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Factor Structure of the Cultural Competence Items in the National Home and Hospice Care Survey

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Abstract

Background—There is a need for validated measures of cultural competency practices in home health and hospice (HHHC).

Objective—To establish the factor structure of the cultural competency items included in the agency-component of the 2007 public-use National Home and Hospice Care Survey (NHHCS) file.

Data Source—We used weighted survey data from 1,036 HHHC agencies.

Research Design and Participants—We used exploratory factor analyses (EFA) to identify a preliminary factor structure, and then performed confirmatory factor analysis (CFA) to provide further support for identified factor structure.

Measures—We examined nine cultural competency items.

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Results—EFA suggested an interpretable two-factor solution: (1) the provision of mandatory cultural competency training (CCT); and (2) the provision of cultural competency communication practices (CCCP). Each factor consisted of three items. The remaining three items did not load well on these factors. A similar, but a more restrictive CFA model without cross-loadings supported the two-factor model: $\chi^2(8) = 9.50$, $p = 0.30$, RMSEA = 0.01, CFI = 0.99, TLI = 0.99.

Conclusions—Two constructs with three items each appeared to be internally valid measures of cultural competency in this nationally-representative survey of HHHC agencies: CCT and CCCP. These measures could be used by HHHC managers in quality improvement efforts and by policy makers in monitoring cultural competency practices.

Keywords

Cultural competency; home health; hospice; CLAS standards; factor analysis; community-based care

Background

Culture influences perceptions of health, illness, treatment decisions, as well as response to symptoms and experiences and outcomes of health care.¹ The importance of culture is heightened for minority patients,² given the pervasive evidence documenting inequitable health care among racial/ethnic and linguistic minorities in the U.S.³ Thus, cultural competency, defined as the “ongoing commitment or institutionalization of appropriate practices and policies for diverse populations,”² is of crucial importance in health care organizations.⁴ Cultural competency has been shown to be associated with better interpersonal processes of care⁵ and patient experiences of care,⁶ and is believed to be a promising mechanism to reduce health care disparities.^{2,7-9} Cultural competency training is a promising strategy for improving the knowledge, attitudes, and skills of health professionals.¹⁰

Despite being a focus of increased interest in hospitals,^{6,11,12} cultural competency has received less attention in community-based settings, such as home health and hospice care (HHHC) agencies. HHHC agencies are major providers of formal, community-based long-term care. Specifically, there were an estimated 1.5 million home health care patients, and over one million discharged hospice care patients in 2007.¹³ The demand for HHHC services is projected to increase in the future: An estimated 27 million Americans will need some type of long-term care; the majority of those will receive such care in the community by 2050.¹⁴ These projected increases are due, in part, to the growing numbers of the elderly population who increasingly prefer to “age in place”¹⁵ and seek care in the community. Importantly, the elderly population will be predominantly diverse in the future, as the share of non-Hispanic whites in the elderly is projected to drop from 79.8% to 57.7% by 2050.¹⁶

Increasingly, regulators and accreditation bodies are promoting the implementation of cultural competency in health care organizations. For example, the U.S. Department of Health and Human Services Office of Minority Health (HHS/OMH) has established standards on culturally and linguistically appropriate services (CLAS)^{17,18} to ensure cultural competence among health care providers and other staff. Similarly, the Joint Commission

has established accreditation standards related to cultural competency, particularly as it relates to patient communication.

In general, the lack of cultural competency measures that can be used in diverse settings has been a major barrier to studying cultural competency in health care.¹⁹ This barrier is even greater for HHHC organizations because cultural competency research in these settings lags behind research in hospitals. Moreover, no previous studies have examined national-level cultural competency practices in HHHC settings. This study contributes to the literature by examining the factor structure and internal consistency for the cultural competency items in the 2007 National Home and Hospice Care Survey (NHHCS).

Methods

Data Source

The cultural competency items examined in this study were part of the agency-component of the public-use file of the 2007 NHHCS available from the National Center for Health Statistics (NCHS).²⁰ This survey is part of a series of nationally-representative, cross-sectional surveys of HHHC agencies in the U.S. The NHHCS is designed to provide descriptive information on HHHC agencies, their staff members, the services they provide, and the people they serve.²¹ The survey data were collected from 2007 to 2008 using in-person interviews with agency directors and their designated staff. Agency interviewees used administrative records and patient medical records to answer survey questions. The survey sample was comprised of a total of 1,545 HH, hospice, or mixed (home health and hospice) agencies that were randomly selected, with probability proportional to size, from a sampling frame of approximately 15,000 organizations that corresponded to the population of agencies providing HHHC in the U.S during 2007.

