

Translation and Validation of a Spanish version of the Kolcaba's General Comfort Questionnaire in Hospital Nurses

Esperanza Ferrer Ferrandiz¹ & David Martín-Baena²

Abstract

Background: The General Comfort Questionnaire (GCQ), developed by Katharine Kolcaba, has not been validated in any speaking Spanish country, subsequent validation is necessary. **Objectives:** To translate the General Comfort Questionnaire (GCQ) in English language into Spanish (S-GCQ) and to examine the psychometric properties of the S-GCQ. **Method:** Validation was performed on a randomly selected sample of 600 nurses from eight Valencia and Murcia public hospitals. This study analyzed the psychometric properties and factor structure using translation and back-translation of the original version, Principal Component Analysis (PCA), Confirmatory Factor Analysis (CFA), Internal Consistency (IC) and Multidimensional Scaling (MS). **Results:** The instrument showed excellent internal consistency (Cronbach's alpha of 0.90), good item-total correlation, and a coefficient of determination of 0.94 in multidimensional scaling. Factor analysis supported the twelve-factor structure reflecting dimensions of the original instrument. **Discussion:** The S-GCQ is a valid and reliable Spanish-language assessment instrument to measure nurses' comfort. It would be appropriate to validate the S-GCQ instrument for assessing nurses' comfort in Primary Care and other health settings.

Keywords: Psychometric testing; Nurses; Comfort

Introduction

Nursing discipline has always been intended to provide people with the maximum comfort and convenience through care. Shares of comfort-oriented care that nurses provide to citizens originate holistic responses to complex stimuli, which in turn will lead to increased comfort while seeking behavior aimed at strengthening health (Grooper, 1992). This care is practiced through interpersonal processes present in the construction of the self, and the conditions encountered both naturally and socially from birth to death (Ferrer, 2007). Comfort care as a phenomenon has been studied by numerous researchers in the nursing discipline (Henderson, 1964; Henderson, 1966; Kolcaba and Kolcaba, 1991; Nightingale, 1991; Orem, 1993). However, in many proposals, we can find the use of the concept comfort, convenience, and welfare as synonyms when defining the action of care as thought, as caudation made as a result of the act of caring (Ferrer, 2007). Possibly, the use of the words comfort, convenience, and welfare interchangeably is due to the different English translations produced by different authors. If we start by conceptualizing care as a relationship between subjects, we may affirm that the presence of convenient nursing care will constitute a therapeutic element increasing the comfort of the other, thereby promoting an adequate framework to enhance and restructure those healthy behaviors that contribute to a greater structural balance in all dimensions of the human being.

¹ PhD, Nursing School "La Fe", Valencia, Pabellon Docente.Torre H, Bulevar Sur S/N, 46026, Spain. E-mail: ferrer_esp@gva.es

² PhD, Technical researcher, Ciber de Epidemiología y Salud Pública (CIBERESP), Spain, FISABIO. Area health inequalities, Avda. Catalunya, 21 46020 Valencia, Spain. Telf. 34-96-192 59 32 , fax: 34-96-386 47 67, E-mail address: martin_dav@gva.es

