 42 items in the five-point Likert scale. By eliminating 9 items during face and content validation and 6 items during factor analysis, the final 25-item questionnaire was developed in five areas of theoretical and practical learning, clinical application, cultural skill, cultural excellence, and cultural competence. According to Cronbach's alpha, reliability of the tool was at a good level (0.889) with a confidence interval of 0.95 ($P < 0.001$).

CONCLUSION: The cultural competence questionnaire for Iranian midwives, with five-factor verification and acceptable validity and reliability can be used in studies considering the components of Iranian culture.

Keywords:

Assessment tool, cultural competence, Iran, midwife

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Introduction

Culture is referred to as a set of customs, beliefs, and social habits, and since these factors are often unobservable, it is difficult to establish an effective communication between individuals with different cultures.[1] Iranian Society is known for its high cultural diversity as a result of immigration, diverse ethnicities, and various customs, and this cultural diversity can be seen among all people in the community, including patients.[2] Since culture can affect most aspects of human life, it can undoubtedly influence people's behaviors,

beliefs, and values.[3] Therefore, health-care providers need to consider patients culture as a component of health-focused care.[4]

Investigating health-care providers' programs throughout the world show increasing attention to the holistic care and the biological, psychological, and spiritual needs of patients as well as considering different dimensions of cultural competence.[5,6] Attention to the culture of patients is a basic necessity of holistic care because cultural beliefs and perceptions affect the care process.[7,8] According to Witting considers cultural domains including spiritual and religious beliefs and health-related factors

such as food habits, and self-awareness.[9] Calvillo *et al.* argue that in order to provide careful and effective care, the caregiver (as a medical team member) must be sensitive to patients' beliefs on health and sickness as well as the effect of culture on beliefs that affect care and health.[10] Therefore, in a community with cultural diversity, the curriculum should include cultural care content,[11,12] because the educational process is always under the influence of cultural and social factors and filling the cultural gap between the patient and caregiver is essential for the curriculum.[13]

Studies show the increasing attention to the introduction of cultural care elements in the curriculum and empowerment of caregivers in the field of cultural competence, and this can be realized through education,[14,15] because courses of cultural care education provide appropriate cultural care and familiarize patients with the services provided by caregivers to further benefit from treatment.[6]

Cultural competence is defined as the main component of cultural care as the perception of patients' values, beliefs, and health performance.[16] Cultural competence is manifested as the ability of health-care providers to communicate effectively with people from different cultures and leads to positive results in the care and promotion of health;[17] disregarding cultural competence results in adverse outcomes in patient care, inadequate care, and dissatisfaction of patients and their companions.[18]

One of the disciplines in health and health-care area is midwifery; the results of a study indicate that some graduated or working midwives had left the midwifery. A study in Iran attributed this job leave by midwives to many reasons, including concerns about the future of work, high occupational stress, and concerns about the proper and effective communication with patients.[19]

Midwives are communicating with pregnant women and a proper communication with these women is a principle for patient-centered care. On the other hand, the patient-centered care requires attention to cultural care, for which cultural competence is the most important principle; therefore, attention to cultural competence is inevitable. The lack of a tool that can identify cultural competence among midwives or midwifery students is a major disadvantage in cultural care in a country with high cultural diversity. As long as the levels of cultural competence are not identified, its weaknesses cannot be discerned and hence no intervention can be designed and implemented to improve it. Iran is one of the countries with a high cultural diversity; since attention to culture and cultural care is one of the essential requirements of universal care, there should be a tool in the field of

cultural competence that can measure the competence of Iranian midwives in caring for patients. The absence of a tool that measures the degree of cultural competence of midwives has made them unaware of their cultural care status. Therefore, it is necessary to design a tool adapted to the Iranian culture in order to pay attention to the cultural care of patients in Iran. In this regard, the present study aimed to develop and validate a cultural competence tool for Iranian midwives.

