

Holistic nursing competence scale: Turkish translation and psychometric testing

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Aim: This study aimed to culturally adapt and evaluate the reliability and validity of the Holistic Nursing Competence Scale for application in the Turkish context.

Background: Nurses are expected to assess well-being of individuals by considering physical, social, psychological, cultural and spiritual dimensions to enhance adaptation to diseases. In Turkey, no tools have been developed to date for the evaluation of competencies in holistic nursing in the country.

Methods: The study was conducted with 288 nurses working in two hospitals in Ankara equipped with over 500 beds. A confirmatory factor analysis was performed in order to identify whether the items and the sub-dimensions of the adapted scale complied with the original structure comprising 36 items and five sub-scales, namely 'general aptitude', 'staff education and management', 'ethically oriented practice', 'nursing care in a team' and 'professional development'. Cronbach's alpha value was used as an estimate for reliability analysis.

Results: Opinions of 11 experts were obtained for content validation of the scale, and the content validity index was 0.90. The adaptation was observed to be acceptable on the basis of structural equation model fit indices in confirmatory factor analysis. Cronbach's alpha value was estimated to be 0.97 and 0.90, respectively, for the complete scale.

Conclusion: The study identified the Turkish version of Holistic Nursing Competence Scale as a valid and reliable tool for the evaluation of competence in holistic nursing among nurses.

Implications for nursing and nursing policy: The instrument may now be utilized as a tool of measurement in nursing practice, as well as in education and research, for identifying the level of competence in the holistic nursing practices among the nurses in Turkey.

Keywords: Competence, Holism, Holistic Nursing, Nursing, Reliability, Validity, psychometric testing

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Introduction

Holism, which emerged as an opposing view to the biomedical perspective, asserts that a person should be considered a whole in terms of their physical, psychological, cultural, social and spiritual dimensions, as well as their family and environment (Carlson & Dermer 2017; International Council of Nurses 2018). Smuts (1936), who was the first one to describe the concept, suggested that the whole constitutes more than the sum of its constituting parts. Mason (2014) demonstrated that a holistic approach should be followed equally by all the members of the healthcare staff including the nurses, just as it is followed by the significant members of the healthcare teams.

Holistic nursing is a special dimension of the nursing practice, in which the nurses utilize the knowledge, skills and theories related to nursing that they have acquired for the care and well-being of individuals and for the establishment of a therapeutic relationship (American Holistic Nurses Association (AHNA) 2015; Mariona 2016). A nurse who follows the holistic approach considers the uniqueness of each person and respects their personal beliefs and values. While following the holistic approach, a nurse considers the individual's social support resources, health practices, experiences related to their personal and family health, their disease patterns, personality traits, social and cultural characteristics, and nutrition habits, their ways of stress management, and life habits such as rest and exercise (AHNA 2015; Huljev & Pandak 2016; Mariona 2016; Papathanasiou et al. 2013). The positive effects of following a holistic approach have been observed on the nurses, healthcare teams, provision of health care and institutions as described in various previous studies. In one such study, Jasemi et al. (2017) reported personal and professional improvements as the positive consequences of following the holistic care of nurses. Takase et al. (2015) reported that holistic care was associated with better evaluations of the patients, prevention of over-looking the problems with potentially significant consequences, self- and job-satisfaction, protection of patient rights, increased and satisfactory collaboration with the whole healthcare team, and decreased rate of turnover in the nursing staff. Selimen & Andsoy (2011) stated that the patients and their families considered the holistic point of view during the provision of health care as a factor that improved health care. Thompson et al. (2008) reported that holistic practices assisted the patients in adjusting to the illness. Another study conducted by McEvoy & Duffy (2008) determined that a holistic approach enables the adaptation of patients and their families to the disease, increases the quality of life of the patients and ensures patients' well-being, growth and empowerment. Lu (2018) reported that holistic nursing practices improve the

quality of care and satisfaction in patients and staff equally. Another study identified that the holistic approach can contribute to the development of an organizational culture (Bonczek et al. 2016). In order to take advantage of the aforementioned positive consequences, it is of great importance to embed the holistic approach in the nursing practices within the healthcare systems, which requires increasing awareness and ensuring the competencies of the nurses in this field.