Kolcaba (2006) has developed a theoretical framework for the work on comfort in nursing, conceptualizing convenient care as the immediate and holistic experience of feeling strengthened by meeting the needs of three types of comforts (relief, ease, and transcendence) in the four contexts of holistic human experience (physical, psycho-spiritual, socio-cultural, and environmental) (Kolcaba, 1994; Kolcaba, 1995; Kolcaba and Fox, 1999; Kolcaba et al., 2006). In her theoretical description, she raises the consideration of comfort needs, the design of comfort measures to meet those needs, and the subsequent assessment after implantation as the essence of nursing care. For that purpose, she has developed questionnaires in order to measure holistic comfort among the ill and nursing staff (Kolcaba, 2001). There are several questionnaires, some translated and validated in our context, that are specifically aimed at nursing staff, measuring aspects such as stress, anxiety, satisfaction, burnout, work environment (Escribà-Agüir et al., 1999; Payne and Firth-Cozens, 1987; Tyler and Cushway, 1992). These aspects are strongly related to the comfort level felt by the nurse. Having access to measuring instruments that have already been used by other authors, allows us to conduct further research in order to look for similarities and differences with other countries. However, since they have been carried out in different socio-cultural contexts, cross-cultural adaptation of questionnaires is necessary while trying to maintain a close approximation to the original one, allowing to measure the phenomenon of nursing comfort across cultures and compare the results with those obtained in other works. If the comfort level of nurses correlated to the quality level of care they provided in English-speaking countries (Goodwin and Candela, 2013; Krinsky et al, 2014;) and their correlation is not examined in Spanish-speaking countries, we may understand the importance of measuring comfort level of nurses in Spanish. The present work aims to adapt the General Comfort Questionnaire (GCQ) (Kolcaba, 1992) to the Spanish hospital nursing context to proceed to the study of its psychometric properties.

Materials and Methods

Participants

Nurses included in the study were randomly selected from a list provided by the person responsible for the training program on each teaching public hospital selected to participate in the study. The sample size needed for a confidence level of 95% and a precision error of 4% was 600 nurses, aged between 20 and 64 years. As for the employment status they all held an indefinite contract, either occupying a long-term vacancy or being health system faculty members. Out of them, 78.6% belonged to Valencia Autonomous Region Hospitals and 21.4% to Murcia Autonomous Region Hospitals. No significant differences (demographic or professional characteristics) were found among nurses from the Valencia and Murcia Autonomous Regions. The institutional review board of each site approved this study.

Variables

The GCQ for nurses consists of 48 items that are measured on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). The psychometric properties of the original GCQ, was a Cronbach's alpha=0.88 (Kolcaba, 1992). A total of 24 items are positively keyed while the remaining 24 are negatively keyed. The final score obtained by the participant was calculated by adding up the scores of the positively keyed items and reverse-scoring the negatively keyed items. High scores using this measuring instrument indicate higher comfort levels. The 48 items belonging to the four contexts considered by Kolcaba (physical, psycho-spiritual, socio-cultural, and environmental) are grouped into three factors: relief, ease, and transcendence. With regard to adaptation of the questionnaire to the Spanish context, the procedure used was that recommended by the scientific method; that is, the English -Spanish translation was carried out based on the theoretical conceptualization that the author makes about the four contexts and the three types of comforts, using cross-cultural research translation and back-translation techniques (Guillemin et al., 1993).

Specifically, the following steps were the most desirable according to the scientific literature for these adaptations:

First, the original English scale was translated into Spanish independently by two health professionals: a psychologist and a nurse. One of the translators was given a brief explanation of the features and utility of the scale and both translators were advised that the translation of each of the items should be semantic rather than literal to attain conceptual and linguistic equivalence; that is, it should be taken into account the equivalence of idiomatic expressions for each of the items.

Second, translators were asked to rate on a scale of 0 to 10 the level of difficulty to find an expression in Spanish conceptually equivalent to the original for each one of the items.

Third, the research team conducted an initial review of both translations, each of which was back-translated independently by two bilingual translators (American native speakers living in Spain), who then scored on a scale of 0 to 10 the level of difficulty in finding an equivalent expression in English for each of the items.

Fourth, the two translations and back-translations were reviewed by the research team and translators to determine the equivalence of the items with the original version.

Fifth, in order to check the suitability of the questionnaire in our linguistic context, a discussion group of skilled nurses was created and a pre-test was conducted to ensure comprehension of the final version of the questionnaire.

Finally, the back-translation was sent to Katharine Kolcaba to make sure that the questionnaire fitted the theoretical model.