Methodology

This is a methodological study that aims at designing and determining the psychometric properties of a cultural competence assessment tool. To achieve valid factors, the sample must be representative and sufficient. MacCallum *et al.* reviewed the opinions of other researchers and proposed a range for sample size for factor analysis; a sample size of 100 people are weak, 200 people are not bad, 300 people are good, and 500 people are very good.[20]

Since the study population, i.e. the number of midwives in East Azerbaijan Province (n = 1413) was known, a total of 302 midwives were calculated as the sample size according to the Morgan table. They were selected through the three-stage cluster sampling method; in the first stage, 7 clusters were randomly selected from the North, South, East, West, and central regions according to the midwives population in each cluster; in the second stage, four hospitals were selected from each cluster (a total of 28 hospitals); and in the third stage, a hospital was randomly selected.

The inclusion criteria were a minimum bachelor's degree, working as a midwife at a hospital or a personal office, and consenting to participate in the study. The exclusion criteria were leaving midwifery, nursing in operating room, and having a nonmidwifery work.

The Ingersoll–Dayton steps were used to build a culturally sensible tool. This research was conducted in two general stages each consisting of several steps.[21]

The first stage, which is called extraction and design of the basic tool items, consisted of three steps: (1) Carrying out qualitative research and extracting appropriate items from it, (2) Reviewing other studies and extracting items from them, and (3) Designing the initial tool. The second stage, which examines validity of the instrument, is called tool psychometrics (validity and reliability), consisted of two steps: (1) Determining face and content validity (pilot study in midwives, tool review by a group of specialists) and (2) Conducting a survey study and psychometric test of the tool (construct validity, retest reliability, and Cronbach's alpha).

In the first step of the first stage, performed based on qualitative research of grounded theory aimed at achieving a native theoretical model of cultural competence, cultural competence and its dimensions were used as a part of this theoretical model for designing the tool and the initial items were extracted. LoBiondo-Wood and Haber believe that the data obtained from qualitative studies can provide researchers with useful information about the research concept; information that can be used to design a quantitative tool for measuring the desired concept.

In this stage, according to the study objective, the participants were selected first from the midwives of Tabriz based on purposeful sampling and then, according to the concepts derived from the theoretical sampling, from the midwives of East Azerbaijan Province (all cities of the province). All of them had a bachelor's degree and were fluent in Farsi. Using the semi-structured interview method, the data were saturated after interviewing with 40 midwives. Interviews varied from 30 min to 2 h, and some of them were recorded with the permission of interviewees. For those who were not recorded due to the lack of interviewees' consent, the researcher wrote the reminder words during the interview. Then, the interviews were immediately transcribed and analyzed through the Strauss and Corbin coding method.

To determine the data trustworthiness, four criteria introduced by Schwandt *et al.* were used.[22] For credibility of the data, in addition to close interaction with the participants, long engagement in the field, and notes in the field, peer review and expert check (four professors) were also used as a technique to ensure appropriateness of the analysis. To ensure data conformability, the researcher tried to control his ideas and assumptions in order to prevent their impact on data analysis and interpretation. By providing accurate descriptions of the participants, the research process, the actions taken, and the research constraints, attempts were made to provide the research findings transferability. Finally, the dependability of the research was achieved by obtaining similar results between the researcher and two experts involved in data analysis.

After determining the data reliability, the initial items for the cultural competence tool were extracted in this stage based on the qualitative findings related to the concept of cultural competence and its dimensions (subjective expressions extracted from semi-structured interviews with midwives in qualitative research). In the second step of the first stage, related studies in the field of cultural competence were examined based on the concepts and dimensions derived from the previous step. In this step, items were extracted to be used besides items from the previous step as the initial items of the cultural competence tool. In the third step of the first stage, the cultural competence tool was designed based on the items extracted from the previous two steps. In this step, the appropriate format for the assessment tool items, the range of responses, and the appropriate format for the Iranian midwifery community were also designed.

In the first step of the second stage, the content validity of the assessment tool was investigated based on the Waltz and Bausell Content Validity Index (CVI)[23] and the Lawshe Content Validity Ratio (CVR)[24] through reviewing the tool by a group of ten experts (including tool developer, midwifery faculty member with associate professor and professor ranking, and methodologist). Along with the experts' comments, the face validity of the tool including writing, phrasing, logical appearance of the tool, and comprehensibility of the items was reviewed through initial evaluation of the tool along with midwives' interviews (15 people). In the second step of the second stage, after analyzing the items, the psychometric properties were examined through a survey study. The items were analyzed based on these criteria: the internal consistency of each item is not greater than the reliability coefficient of the tool, and the correlation coefficient of each statement is higher than 0.3.