Competence in holistic nursing relies heavily on the awareness among the nurses about their proficiency, personal characteristics, values, attitudes, knowledge and skills, along with their professional roles and responsibilities (Fukada 2018; Takase & Teraoka 2011; Satu et al. 2013). Takase & Teraoka (2011) described general aptitudes, ethically oriented practices, continuous education, professional development and collaboration with the other team members as the sub-dimensions of the overall competence in the holistic nursing. Studies investigating 'overall holistic nursing competence' identified that the overall holistic nursing competencies increased among nurses with an increase in their clinical expertise, in the rewards provided by the organization, and in self-reflection and insight; the competencies were observed to decrease with the increase in the desires to leave the organization (Eng & Pai 2015; Takase et al. 2015; Takase 2013; Takase et al. 2012, 2014).

Since the combination of knowledge, skills, attitude and performance in nursing constitute a complicated whole, there is a significant requirement of understanding the levels of holistic competence among nurses (Cowan et al. 2005). To date, no previous studies investigating the holistic nursing competencies among the nurses in Turkey, or the relationship of these competencies with various other parameters are available. An evaluation of the holistic nursing competencies among the Turkish nurses would be an important step to guide changes within the healthcare system and in nursing care, although there is an apparent lack of availability of a Turkish measurement tool for the evaluation of holistic nursing competencies. A review of the literature revealed the Holistic Nursing Competence Scale, which was developed by Takase & Teraoka (2011), as the only measurement tool that could be utilized for this purpose. This study, therefore, was aimed at determining the validity and reliability of the Turkish version of the Holistic Nursing Competence Scale.

Methods

Study design

A descriptive cross-sectional study design was applied in this study.

Setting and samples

The study was conducted with nurses working in internal medicine, surgery and intensive care units of a university hospital and a teaching hospital with over 500 beds, located in Ankara. Since the number of individuals included in the study should be 5–10 times the total number of items on the scale for a validity study (Alpar 2012), a sample consisting of eight times the number of items was considered appropriate. As the scale consisted of 36 items, 288 nurses ($36 \times 8 = 288$) were selected using a random sampling method. Alpar (2012) in his study stated that 25–50% of those who participated in the first test would be sufficient to be included in the retest. In addition, on the basis of the nature of the test, it was suggested that the time interval that is set should neither be short nor long (Alpar 2012). In the retest stage, 72 nurses, constituting 25% of the nurses that were included in the validity stage (Alpar 2012), underwent retesting using the same scale after a 3-week interval (Alpar 2012). Data collection was conducted between 16 September and 30 October 2015.

Data collection instruments

Introductory information form

The form comprised 10 questions aimed at garnering data on the nurses' age, gender, marital status, the last school they graduated from, the unit and the hospital in which they work, duration of experience as a nurse, duration of experience in the current hospital and in the current unit, type of working and weekly working hours.

Holistic nursing competence scale (HNCS)

The HNCS is a 7-point Likert-type scale that was developed by Takase & Teraoka (2011). It comprises two parts, five sub-scales and 36 items in total. The first part (A) involves only the 'General Aptitude' sub-scale of the HNCS, which consists of questions related to general behaviours as a person rather than as a nurse. This part comprises seven questions in total, and the items are scored from 1 (never) to 7 (always). The second part (B) measures the competence as a nurse and consists of the remaining four sub-scales of the HNCS, which are as follows: 'Staff Education and Management', 'Ethically Oriented Practice', 'Nursing Care in Team' and 'Professional Development'. This part (B) consists of 29 items that are scored from 1 (not competent at all) to 7 (very competent). The scale contains no inversely scored item or cut-off point. The final HNCS score is ascertained from the simple addition of the sub-scale scores. The higher the sub-scale score, the higher the increase in the overall holistic nursing competence of the nurses (Takase & Teraoka 2011).

Study stages and data collection procedure

The adaptation and validity–reliability studies of the Turkish version of Holistic Nursing Competence Scale were conducted in three stages, beginning with the translation of the scale, followed by the validation of the content of the scale and culminating in the psychometric evaluation of the Turkish HNCS.