Statistical Analysis

The questionnaire's internal consistency was measured by the item-test correlation and the Cronbach's alpha coefficient (Streiner and Norman, 1995) was calculated. Further exploratory factor analysis (EFA) was used to identify the latent variables of the questionnaire, using Principal Component Analysis (PCA), the Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity.

Later, we applied a nonparametric technique for multidimensional scaling (MS) using the ALSCAL program and the comfort was assessed. All analyses were performed with SPSS 18.0 statistical software.

Results

Sociodemographic Characteristic

Most nursing professionals involved in this study were women (82.7%), mean age (41 years old) and over 8 years of work experience (Table 1).

Internal Consistency Item-Test

Table 2 shows internal consistency measured by the item-test correlation. According to it, most of the items (31) showed a correlation with the total score of the comfort questionnaire higher than 0.40, which is the cut-off point to consider that internal consistency for all items is satisfactory (Ware and Gandek, 1998).

Regarding indexes related to internal consistency of the scale, Cronbach's alpha was calculated and the internal consistency reliability obtained was excellent: 0.902 for all 48 items (George and Mallery, 1995).

Exploratory Factor Analysis (EFA)

As for the EFA results, we obtained a Kaiser-Meyer-Olkin (KMO) index of 0.911, close to 1, which makes it an advisable performing factor analysis. Moreover, Bartlett's Test of Sphericity ($p < 0.001$) indicated that we were facing a score matrix meeting the assumption of identity. Given that the 48 items of the GCQ belong to the four contexts proposed by Katharine Kolcaba (1994) (physical, psycho-spiritual, socio-cultural, and environmental) and are grouped into the three types of comfort (relief, ease, and transcendence), 12 factors are expected and the 12 factors account for 54.51% of the variance (this result is shown in Table 3). Each item was assigned to the factor that might present a higher load factor, as shown in the table.

Multidimensional Scaling

As a nonparametric alternative to EFA, multidimensional scaling by ALSCAL procedure incorporated into the statistical package SPSS 18.0 was performed. The aim was to graphically observe the four contexts and see if items are grouped into clusters. The results of this technique indicate that the "S-Stress" coefficients assume values between 0 and 1. Zero indicates a "perfect fit" and values above 0.2 are related to maladjustment. Thus, the coefficient of "S-Stress" is interpreted as a quality indicator of the degree of fitting to the original data set, and in our case, to the model proposed by Kolcaba. We obtained an S-Stress value of 0.108, a suitable value ensuring that the algorithm has been properly programmed. Moreover, the Coefficient of Determination ($RSQ = 0.944$) being close to 1 indicates that part of the dispersion has been properly programmed and that part of the dispersion of the theoretical values is explained, in this case, at 94.4%.

Figure 1 shows the three-dimensional result of the nonparametric confirmatory analysis. Results obtained by this technique show a set of four factors in three dimensions, as conceived by the American teacher in her theoretical model. The sight of the three-dimensional structure allows us to recognize a set of clusters in the upper right side (physical, psycho-spiritual, socio-cultural, and environmental) and the three-dimensions of comfort in the cubic structure (relief, ease, and transcendence).

The following are some of the different items included in the questionnaire grouped by contexts:

