



Cultural adaptation and validation of the Transcultural Self-Efficacy Tool for use with undergraduate nursing students in Spain

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ABSTRACT

Background: The provision of culturally competent care helps reduce healthcare inequalities. There is a positive association between the cultural competence of nursing professionals and patient satisfaction, and also between nurses' self-efficacy and patients' adherence to treatment. While training in this respect is important, the self-assessment of skills should also be addressed.

Aims: To produce a culturally-validated Spanish-language version of the Transcultural Self-Efficacy Tool (TSET) for use in undergraduate nursing studies, and to evaluate its implementation within the Spanish educational system.

Methods: This cultural adaptation and psychometric validation study was carried out with student nurses from two universities. International standards were followed for the translation and cultural adaptation of the questionnaire. All students completed the questionnaire twice, the second time 14 days after the first. Those who took the Transcultural Care course at the University of Málaga also completed the questionnaire a third time, after concluding this study subject. The reliability, discriminatory capacity, stability and sensitivity to change of the questionnaire were tested and confirmed, and a confirmatory factor analysis was performed.

Results: A total of 286 students took part in this study. Overall, the TSET obtained a reliability score of 0.978, according to Cronbach's alpha test. In relation to nationality of origin, the discriminatory capacity of the questionnaire was -1.067 (-1815 a $-0,320$) = 0.005 . Stability, assessed at 14 days using the intraclass correlation coefficient, was 0.901 (0.873 a 0.923) <0.001 . The before-after sensitivity to change for those who took the Transcultural Care course was 1.820 (1558 a 2083) <0.001 .

Conclusions: This Spanish-language version of the TSET is culturally suitable for the educational context of undergraduate nursing students in Spain, and its psychometric validation was performed with satisfactory results.

1. Introduction

With globalisation and a growing immigrant population, nurses must care for patients of diverse cultural origins, and this requires them to be trained to provide appropriate care, taking into account patients' varying needs (Alizadeh and Chavan, 2016).

In this respect, two fundamental concepts overlap, namely cultural competence and cultural safety.

Cultural competence is the ability to perform a professional task

effectively within a culture that is not one's own. This skill requires cultural awareness, knowledge and skills (Alizadeh and Chavan, 2016).

Cultural safety requires nurses to have self-knowledge and to be aware of the potential impact of their own culture on patients, in order to recognise the clinical interactions that may occur with patients from different cultures. Accordingly, healthcare providers must question their own attitudes, assumptions, stereotypes and biases which, for some patients, might reduce the quality of healthcare provided (Curtis et al., 2019).

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The development of cultural competence is an evolutionary process, which in the case of nurses requires intent and effort, effective education and organisational support. Success in this endeavour produces a sense of self-empowerment, provides patients with cultural safety and improves health outcomes in the community (Sharifi et al., 2019).

For healthcare nurses, the presence of cultural diversity in the workplace can hamper the provision of adequate, effective care. Specifically, the lack of knowledge and skills to adapt healthcare assessment and treatment to the patient's own culture can have negative consequences, such as an inadequate interpersonal relationship and hence inequality in the provision of care and in the results obtained (Alizadeh and Chavan, 2016).

Culturally competent care helps reduce such inequalities and fosters positive associations between nurses' cultural competence and patient satisfaction (Castro and Ruiz, 2009; Kerfeld et al., 2011) and between nurses' self-efficacy and patients' adherence to treatment (Saha et al., 2013).

Horvat et al. (2014) conducted a Cochrane systematic review of education in cultural competence for healthcare professionals, which highlighted the importance of educational programmes in this field. The authors concluded that these programmes should be promoted and their impact carefully evaluated.

In view of these considerations, the cultural competence of nurses should be considered a priority question in ensuring successful healthcare outcomes, and the development of these competencies and skills should begin promptly, during academic training (Markey and Okantey, 2019; Choi and Kim, 2018; Lin and Hsu, 2020).

In Spain, undergraduate education in Transcultural Care for student nurses is awarded 3–6 course credits, according to the university. Skills assessment in this field is complex, as consideration must be given not only to competencies and understanding, but also to self-knowledge and personal values. Accordingly, an appropriate, effective assessment tool is needed (Filmer and Herbig, 2018).