Then, the tool construct validity was verified through the exploratory factor analysis. In fact, for performing factor analysis, after reviewing the preliminary assumptions of factor analysis by Bartlett's test of sphericity and Kaiser–Mayer–Olkin (KMO) sampling index test, the number of factors was determined based on three criteria of specific value, the ratio of variance explained by each factor, and scree plot. Then, the factors and their items were extracted using the equimax rotation method with a factor load of at least 0.4. In this way, the tool construct validity was checked.

The questionnaire was completed as self-report, and the researcher was present during the completion of the questionnaire to clarify if a part of the questionnaire needs to be explained. The response time for each questionnaire was between 10 min and 1/2 h.

The ethical considerations observed in this research included the approval of the Regional Ethics Committee, obtaining the ethics code of IR.TBZMED.REC.1397.496, providing license for the research units and obtaining permission from the units' authorities, introducing the researcher and explaining the research objectives to the participants, voluntary participation and the possibility to withdraw the research at any time, utilizing the information only for research purposes, not sharing the information with others except the researchers, obtaining the permission of participants for sound recording, and

the possibility to receive the research results by the participants after their publishing.[25-30]

The tool reliability was examined through Cronbach's alpha for internal consistency of the items and through the retest reliability. For retest reliability, the questionnaire was completed with 2 weeks interval by 30 midwives and the correlation between the scores of two response times was calculated. All statistical tests (exploratory factor analysis, item analysis, Cronbach's alpha coefficient, and Pearson correlation) were performed in SPSS version 19(IBM Corporation, Armonk, New York).

Results

In the first step of the first stage, the concept of cultural competence was defined based on the experience of midwives in Tabriz using the grounded theory of qualitative research in the framework of the core category. According to the definition, cultural competence is "a dynamic process that can be generalized and educated which is improved with more experience over time and leads to effective communication with the people of other cultures." According to the findings of this step, items were extracted for the cultural competence assessment initial tool based on the dimensions of cultural competence including theoretical and practical learning, clinical application, cultural skill, cultural excellence, and cultural competence.

In this step, a total of 42 items were extracted which were reduced to 25 items after reviewing in terms of concept overlapping and similarity; 6 items for theoretical and practical learning, 4 items for clinical application, 7 items for cultural skill, 5 items for cultural excellence, and 3 items for cultural competence.

In the second step of the first stage, the relevant keywords (cultural care, cultural competence, and cultural excellence) were searched in the foreign databases such as Google Scholar, ScienceDirect, Sage, Wiley Online, Springer, and the WHO website, as well as the domestic databases of SID, Magiran, and Noormags.

In the third step of the first stage, the sum of items obtained from the two sections of qualitative and literature review (n = 39) was reexamined in terms of concept similarity. Finally, a number of factors with concept similarities and overlaps were deleted and the number of items in the initial tool of cultural competence assessment reached 31 items. Then, the cultural competence assessment tool was designed as a scale-like tool in four formats after examining the index and the scale. These four formats were (1) first-person items with response spectrum of completely true to completely false, (2) first-person items with response

spectrum of zero to high, (3) second-person items with response spectrum of zero to high, and (4) how much items with response spectrum of zero to high.

By examining all four formats of the cultural competence tool items among a small sample of midwives, the format of how much items with response spectrum of zero to high was selected. In the first step from the second stage, i.e. evaluation of the face and content validity of the primary cultural competence tool (including 31 items) in the group of specialists and the pilot study along with interview in a small sample of midwives, 6 items with a CVI of <0.78 and a CVR of <0.62 were deleted based on the results obtained. As a result, the items of cultural competence tool reached 25. The mean total CVI of the tool was 0.903. According to experts' opinions on writing, simplicity, clarity, and appearance, the face validity of the cultural competence tool was desirable.