1. Social: (P1) I feel relaxed at work; (P3) I have enough support; (P9) I feel my work is valued; (P10) I am inspired by knowing that I am part of a team; (P11) These surroundings are pleasant; (P15) I am inspired to do my best; (P18) I feel like I belong here; (P19) My work breaks refresh me; (P23) I am being treated fairly; (P30) The mood around here uplifts me; (P36) I work well with my administrators and leaders; (P38) I am encouraged to make important patient care decisions; (P43) Appropriate lighting contributes to my well-being; (P44) Most of my work is true nursing work; (P47) My schedule fits my life-style.
2. Psycho-spiritual: (P2) I feel competent; (P4) There are those I can depend on when I need help; (P5) I don't want to come to work; (P7) I feel confident; (P8) I feel like I don't belong here; (P13) No one understands me; (P14) My fatigue is difficult to endure; (P16) I am unhappy when I am at work; (P17) My values do not fit with this institution; (P20) I do not feel healthy right now; (P21) This work makes me feel scared; (P28) I am angry; (P29) I can rise above my concerns; (P31) I am content; (P33) My patient care is personalized; (P35) I feel out of place here; (P37) I don't have many friends at work; (P42) When I am asked to precept a student or new nurse, it is a burden; (P45) I intend to stay here.
3. Physical: (P25) I eat a meal off the unit every day; (P27) the temperature on this unit is fine; (P40) Here, all nurses are considered leaders; (P46) I feel my career is upwardly mobile; (P48) Patient rooms are easy to work in.
4. Environmental: (P6) My work load gets me down; (P12) The background noise is nerve-racking; (P22) I am afraid for my future; (P24) I have experienced changes which make me feel uneasy; (P26) I would like to see my clinical leaders more often; (P32) My body aches from my work; (P34) I have few opportunities to be a change agent; (P39) I do not receive positive reinforcement here; (P41) There is not enough cooperation among departments or disciplines here.

Hence, with the four factors obtained, we proceeded to perform an exploratory factor analysis to check the three dimensions that Kolcaba proposed in her taxonomic structure of the concept of Comfort (relief, ease, and transcendence).

Discussion

The overall aim of this study was to examine the psychometric properties of the GCQ in a sample of Spanish hospital nurses, including whether the factor structure of the English-language GCQ was confirmed in the S-GCQ. To the authors' knowledge, there are no references regarding validation of this questionnaire in other countries; thus, this is a pioneer study on validating the GCQ questionnaire in a language differing from the original in English. Kolcaba's Comfort Theory has proven to be a useful model for application in the Spanish population for several reasons. First of all, because the American healthcare system does not differ much from the Spanish system as regards management problems, practices, and organization of care. Hospitals and healthcare centers in both countries have very similar quality standards applied to the management and training of nurses since professional nursing was recognized as a scientific discipline in the field of health sciences. Furthermore, we do not consider that United States' citizens deal with social or family problems differing from Spain's citizens, or face different diseases than the Spanish population since western developed countries present many lifestyle similarities, in spite of some cultural differences affecting food habits, exercise, smoking, etc., which can be a differentiating factor influencing the incidence and prevalence of certain diseases. For all these reasons, our research can serve as an starting point to begin measuring nurses' comfort, a pending issue in our health system and the American healthcare system, as well as in other parts of the world. From the present work, in view of the results, we could conclude that nurses' comfort constitutes a pending matter which needs to be investigated in depth. Nurses' comfort is a therapeutic requirement both for nursing staff and in order to be able to provide comfort of the "other".

Limitations

It is important to point out some possible limitations of this study, being the most obvious one the fact that nurses participating in the study work at hospitals under public management; thus, differences with the magnitude of comfort that nurses experience in privately run hospitals could be found.

Strengths

The availability of S-GCQ will also allow a broader application of the questionnaire in countries where Spanish is the official language.

Future Research

Overall the variables measured by the S-GCQ of General Comfort are important to the nursing care associated with the promotion of positive patient care outcomes. It is important to further validate the S-GCQ through repeated hypotheses testing. Additionally, testing the measure in a different setting will further strengthen the validity of the measure. It would be appropriate to validate the S-GCQ instrument for assessing nurses' comfort in Primary Care and other health settings.

Conclusions

The results of this work have allowed us to validate Kolcaba's General Comfort Questionnaire adapted to Spanish, attending to the four contexts of the GCQ (physical, psycho-spiritual, socio-cultural, and environmental) and the three comfort factors: relief, ease, and transcendence, in order to use it in nursing interventions in clinical settings. The internal consistency, reliability, and factor structure of the Spanish GCQ has proven to be comparable to the original questionnaire.