The analytic sample consisted of 1,036 HHHC agencies that responded to the survey, representing 14,469 agencies when weighted. This weighted response rate for this sample was 59%. HH accounted for the majority of these agencies (10,816 when weighted), while hospice and mixed agencies accounted for 2,218 and 1,435 agencies, respectively.

Measures

We examined all nine cultural competency items included in the survey:²²

1. Does the agency provide mandatory cultural competency training [CCT] to all administrative, clerical, and management staff?
2. Does the agency provide mandatory CCT to all direct service providers?
3. Does the agency provide mandatory CCT to all volunteers?
4. Does the agency provide mandatory CCT to some administrative, clerical, and management staff?
5. Does the agency provide mandatory CCT to some direct service providers?
6. Does the agency provide mandatory CCT to some volunteers?

7. Does the agency provide interpreter services?
8. Does the agency provide patient-related material translated into languages of the commonly-represented groups in service area?
9. Does the agency provide multilingual staff?

The response options for these items were: “yes,” “no,” “inapplicable/not ascertained”, “refused”, or “do not know.” We included agencies with either a “yes,” or “no” response to any of the nine items.

Analytic Approach

We used SAS version 9.3 (SAS Institute Inc., Cary, NC) to compute descriptive statistics for the overall and agency-specific weighted and unweighted study samples, and used Mplus²⁶ to compute the tetrachoric correlations and factor analyses for these items for the overall weighted sample.

To explore the extent to which these nine items measured one or more constructs, we performed exploratory factor analyses (EFA) with a geomin (oblique) rotation (which allows identified factors to be correlated, unlike an orthogonal rotation).²³ In order to determine how many factors to retain, we utilized several different criteria. We examined whether factors had eigenvalues greater than one;²⁴ ensured that there were no negative residual item variances; and used fit indices (i.e., RMSEA < 0.05 and SRMR < 0.08). We then examined, using confirmatory factor analyses, whether eliminating cross-loadings led to problematic fit. This process allowed us to examine whether evidence indicated that the covariance among all the items responses was accounted for by a single cultural competence factor, and, if not, it allowed us to examine an alternative to a single factor model.

We assessed goodness of fit for the confirmatory factor analysis (CFA) model based on empirically-supported indices:²⁵ (1) root mean square error of approximation (RMSEA) values less than 0.05, (2) comparative fit index (CFI) and Tucker-Lewis Index (TLI) values greater than 0.95, and (3) a standard root mean square residual (SRMR) values less than 0.08. To perform our factor analyses, we used weighted least squares with mean and variance adjustment (WLSMV) estimator (appropriate for binary responses), incorporated the survey design and weights,²¹ and appropriately modeled the binary nature of the responses. Finally, we calculated Cronbach’s alpha²⁷ to measure the internal-consistency reliability for each set of items corresponding to factors in our final model. We considered 0.60 to be the minimally acceptable threshold for Cronbach’s alpha. We used an alpha of 0.05 for statistical significance.

Results

The percentages, weighted and unweighted frequencies for the study items are presented in Table 1. Item missingness for the study items ranged from 0.4% to 9.0%. Item correlations are presented in Table 2.

EFA Results

A one-factor EFA model with all nine items fit poorly, RMSEA = 0.13, CFI = 0.69, TLI = 0.59, and SRMR = 0.21. Likewise, a two-factor EFA model with all nine items fit poorly: RMSEA = 0.09, CFI = 0.90, TLI = 0.82, SRMR = 0.14. A three-factor EFA model including all nine items had an acceptable fit (RMSEA = 0.06, CFI = 0.97, TLI = 0.92, SRMR = 0.09). However, this model yielded inappropriate parameter estimates. There was one negative item residual variance, and item 5 “Does the agency provide mandatory CCT to some direct service providers?” had a correlation with its factor greater than one. Further examination of items 1 – 6, showed that items 1 – 3 overlap in content with items 4 – 6. As such, we ran a couple of two-factor models: The first model retained the “all” items and dropped the “some” items, and the second retained the “some” items and dropped the “all” items. The second model was a poorer fit and had low, non-significant factor loadings. Thus, we opted to remove the items referring to “some” staff/providers/volunteers from our final two-factor EFA model, resulting in the elimination of items 4 – 6.