First stage: tool translation

As the first step in the tool translation process, permission to use the scale in the study was obtained from Professor Miyuki Takase, who was one of the original developers of the HNCS. The scale was originally developed in Japanese; however, since the experts included in this study did not speak Japanese, the English version of the form, which was also developed by Professor Takase only and was identified as fit for use in the study, was used for language validation. This prevented any potential difficulty in obtaining expert opinions, providing a common language for the process. For language equivalence control, the scale was translated into Turkish by three experts (one expert from the English Language and Literature department of a university in Turkey, and two experts from the field of psychiatric nursing), and the three translation texts thus obtained were reviewed by an expert from the field. The Turkish version of the scale was generated and forwarded to an expert from the Turkish Language and Literature Department for review. The expert reviewed the text in terms of language structure and form, resulting in the development of the final version of the scale based on the recommendations of the reviewing expert.

The reverse translation of the Turkish form of the scale to the English form was performed by a certified translator, followed by a review of the newly developed English scale by an expert from the English Language and Literature department. The final version of the scale was accepted when no significant difference was obtained between the Turkish form of the scale, the English form of the scale and the original English version of the scale (Fig. 1).

Second stage: content validity of the tool

For content validation, the Turkish form of the scale was forwarded to 10 experts in the field of psychiatric nursing and one expert in the field of assessment and evaluation. In accordance with the method suggested by Kline (2016), an expert opinion evaluation that utilized the content validity index was adopted for the study. In order to calculate this index, a four-point ordinal Likert-type rating scale was utilized, in which 1 = definitely appropriate, 2 = appropriate (minor changes required for the item and the statement), 3 = somewhat appropriate (the item and the statement should be made