References

- Escribà-Agüir, V., Más Pons, R., Cárdenas Echegaray, M., Pérez Hoyos, S., 1999. Validation of the scale of occupational stress in nurses, "the nursing stress scale». *Gaceta Sanitaria* 13(3), 191-200.
- Henderson, V., 1964. The nature of nursing. *American Journal of Nursing* 64(8), 62-68.
- Henderson, V., 1966. The nature of nursing: A definition and its implications for practice. Research and education. Macmillan, New York.
- Ferrer, E., 2007. Comfort: Action careful as thought, as an educational fact and as a result of the act of caring. *Educare* 21(4), 28-35.
- George, D., Mallery, P., 1995. *SPSS/PC+ Step by step. A simple guide and reference*. Wadsworth Publishing, Belmont.
- Goodwin, M., Candela, L. 2013. Outcomes of newly practicing nurses who applied principles of holistic comfort theory during the transition from school to practice: a qualitative study. *Nurse Education Today* 33(6), 614-619.
- Guillemin, F., Bombardier, C., Beaton, D., 1993. Cross-cultural adaptation of health-related quality of life measures: Literature review and proposed guidelines. *Journal of Clinical Epidemiology* 46(12), 1417-1432.
- Grooper, L., 1992. Promoting health by promoting comfort. *Nursing Forum* 27(2), 5-8.
- Kolcaba, K., Tilton, C., Drouin, C., 2006. Comfort theory: A unifying framework to enhance the practice environment. *Journal of Nursing Administration*, 36(11), 538-544.
- Kolcaba, K. Y., Kolcaba, R. J., 1991. An analysis of the concept of comfort. *Journal of Advanced Nursing* 16(11), 1301-1310.
- Kolcaba, K., 1992. Holistic comfort: operationalizing the construct as a nurse-sensitive outcome. *Advances in Nursing Sciences* 15(1), 1-10.
- Kolcaba, K., 1994. A theory of holistic comfort for nursing. *Journal of Advanced Nursing* 6(19), 1178-1184.
- Kolcaba, K. Y., 1995. The art of comfort care. *Journal of Nursing Scholarship* 27(4), 287-289.
- Kolcaba, K., Fox, C., 1999. The effects of guided imagery on comfort of women with early stage breast cancer undergoing radiation therapy. *Oncology Nursing Forum* 26(1), 67-72.
- Krinsky, R., Murillo, I., Johnson, J. 2014. A practical application of Katharine Kolcaba's comfort theory to cardiac patients. *Applied Nursing Research* 27(2), 147-150.
- Nightingale, F., 1991. *Notes on nursing. What is and what is not*. Salvat. Masson, Barcelona.

Orem, D. E., 1993. Orem model. Concepts of nursing practice. Salvat. Masson, Barcelona.
 Payne, R., Firth-Cozens, J., 1987. Stress in health professionals. John Wiley & Sons, New York.
 Streiner, D., Norman, G. R., 1995. Health measurement scales. A practical guide to their development and use (8 ed.). Oxford University Press, New York.
 Tyler, P., Cushway, D., 1992. Stress, coping and mental well-being in hospital nurses. Stress & Health 8(2), 91-98.
 Ware, J., Gandek, B., 1998. Methods for testing data quality, scaling assumptions, and reliability: The IQOLA Project approach. Journal of Clinical Epidemiology 51(5), 945-952.