2. Background/literature

Various tools and instruments have been validated for the assessment of cultural competence and its dimensions. Recent systematic reviews have identified three domains that are addressed in all the instruments considered, namely cultural awareness and sensitivity, cultural knowledge and cultural skills (Lin et al., 2017; Pedrero et al., 2020; Lin et al., 2019).

However, very few such tools exist for assessing cultural competence within a Spanish-language context. For this reason, we considered it useful to design a suitable validated instrument for use with nursing students taking the Transcultural Care course offered by the University of Málaga (Pedrero et al., 2020; Raigal-Aran et al., 2019).

A review of the literature on the characteristics and performance of the tools currently available for testing cultural competence has been performed taking into account all aspects relevant to the courses taken in this respect by nursing students. An analysis shows that one of the most appropriate instruments for this purpose is the Transcultural Self-Efficacy Tool (TSET). This comprehensive (83-item) resource evaluates cultural awareness, sensitivity, knowledge and skills (Lin et al., 2017) and provides good validity and reliability (Jeffreys, 2000).

Psychometric validations have been made of Greek and Chinese-language versions of the original TSET (Li et al., 2016; Sarafis et al., 2014). The TSET has also been used to evaluate learning outcomes via a standardised simulation of a population of healthcare patients (Ozkara, 2019) and to assess the knowledge acquired by nursing students in Australia during their four years of training (Lim et al., 2004). In the USA, the TSET has been used to determine students' confidence in their transcultural attitudes and knowledge (Farber, 2019). In all these cases, the TSET has proven to be effective. However, to date no study has been conducted to validate a Spanish-language version of this instrument.

In adapting this type of questionnaire for use in a different language/

culture, a simple translation of the items presented may lead to their misinterpretation, due to cultural and linguistic differences, and so a further-reaching cultural adaptation and validation is needed. This process is necessary even if the questionnaire is to be applied in a country where the language is that used in the original instrument (Cha et al., 2007; Sousa and Rojjanasrirat, 2011; Ramada-Rodilla et al., 2013).

Validation enables the tool to be used in a standardised way in Spanish-speaking environments. Hence, the results obtained during the learning process can be compared between different students and teachers. Furthermore, initiatives can be taken to address the deficiencies identified and thus enhance the learning experience (Covačevich, 2014).

Our study aim is to obtain a culturally-validated Spanish-language version of the Transcultural Self-Efficacy Tool to be used with undergraduate nursing students and to evaluate its implementation in this context.

3. Methods

The TSET questionnaire consists of 83 items. It was designed to measure and evaluate the confidence of nursing students in providing transcultural care for diverse populations of patients. The questionnaire was constructed as recommended by Bandura (1994, 2001), and the responses made are scored on a scale ranging from 1 (no confidence) to 10 (maximum confidence) (Bandura, 1994, 2001).

The TSET has been validated and contains three subscales, presented in the following sequence: Cognitive (25 items), Practical (28 items) and Affective (30 items). Completion of the TSET takes 15–20 min (Jeffreys, 2000; Jeffreys and Smoldaka, 1996, 1998).

Our cultural adaptation of the original TSET was studied and psychometrically validated by reference to its use with nursing students at two Spanish universities, in Málaga and Granada (Melilla Faculty). The empirical validation was carried out at the Melilla Faculty with volunteer students from any year of the undergraduate degree in Nursing. At the University of Málaga, the participants were second-year students, since this is when Transcultural Care is taught and when clinical practice begins. In this analysis, we assessed the changes produced in the students' self-assessment of their knowledge, after instruction in the subject. Twenty final-year students from this university, together with ten practising nurses, took part in the pilot phase.

The TSET was empirically validated as follows: every participant completed the questionnaire twice, the second time 14 days after the first. In addition, the second-year students at the University of Málaga performed the exercise a third time after concluding their six-credit course in Transcultural Care.

Participation was open to all nursing students at the universities in question, and in all cases was voluntary and anonymous. The only exclusion criterion applied concerned the students' linguistic capabilities; those (mainly international exchange students) who did not have level C accreditation in Spanish language were excluded.

The intercultural adaptation was conducted taking into consideration that the translation obtained must not only be correct in terms of equivalence, but also that it must be appropriate to the reality of the destination culture. To ensure these conditions were met, we followed the recommendations in this respect of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) and the Patient-Reported Outcomes Measurement Information System (PROMIS) (Cha et al., 2007; Wild et al., 2005; Wild et al., 2009).