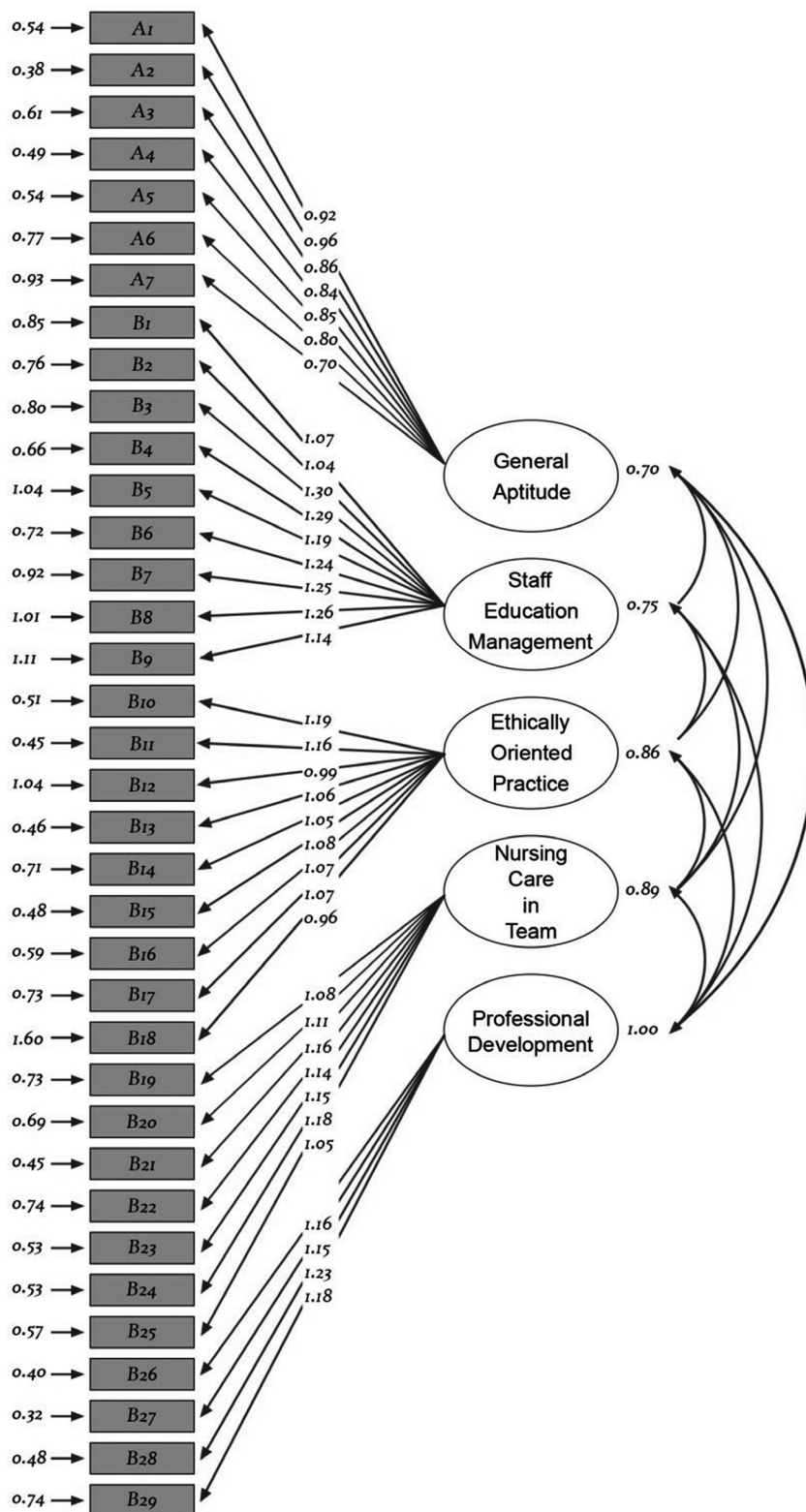


Fig. 1 Structural equation modelling results of the Holistic Nursing Competence Scale.

appropriate) and 4 = inappropriate options. The experts were asked to select one of the aforementioned statements and to provide comments in case they had selected the options '2', '3' or '4' for the given statements. While evaluating the questions, the experts were asked to assess the quality of the questions, the appropriateness of the questions for measuring their respective dimensions and the ability of the dimensions to measure the holistic nursing competence. The experts were also requested to evaluate each statement in terms of clarity or misunderstanding and to decide whether any irrelevant statement had been stated. Subsequent to obtaining opinions from 11 experts, content validity index for each item was calculated, for which, the number of experts who selected options '1' and '2' on the scale developed for content validity was divided by the total number of experts. In this manner, a content validity index was obtained for each item; if the value of this index was over '0.8', the item was accepted as 'appropriate'. In the Turkish version of HNCS, all the items were identified to be appropriate. The final form of the scale, based on the opinions of the experts, was prepared in cooperation with a field expert.

Third stage: psychometric evaluation

Structural validity, internal consistency reliability and test-retests were performed for the psychometric evaluation of the developed HNCS.

Ethical considerations

A submission was made, and written permission was obtained from the hospitals that were included in the study sample. Approval for the study was obtained from the Non-Interventional Clinical Trials Ethics Committee on 08 July 2015 (decision number: GO 15/448–24). The nurses who participated in the study were thoroughly informed regarding the course of the study, and the data collection tools were provided to the nurses who provided verbal and written consent for participating voluntarily in the study. In the first stage of the study, permission to perform the validity and reliability studies for the Holistic Nursing Competence Scale was obtained from Professor Takase, who originally developed the scale, through e-mail. The study was performed in accordance with the principles of the Declaration of Helsinki.

Statistical analysis

The statistical analysis was performed using the SPSS version 20.0 (IBM Corp., Armonk, NY, USA) and LISREL 8.7 package programs. Following the content validity of the expert opinions was evaluated by way of a content validity index analysis. At the stage of reliability, a test-retest evaluation of the scale was made

using a Pearson's correlation analysis, and an item total point analysis of the scale and its sub-dimension was made through a further Pearson's correlation analysis. The internal consistency of the scale and sub-scales was assessed by Cronbach's alpha coefficient; the item-factor association was analysed by way of a factor analysis, and a confirmatory factor analysis was used to determine whether the items and sub-dimensions clarified the original structure of the scale. As the original HNCS contained no cut-off values, no cut-off value was calculated in the Turkish version of the scale.