In the second step of the second stage, in the survey of 302 midwives aged 25–55 years, with a mean age of 43 ± 6.78 years, the items were analyzed based on two criteria previously discussed, and 5 items with internal consistency coefficients of <0.3 were deleted. Therefore, an exploratory factor analysis was performed on the remaining 26 terms. To analyze the factors, KMO tests were first performed to examine the proportion of sample size for factor analysis, and the Bartlett's test of sphericity was done to investigate the existence of the correlation matrix for formation of factors. The results showed that the KMO value was 0.929 which indicates an appropriate sample size for factor analysis, and the Bartlett's test of sphericity with a value of 7.007E was significant at the 0.0001 level, and thus factor analysis was allowed. To determine the number of factors using the three criteria of the specific value, the ratio of variance explained by each factor, and the Scree plot in the main components analysis method, the results showed that 56% of the cultural competence variance can be explained with the first 6 factors with a special value of above 1.4 and 42% of the remaining variance can be explained by 38 factors with a special value of <1.4.

After determining the number of extractable factors and examining a variety of rotational methods, five factors were extracted through the orthogonal rotation method (equimax) to simplify the extraction of factors. Given that the amount of accepted factor load of each item was 0.4 for each factor, one item with factor load of <0.4 was deleted, and the total number of items of the questionnaire reached 25 [Table 1]. The five factors were (1) theoretical and practical learning which included 6 terms and explained 10.70% of the variance of cultural competence, (2) clinical application which included 4 terms and explained 10.491% of the variance of cultural competence, (3) cultural skill which included

7 terms and explained 9.851% of the variance of cultural competence, (4) cultural excellence which included 5 terms and explained 9.211% of the variance of cultural competence, and (5) cultural competence which included 3 terms and explained 9.115% of the variance of cultural competence.

Finally, internal consistency and retest reliability were used to examine the cultural competence tool reliability. The results of the cultural competence tool reliability through internal consistency using Cronbach's alpha coefficient showed that the total Cronbach's alpha coefficient of the final 25-item tool was 0.899 and in all 6 factors was higher than 0.70 [Table 2].

In addition, the retest reliability test results based on Pearson correlation coefficients between two implementations of the tool with 2 weeks intervals on 15 midwives showed that the reliability coefficients of the cultural competence were all higher than 0.7, ranging from 0.79 to 0.903. The retest reliability of the total tool based on the Pearson correlation coefficient was 0.961. Moreover, calculation of the intracluster correlation coefficient for measurement of reliability in 15 midwives based on the scores obtained from the questionnaire in two stages indicates a significant agreement between the two tests ($P < 0.05$), confirming the repeatability of the dimensions and the total assessment tool [Table 3].

It should be noted that this questionnaire did not have any reverse item, and the items were scored as the 5-point Likert scale including none as score 1, little as score 2, moderate as score 3, high as score 4, and very high as score 5. The total score ranges from 25 to 125, and scores 25–50, 50–75, 75–100, and >100 represent unfavorable, relatively favorable, favorable, and excellent cultural competence, respectively.

Discussion

The present study aimed to develop and validate a cultural competence tool for Iranian midwives. Various cultural tools have been designed in different cultures; in this regard, designing a tool for measuring cultural competence with respect to cultural diversity in Iran is necessary for all medical team members.

Cultural competence in different cultures has different dimensions; however, these dimensions may differ in Iranian population due to the variability of different cultures in different countries. Therefore, it is impossible to compare the dimensions of cultural competence with those of tools that are unique to other cultures and do not influence Iranian culture. The tool constructed in this study has five main dimensions which are described below:

Table 1: Factor matrix of 5 factors extracted using the equimax rotation

Items	Factors				
	First factor	Second factor	Third factor	Fourth factor	Fifth factor
1	0.681				
2		0.511			
3		0.863			
4	0.881				
5	0.725				
6				0.592	
7					0.911
8		0.912			
9		0.706			
10			0.509		
11			0.809		
12			0.691		
13			0.658		
14				0.909	
15	0.901				
16				0.747	
17			0.604		
18				0.803	
19					0.811
20	0.735				
21	0.659				
22			0.600		
23					0.853
24				0.753	
25			0.591		

Table 2: Reliability coefficients based on the internal consistency of the final cultural competence tool

Cronbach's alpha coefficient	Factors
First factor (theoretical and practical learning)	0.891
Second factor (clinical application)	0.759
Third factor (cultural skill)	0.925
Fourth factor (cultural excellence)	0.831
Fifth factor (cultural competence)	0.903
Total scale	0.889

First dimension: Theoretical and practical learning
This dimension consists of six items about the method of teaching and learning cultural competence in the university and then in the workplace. The items in this dimension pertain more to the basic concepts of cultural competence, and weakness in this dimension can result in weakness of other dimensions; as long as midwives do not properly learn foundations of cultural competence and cannot differentiate various cultures, they cannot achieve next stages of cultural competence.