The following steps were taken to define the concepts of the original questionnaire (Fig. 1). First, the original document was translated by two members of the research team, working independently. Each was a native speaker of Spanish and had level C proficiency in English. A third researcher reconciled the two translations, thus generating a final translation. A native English translator, working without access to the original text, then performed a back-translation. The resulting document

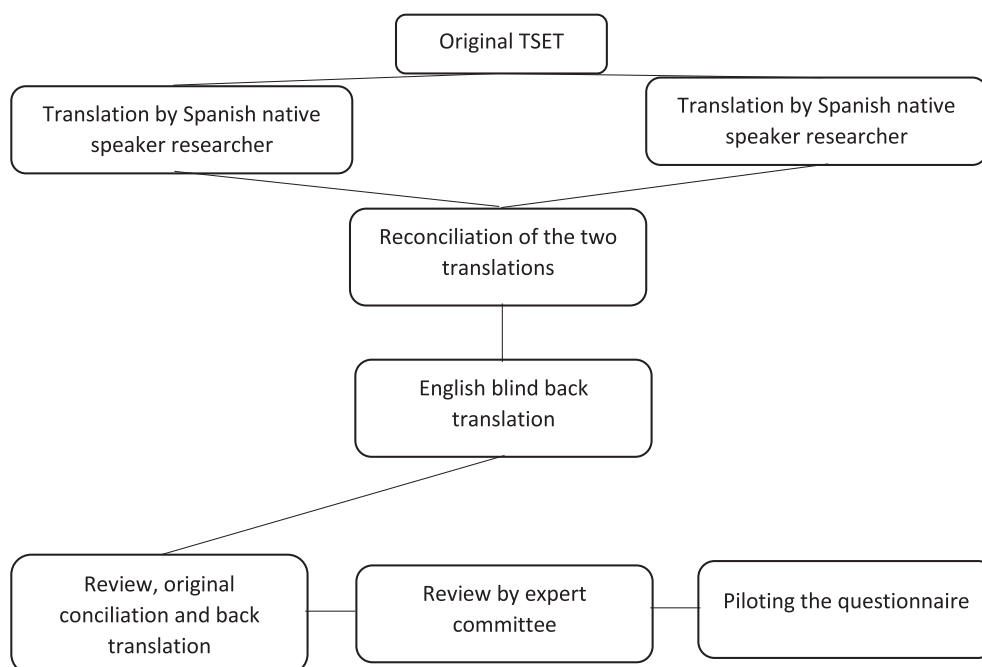


Fig. 1. Flow diagram.

was then reviewed and reconciled with the original version. Finally, a committee of experts (four practising nurses and four lecturers from the Nursing Degree course) reviewed the concepts and verified the semantic, idiomatic, empirical and conceptual equivalence of the Spanish-language questionnaire.

After the initial translation and adaptation process had concluded, various modifications were made to enhance the adaptation. Among other changes, question 32 of the original questionnaire was eliminated, with the approval of the author, in the view that in Spanish culture the term “Race” has negative connotations and is not commonly used; all humans are considered to belong to the same race. Instead, physical, genetic and cultural differences are indicated via the term ‘ethnicity’.

Subsequently, the Spanish-language questionnaire was presented to ten practising nurses and twenty fourth-year students, who were asked to comment on the meaning of the questions and their comprehension. The responses were evaluated and the document was modified as necessary. A final review was then performed by the entire research team.

In addition, the following sociodemographic data were obtained from the participants: age, sex, proficiency in a language other than their own, nationality of origin, and whether they were working in addition to studying.

3.1. Data collection

A total of 286 students from the two universities participated in the study, completing the questionnaire initially and again after 14 days. A subgroup of 149 students from the University of Málaga completed the questionnaire a third time after concluding their second-year Transcultural Care course subject. At no time did any of the students express any doubts about the content of the questionnaire. Data was collected during the 2019–2020 academic year (from October 2019 to June 2020).

3.2. Ethical issues and permissions

The project was approved by the Vice-Rectorate for Research and Knowledge Transfer, Research Ethics Committee, at the University of Málaga (CEUMA) No. 557, Reg. No. 61-2019-H. It was also approved

and funded by the University of Málaga as part of Teaching Innovation Project No. PIE19-045.

Permission was requested from the author of the original questionnaire to conduct this adaptation, and the required usage fees were paid.