The reduced six-item factor yielded an interpretable two-factor structure and excellent model fit (RMSEA = 0.01, CFI = 1.00, TLI = .99, SRMR = 0.02). The first factor was comprised of items 1, 2, and 3, which we considered measures of the level of mandatory CCT to all staff, providers, and volunteers provided by HHHC agencies. The second factor was comprised of items 7, 8, and 9, which we considered a measure of the level of cultural competency communication practices (CCCP) provided by HHHC agencies. These two factors correlated at $r = 0.34$.

CFA and Reliability Results

We evaluated the validity of the two-factor EFA-based model by specifying a CFA model that did not allow cross-loadings (see Table 3). This model fit the data well: $\chi^2(8) = 9.50$, $p = 0.30$, RMSEA = 0.01, CFI = 0.99, TLI = 0.99, providing further support of the two-factor solution to these six items. The standardized factor loadings of items 1, 2, and 3 on the “mandatory CCT to all staff, providers, and volunteers provided by HHHC agencies” factor ranged from 0.64 to 0.73, and standardized loadings for items comprising the “cultural competency communication practices (CCCP) provided by HHHC agencies” factor ranged from 0.43 to 0.95. The factors correlated at $r = 0.43$ ($p < 0.01$). The factors account for more than 40% of the variance in the respective item responses for all but one item (range 19% to 90%). Cronbach’s alpha was 0.60 for each of the three-item sets, indicating an acceptable internal consistency reliability. This also supports the use of a summary score of item responses for each of the two sets (as opposed to factor scores).

Discussion

A growing body of federal and state laws, regulations, and standards are promoting cultural competency as a mechanism for health systems to respond to growing linguistic and cultural diversity in the U.S. Yet the lack of standardized measures of cultural competency represents a major methodological challenge to this endeavour.²⁸ Without valid and reliable measures, it is not possible to examine the effectiveness of cultural competency practices in improving health outcomes and minimizing health disparities. While recent measures, such as the

Cultural Competency Assessment Tool for Hospitals (CCATH),²⁹ have been developed as an organizational tool to assess adherence to the CLAS standards, no similar instruments exist for home and hospice care organizations.

Results from the factor analysis of the cultural competency items in the NHHCS suggest that these items measure two cultural competency constructs: (1) mandatory cultural competency training (items 1 – 3), and (2) cultural competency communication practices (items 7 – 9). From a conceptual standpoint, both of these constructs have firm groundings in existing cultural competency standards. For example, cultural competency training aligns with one of the CLAS standards for governance, leadership, and workforce:¹⁸ to “Educate and train governance, leadership, and workforce in culturally and linguistically appropriate policies and practices on an ongoing basis.” Similarly, the cultural competency communication practices measure aligns with two other CLAS standards for communication and language assistance: to “offer language assistance to individuals who have limited English proficiency and/or other communication needs ...” and to “provide easy-to-understand print and multimedia materials and signage in the languages commonly used by the populations in the service area.”

Given these results, we envision a potential utility in creating summary scores from responses to these items to assess the degree of implementation of cultural competency practices in home and hospice care agencies to measure: cultural competency training, and cultural competency communication practices. Scores on the cultural competency training composite would indicate the degree to which an agency requires mandatory training for staff, providers, and volunteers. Similarly, scores on the communication practices would represent the extent to which an agency has adopted different communication practices for limited English patients, such as interpreter services, translation of materials, and multilingual staff.

These measures could be used by HHHC managers, policy makers, and researchers. HHHC managers interested in improving their cultural competency practices in their organizations can implement quality improvement interventions to enhance performance with respect to these measures. Likewise, policy makers could use these measures to inform consumer decisions with respect to choosing HHHC agencies with high cultural competency performance. Given the national representation of the NHHCS survey, researchers could use these two measures to assess predictors of cultural competency, as well as the degree of implementation and changes in cultural competency practices over time. Furthermore, future research should examine the relationships between cultural competency practices and patient experiences and outcomes of care. However, it is important to note that the internal consistency reliability of the composite scores based on the observed responses was marginal. Thus, scores based on observed responses should be used with caution.