Second dimension: Clinical application
This dimension contains four items regarding the steps needed to use the information learned during university courses and individual experiences at patient's bedside. After midwives learned the cultural competence basics,

Table 3: Pearson correlation coefficients and intracluster correlation coefficient for questionnaire in retest reliability test

Factors	Mean±SD		Pearson correlation coefficient	ICC	CI=0.95	
	Questionnaire at the first time	Questionnaire at the second time			Lower limit	Upper limit
First factor	19.25±3.11	19.19±3.15	0.851	0.919	0.712	0.939
Second factor	13.02±2.99	12.96±3.03	0.903	0.920	0.823	0.941
Third factor	25.89±3.63	25.50±3.69	0.792	0.891	0.752	0.920
Fourth factor	17.73±3.91	17.63±3.95	0.759	0.888	0.770	0.911
Fifth factor	10.11±1.91	10.03±1.97	0.891	0.909	0.930	0.886
Total	92.62±6.20	92.55±6.31	0.961	0.975	0.988	0.900
P			<0.001			

ICC=Intraclass correlation coefficient, SD=Standard deviation, CI=Confidence interval

they should be able to use it at the clinic in order to consolidate their learning.

Third dimension: Cultural skill

This dimension has seven essential items about transformation of theoretical lessons and clinical applications to skills. At this stage, the experience of midwives in caring for patients with different cultures increases and midwives can take care of patients with similar cultures.

Fourth dimension: Cultural excellence

This dimension consists of five items and positive responses to them reflect the individual's progress in the cultural care. At this stage, midwives can take care of patients of all cultures and implement the necessary cultural care.

Fifth dimension: Cultural competence

This dimension has three items and indicates that after reaching cultural excellence, midwives can completely perform cultural care for patients with all cultures over time and gaining experience.

The acquired competence based on the results of this questionnaire is in four different levels; unfavorable cultural competence, relatively favorable cultural competence, favorable cultural competence, and excellent cultural competence. These steps are orderly arranged so that the person has to acquire the first level to be able to enter the second level; this means that any stage is somehow the prerequisite of the next stage. Unfavorable cultural competence indicates the inability of midwives in cultural care of patients with different cultures (similar culture and different culture), and excellent cultural competence reflects the ability of midwives in cultural care of all patients with different cultures.

The tool developed in this study was designed as other tools used in the field of cultural competence, which are unique to the culture of that country. It should be noted that any tool should be designed and adapted to the culture of the same region.[31]

Based on the Waltz and Bausell CVI and the Lawshe CVR, this indigenous assessment tool had a good validity. Given that the total CVI was 0.903, as Polit and Beck[32] pointed out, the minimum CVI of the total tool was 0.9; therefore, the tool had a satisfactory content validity. According to written opinions of experts, the face validity of the tool was also confirmed in terms of clarity, simplicity, and appearance, understandability, writing, and grammar.

The results of this research showed that reliability of the final tool resulted from factor analysis with respect to the Cronbach's alpha coefficients and the retest reliability coefficients calculated for the total tool and its factors was higher than the minimum acceptable coefficient of 0.7; therefore, this tool has a good reliability.

Study limitations

The impossibility of the criterion validity due to the lack of standardized internal tools is a limitation of the present study. Researchers suggest more advanced studies and using this tool in descriptive studies to achieve levels of cultural competence in Iranian midwives.

Conclusion

Cultural competence is an integral part of cultural care. Knowledge of cultural competence level is necessary to provide cultural care; this is achievable when a tool is developed for the assessment of cultural competence according to the culture of society. All tools related to cultural competence should be appropriate to the culture of that community and country; therefore, each tool such as cultural competence assessment tool should be developed according to the indigenous culture. In the end, it should be noted that this study and the tool design was first performed in Iran, and all researchers can use this tool after obtaining permission from the author of this article through e-mail (mkhanbabayi@yahoo.com).

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Conflicts of interest

There are no conflicts of interest.

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