Results

An evaluation of the demographic and professional characteristics and the holistic nursing competencies of the participating nurses revealed that 32.6% of the respondents were between the ages of 26 and 30 years, and 88.2% of them were female. Among the entire sample, 59% were married and 62.5% possessed an undergraduate degree. In total, 60.1% of the sample had experience in state hospitals, 40.6% were working in surgery units, 25.7% had been working as nurses for 2–5 years, 43.4% had been working in their current department for 1–5 years, 78.8% were working in shifts and 64.9% were working 41–50 h per week.

Content validation findings

For content validation, the points allocated by the experts were evaluated by means of Content Validity Index. The total index value attributed by the 11 experts was 0.9, and the value of the index for each sub-dimension was >0.8.

Structural validity findings

The adaptation of the scale was identified to be acceptable (Esin 2014; Ainur et al. 2017; Kline 2016) on the basis of structural equation model fit indices ($\chi^2/SD = 2.96$, RMSEA = 0.087, CFI = 0.98, RFI = 0.96, GFI = 0.74). The chi-square/d.f. ratio (χ^2/SD) value obtained in this study was 2.96, the RMSEA value was 0.087 and the *P* value was 0.001. The CFI, RFI and NNFI values obtained in the study were all >0.90 and almost equal to 1.

The factor loads for the model are depicted in Figure 1. In this figure, it is visible that the items included in the sub-dimensions fit the original items developed by Takase & Teraoka (2011).

Reliability findings

The internal consistency and reliability of the Holistic Nursing Competence Scale were estimated through Cronbach's alpha coefficient. The statistical analysis arrived at an internal consistency coefficient of 0.97 for the scale. Moreover, the

Table 1 Cronbach's alpha values and test-retest results of the holistic nursing competence scale

Holistic nursing competence scale	Cronbach's Alpha values	Test X ± SS	Retest X ± SS	r
General aptitude	0.89	5.37 ± 0.84	5.61 ± 0.77	0.76
Staff education management	0.94	4.53 ± 1.16	4.75 ± 1.11	0.82
Ethically oriented practice	0.93	5.44 ± 1.12	5.42 ± 1.01	0.72
Nursing care in team	0.94	5.19 ± 1.26	5.31 ± 1.09	0.72
Professional development	0.92	5.29 ± 1.14	5.21 ± 1.18	0.61
Total	0.97	5.14 ± 0.99	5.25 ± 0.92	0.83

coefficients for each sub-factor were estimated, and the results are presented in Table 1. The coefficients of all the sub-dimensions were >0.80.

A test-retest method was applied for identifying the reliability of the Holistic Nursing Competence Scale in terms of change over time. In this method, 72 nurses were asked to complete the scale two times within a 3-week time period.

An association was observed between the test and the retest measurements for the Holistic Nursing Competence Scale. Pearson's product-moment correlation coefficient between the two conducts was observed to be 0.83 ($p < 0.01$) for the total score of the scale, 0.76 for general aptitude, 0.82 for staff education and management, 0.72 for ethically oriented practice and nursing care in team, and 0.61 for professional development ($p < 0.01$; Table 1).

Table 2 presents the total correlations of the items in each sub-dimension. When the total correlations of the items were analysed, the total correlations of the items in the General Aptitude sub-dimension were observed to vary between 0.688 and 0.840, the total correlations of the items in the Staff Education Management sub-dimension varied between 0.777 and 0.854, those in the Ethically Oriented Practice sub-dimension varied between 0.667 and 0.878, the ones in the Nursing Care in Team sub-dimension varied between 0.815 and 0.881, and those in the Professional Development sub-dimension varied between 0.871 and 0.912.

Discussion

Nurses possessing biopsychosocial, cultural and spiritual competencies in a holistic approach contribute to the effectiveness of their performance. Since the holistic approach involves competence of nurses in different fields, various measurement tools have been developed for evaluating the cultural

competence (Cai et al. 2017), spiritual competence (van Leeuwen et al., 2009) and competence in patient-nurse interactions (Chung et al. 2009). The scale adaptation that allows nurses to examine their cultural competence (Gözüm et al. 2016) and spiritual care competence (Daghan et al. 2018) has been conducted in Turkey, although there is no measurement tool available for evaluating the communication, professional development, education and management among the nurses.