Figure 1: Multidimensional Scaling of S-GCQ in hospital nurses

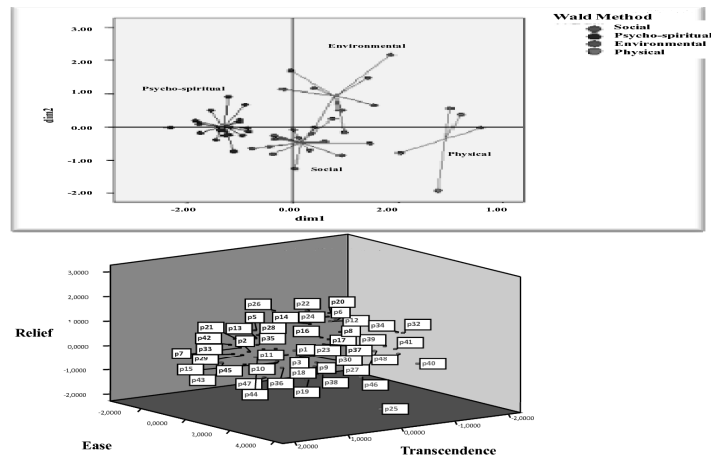


Table 1: Sociodemographic Characteristic of Nurses in a Study

Characteristic	n (%)
Mean age at time of study (SD)	41.1 (10.3)
<i>Sex</i>	
Men	104 (17.3)
Women	496 (82.7)
<i>Marital status</i>	
Married	341 (56.8)
Unmarried	259 (43.2)
<i>Autonomous Region Hospitals</i>	
Valencia	472 (78.6)
Murcia	128 (21.4)
Mean years worked at time of study (SD)	7.8 (8.8)

Abbreviation: SD, standard deviation.

Table 2: Internal Consistency. Correlations with total Score Obtained Questionnaire Items

Items	Pearson correlation
P1. I feel relaxed at work	.52
P2. I feel competent	.22
P3. I have enough support	.63
P4. There are those I can depend on when I need help	.48
P5. I don't want to come to work	.49
P6. My work load gets me down	.39
P7. I feel confident	.20
P8. I feel like I don't belong here	.47
P9. I feel my work is valued	.60
P10. I am inspired by knowing that I am part of a team	.58
P11. These surroundings are pleasant	.61
P12. The background noise is nerve-racking	.33
P13. No one understands me	.51
P14. My fatigue is difficult to endure	.54
P15. I am inspired to do my best	.58
P16. I am unhappy when I am at work	.47
P17. My values do not fit with this institution	.54
P18. I feel like I belong here	.60
P19. My work breaks refresh me	.40
P20. I do not feel healthy right now	.32
P21. This work makes me feel scared	.46
P22. I am afraid for my future	.09
P23. I am being treated fairly	.67
P24. I have experienced changes which make me feel uneasy	.40
P25. I eat a meal off the unit every day	.14
P26. I would like to see my clinical leaders more often	.16
P27. The temperature on this unit is fine	.25
P28. I am angry	.52
P29. I can rise above my concerns	.34
P30. The mood around here uplifts me	.67
P31. I am content	.61
P32. My body aches from my work	.47
P33. My patient care is personalized	.31
P34. I have few opportunities to be a change agent	.25
P35. I feel out of place here	.46
P36. I work well with my administrators and leaders	.53
P37. I don't have many friends at work	.26
P38. I am encouraged to make important patient care decisions	.46
P39. I do not receive positive reinforcement here	.50
P40. Here, all nurses are considered leaders	.24
P41. There is not enough cooperation among departments or disciplines here	.40
P42. When I am asked to precept a student or new nurse, it is a burden	.36
P43. Appropriate lighting contributes to my well-being	.32
P44. Most of my work is true nursing work	.43
P45. I intend to stay here	.42
P46. I feel my career is upwardly mobile	.47
P47. My schedule fits my life-style	.46
P48. Patient rooms are easy to work in	.35

Table 3: Exploratory Factor Analysis of GCQ in Spain

Factors	Total	% of variance	Cumulative variance
1	5.45	11.61	11.61
2	3.83	8.15	19.76
3	2.35	5.00	24.77
4	2.17	4.63	29.40
5	1.70	3.61	33.02
6	1.69	3.60	36.62
7	1.61	3.43	40.06
8	1.42	3.03	43.09
9	1.42	3.02	46.12
10	1.37	2.92	49.04
11	1.33	2.83	51.88
12	1.23	2.63	54.51