This study has several limitations that should be taken into consideration. The first shortcoming stems from the self-reported nature of the NHHCS survey data. Secondly, the predictive validity of our identified measures was not assessed due to the lack of suitable cultural-competency predictive measures in the data. Thirdly, the limited nature of the agency-level data precludes the assessment of other important aspects of cultural

competency, such as leadership commitment to cultural competency, individual health care provider adherence to the cultural competency practices, and partnership with the community to provide cultural competency services.¹⁸ Finally, future versions of the NHHCS survey should consider revising the cultural competency training questions to include multiple response options (none, some staff, all staff), instead of splitting questions about training into two questions (some staff, all staff). Because “some” staff can be considered a subset of “all” staff, some respondents who endorse “yes” to an “all” staff question may indicate “yes” for the respective “some” staff question, while other respondents may not. Thus, we did not feel comfortable combining responses for these items into a single score, and the data did not support including both items in the model. Despite these limitations, this is the first study to examine the validity and reliability of the cultural competency measures in the NHHCS.

In conclusion, the two identified measures demonstrate satisfactory psychometric properties and address two critical cultural competency components in the HHHC settings: cultural competency training and communication practices. Future studies are needed to identify measurement tools for additional cultural competency measures in this important community-based setting.

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Table 1

Distribution of Cultural Competency Items

Items	HH $n_{unweighted} = 341$ ($n_{weighted} = 10,816$)		Hospice $n_{unweighted} = 359$ ($n_{weighted} = 2,218$)		Mixed $n_{unweighted} = 336$ ($n_{weighted} = 1,435$)		Overall $n_{unweighted} = 1,036$ ($n_{weighted} = 14,469$)	
	Freq unweighted	%	Freq unweighted	%	Freq unweighted	%	Freq unweighted	%
1. Agency provides mandatory cultural training to all administrative, clerical, management staff	210	48.99	265	13.77	213	7.94	688	70.71
2. Agency provides mandatory cultural training to all direct service providers	222	53.60	269	14.05	253	8.43	744	76.08
3. Agency provides mandatory cultural training to all volunteers	35	6.89	249	13.64	212	7.99	496	28.52
4. Agency provides mandatory cultural training to some administrative, clerical, management staff	23	7.23	25	0.52	34	0.69	82	8.44
5. Agency provides mandatory cultural training to some direct service providers	16	4.13	17	0.28	17	0.28	50	4.71
6. Agency provides mandatory cultural training to some volunteers?	3	0.13	38	1.02	32	0.61	73	1.76
7. Agency provides interpreter services?	242	52.87	285	12.03	298	8.76	825	73.68
8. Agency provides patient-related materials translated into languages of commonly-represented groups in service	227	45.72	226	9.55	233	7.18	686	62.45
9. Agency provides multi-lingual staff	160	36.97	170	7.07	168	5.28	498	49.32

Abbreviations: Freq, frequency; HH, home health.

Table 2
Tetrachoric Correlation Matrix of Study Measures in Overall Weighted Sample *

Items	1	2	3	4	5	6	7	8	9
1. Agency provides mandatory cultural training to all administrative, clerical, and management staff	1								
2. Agency provides mandatory cultural training to all direct service providers	0.55*	1							
3. Agency provides mandatory cultural training to all volunteers	0.46*	0.51*	1						
4. Agency provides mandatory cultural training to some administrative, clerical, management staff	-0.93	-0.29*	-0.31*	1					
5. Agency provides mandatory cultural training to some direct service providers	-0.64*	-0.93	-0.61*	0.35*	1				
6. Agency provides mandatory cultural training to some volunteers?	-0.15*	-0.10	-0.51	0.16	0.31*	1			
7. Agency provides interpreter services?	0.22*	0.23*	0.39*	-0.07	-0.09*	0.11	1		
8. Agency provides patient-related materials translated into languages of commonly-represented groups in service	0.27*	0.38*	0.14	-0.20	-0.02	-0.19	0.63*	1	
9. Agency provides multi-lingual staff	0.17*	0.16*	0.19*	-0.02	-0.01	0.01	0.37*	0.51*	1

* $p < 0.05$

Table 3

Standardized Weighted Results of the Final Confirmatory Factor Analysis Model

Item	Factor Loadings	Standard Errors	Communalities
<i>Factor 1: Provision of mandatory cultural competency training to all staff, providers, and volunteers</i>			
1. Agency provides cultural training to all administrative, clerical, management staff	0.64 *	0.10	0.41
2. Agency provides cultural training to all direct service providers	0.64 *	0.08	0.41
3. Agency provides cultural training to all volunteers	0.73 *	0.09	0.53
<i>Factor 2: Provision of cultural training communication practices</i>			
4. Agency provides interpreter services	0.95 *	0.10	0.90
5. Agency provides patient-related materials translated into languages of commonly represented groups in service area	0.82 *	0.04	0.67
6. Agency provides multi-lingual staff	0.43 *	0.05	0.19

* $p < 0.05$.