This study investigated the validity and reliability of the HNCS, developed originally by Takase & Teraoka (2011), as a measurement tool for the use among the Turkish population, and it was revealed that the Turkish version of HNCS could be considered equivalent to the original form of the scale, and consequently, a valid and reliable measurement tool. On the basis of their respective calculations, the compatibility of the Turkish version was confirmed by the experts involved in this study.

Fit indices, calculated using the structural equation model (SEM) to investigate the validity of the Holistic Nursing Competence Scale, indicate that the model may be considered good if $\chi^2/SD \leq 2$, while the indices of value ≤ 5 indicate that the model is acceptably fit (Esin 2014). The χ^2/SD value of 2.96 obtained in the study indicated that the model was a good fit. An RMSEA value close to zero indicates a very good fit, while values equal to or <0.08 represent an acceptable fit (Esin 2014; Schumacker & Lomax 2016). The RMSEA value of the scale was estimated to be 0.087 in this study, indicating that the scale had an acceptable fit. A review of the literature revealed that, for the CFI, RFI, NNFI and GFI indices, a value of 0.90 was considered a good fit, while a value of 0.95 represented a perfect fit (Ainur et al. 2017; Esin 2014; Kline 2016; Schumacker & Lomax 2016). The CFI, RFI and NNFI values obtained in the study were above 0.90, and almost equal to 1. The CFI and RFI values estimated in the study indicated a perfect fit, while a GFI value <0.90 for the scale could be interpreted as an acceptable fit. In conclusion, all the estimated indices indicated that the model had an acceptable fit.

While Cronbach's alpha value obtained for the overall Holistic Nursing Competence Scale was 0.97, the values of this coefficient ranged between 0.94 and 0.89 for the sub-dimensions of the scale. Pearson's product-moment correlation coefficient obtained for the total score of the scale between the first test and the retest was 0.83. The developers of the test, Takase & Teraoka (2011), reported a Cronbach's alpha value of 0.97 for the overall scale, and values ranging between 0.97 and 0.87 for the sub-dimensions of the scale. On the basis of Cronbach's alpha values, reliability of a scale may be considered 'excellent' when the values range between 0.90 and above; the reliability may be considered 'very good'

Table 2 Item total correlations according to HNCS

Sub-scales	r	p
General aptitude		
1. Spending effort to identify the reasons behind the existing problems and offering solutions for them	0.792	0.001
2. Identifying my problems by a thorough search of the essence of the subject	0.840	0.001
3. Observing events/problems from different perspectives objectively without automatically choosing a standard opinion	0.758	0.001
4. Reflecting on and evaluating my own thinking processes thoroughly and objectively	0.800	0.001
5. Being aware of the differences between current and ideal selves	0.805	0.001
6. Trying to enhance the well-being of others with all my power	0.767	0.001
7. Consoling and encouraging other people when they are in a difficult situation	0.688	0.001
Staff education management		
1. Trying to provide nursing care that is an example to other nurses	0.784	0.001
2. Helping to decide on a solution that is respectful of all opinions when there are conflicts among nurses	0.791	0.001
3. Providing continuous training and guidance to each nurse while taking their competencies into consideration	0.847	0.001
4. Creating an environment and culture that facilitates learning in the workplace	0.854	0.001
5. Facilitating the exchange of opinions by communication when there are conflicts among nurses	0.789	0.001
6. Helping other nurses with their self-learning	0.846	0.001
7. Collecting and examining information that enhances nursing quality (e.g. information on health, research results)	0.822	0.001
8. Explaining the role of nurses to other health professionals and searching their understanding (comprehension)	0.811	0.001
9. Pointing out incorrect behaviours of other health professionals to provide the safety of patient care	0.777	0.001
Ethically oriented practice		
10. Providing patient-centred care regarding patient rights and dignity	0.859	0.001
11. Always following the main principles of nursing practices	0.878	0.001
12. Making my own decisions during nursing practice and being responsible for them	0.732	0.001
13. Understanding and anticipating risk factors and focusing on preventing medical errors	0.852	0.001
14. Communicating with patients taking their ages, cultural backgrounds and value systems into consideration	0.816	0.001
15. Notifying other health professionals about the patient's needs to improve patient care	0.846	0.001
16. Providing nursing care that is consistent with applicable legislation	0.834	0.001
17. Confirming that a task is properly completed when assigning the task to other nurses or nursing aides	0.813	0.001
18. Reporting medical errors and potentially dangerous situations immediately without hiding them	0.667	0.001
Nursing care in team		
19. Being aware of my position as a nurse and, accordingly, establishing a therapeutic relationship with patients	0.815	0.001
20. Choosing an approach which fits the patient's and family's understanding, and providing them with necessary training	0.841	0.001
21. Make changes to nursing care plans and priorities in such a way that they match the needs of the patient and are also timely	0.881	0.001
22. Collecting information to make a perfect understanding of patients (e.g. physiological, psychological, social and spiritual needs)	0.837	0.001
23. Evaluating nursing care outcomes	0.872	0.001
24. Communicating with other nurses and health professionals to build favourable relationships while considering the aims and methods of communication	0.867	0.001
25. Responding to patients as individuals by accepting their background (e.g. gender, religion) and value systems without prejudice	0.834	0.001
Professional development		
26. Spending time and effort learning about and preserving the current information and skills, which are necessary for nursing practice	0.905	0.001
27. Determining my own learning needs by seriously reflecting on my nursing practices	0.907	0.001
28. Creating a professional development plan for my personal development	0.912	0.001
29. Looking for immediate responses to the questions emerging from nursing practice	0.871	0.001

$p = 0.01$.

when the values range between 0.80 and 0.89 (Kline 2016; Rubin & Babbie 2017). In this study, Cronbach's alpha values for the complete scale as well as for the sub-dimensions of the scale appear considerably high, and similar to the values reported for the original scale.

A review of the total correlations of the demonstrated items revealed that these values varied between 0.69 and 0.84 for the 'General aptitude' sub-dimension, between 0.77 and 0.85 for the 'Staff Education Management' sub-dimension, between 0.67 and 0.88 for the 'Ethically Oriented Practice'

sub-dimension, between 0.82 and 0.88 for the 'Nursing Care in Team' sub-dimension, and between 0.87 and 0.91 for the 'Professional Development' sub-dimension. Given that a total correlation of 0.30 and higher is considered a good differentiator of people for the measured characteristic (DeVellis 2016), the total correlations of the sub-dimensions ranging between 0.67 and 0.91 obtained in this study appear to be acceptable.

Implications for nursing and health policy

Holistic nursing is an essential element of nursing care, as it enhances the quality of nursing care, decreases the long-term costs associated with care and improves the satisfaction levels of both the patients and the nurses. Determining the holistic nursing competencies of the nurses provides important information to the healthcare organizations, guiding them regarding the areas that require improvements in the provision of nursing care. A review of the previous studies conducted in this field revealed many scales that could measure holistic nursing competencies, while the tool presented in the study may be able to provide valuable information on nurse managers and institutional managers, resulting in the provision of a higher quality of healthcare services.

Conclusion

In this study, which investigated the validity and reliability of the Holistic Nursing Competence Scale, it was demonstrated that the Turkish version of the HNCS is equivalent to the original form of the scale, and is, therefore, a valid and reliable measurement tool for the evaluation of the holistic nursing competence of the nurses. As the Turkish HNCS was found to be a valid and reliable measurement tool, the scale may now be utilized in nursing practice, education and research, to identify holistic nursing competencies across Turkey.

Limitations

The limitation of this study was that the majority of the experts who reviewed the Turkish version of the scale were psychiatric nurses specializing in the scale language and content validation process. If the scale was to be used across the different areas of nursing practice in Turkey, then getting the scale reviewed by experts who work in the various fields of nursing would have been a better approach for reviewing the validity of the scale.

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Author contributions

Study design: AA, DH

Data collection/analysis: AA

Study supervision: DH

Manuscript writing: AA, DH

Critical revisions for important intellectual content: AA, DH

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