The students who participated did so voluntarily and anonymously. They were previously informed about the motivations and intentions of the project, both verbally and in writing, and all questions raised were answered. All participants signed the informed consent form approved by the Ethics Committee.

3.3. Analysis

An exploratory analysis was performed, using descriptive statistics of the study variables, including measures of central tendency and dispersion or percentages, as appropriate. In all cases, the normality of the distribution was evaluated by the Kolmogorov-Smirnov test. A bivariate analysis was performed by Student's *t*-test for independent groups to assess differences among the questionnaire responses according to nationality of origin, i.e. native Spanish vs. other nationalities, thus determining the discriminatory capacity of the questionnaire items. Stability at two weeks was determined from the intraclass correlation coefficient. Bivariate Pearson correlations were also calculated. The sensitivity to change of the partial and total scores (response capacity) was calculated from the mean difference between the TSET scores obtained in the first and second responses to the questionnaire, using Student's *t*-test for paired data. Internal consistency was calculated according to Cronbach's alpha and a confirmatory factorial analysis was performed. All analyses were performed using the SPSS 22 and JASP 0.13.1.0 statistical packages.

4. Results

The following sociodemographic data for the students were obtained: 236 (82.5%) were female and 50 (17.5%) were male. The age distribution was non-normal, with a median value of 20 years (interquartile range: 3 years) and a mean of 21.68 years. 209 (73.1%) had knowledge of languages other than Spanish, while 77 (26.9%) did not. 46 (16.1%) were simultaneously studying and working, and 240 (83.9%) were full-time students. 277 (96.9%) were native Spanish,

while 9 (3.1%) were of foreign origin (from Argentina, Romania, Chile, Peru, Slovakia, Bulgaria, France and Kenya).

The relationships between the sociodemographic data and the TSET scores did not present significant differences in relation to age, sex, study-work balance or second-language proficiency. The TSET questionnaire had good discriminatory capacity, producing statistically significant results in relation to students' country of origin regarding cognitive and practical subscales (Table 1).

The different components of the TSET presented statistically significant correlations, showing positive associations between cognitive and practical, cognitive and affective, and practical and affective subscales (Table 2).

The results of the intraclass correlation coefficient, comparing the initial results with those obtained two weeks later, reflected the questionnaire's stability in all subscales and total TSET value, since all correlation coefficients were over 0.8, a value close to 1, suggesting a great absence of disagreement between the two assessments (Table 3).

The sensitivity to change, determined by comparing the questionnaire results obtained before and after taking the Transcultural Care course, was statistically significant for the total TSET and for three of its components (Table 4).

The reliability of the questionnaire is reflected in the Cronbach's alpha scores of 0.978 for the total TSET, 0.964 for the cognitive component, 0.977 for the practical component and 0.937 for the affective component.

A confirmatory factor analysis was performed on the results obtained from the students' first completion of the questionnaire. The resulting factorial model reproduced the conceptual structure on which the TSET was originally developed, for the empirical validation of the null hypothesis. The model fit was not satisfactory, as shown by the following values obtained: $\chi^2/df < 0.001$, CFI 0.651 GFI 0.413, TLI 0.642, NFI 0.569 and RMSEA 0.091 (90% CI 0.089–0.092).

The results of the major analyses, item by item (82 items in total), showed good correlations.

All analysed items (82 items in total) showed good intraclass correlation coefficients and significant sensitivity to change before and after the delivery of the 6 credits of the Cross-Cultural Care course, with statistically significant increases of all items after the educational intervention (Table 5).

5. Discussion

This study was conducted to obtain a validated cultural adaptation of the Transcultural Self-Efficacy Test, to be used with nursing-degree students in Spain.

The translation and cultural adaptation produced good results. Following empirical tests with ten practising nurses and 20 fourth-year students, it was only necessary to modify three words that did not properly reflect the original concepts and to eliminate the original question 32. The final review, conducted by the entire research team, found that no further changes were required.

It is also noteworthy that none of the 286 participants expressed doubts about the meaning of the questionnaire items.

The TSET was shown to have good internal consistency and reliability, with a Cronbach's alpha score of 0.978 (considered excellent) (George and Mallery, 2003). This finding is similar to those of the

Table 1
TSET discriminatory capacity according to country of origin.

Subscales	Difference	p
Cognitive	-1.170 (-2.194 a -0,147)	0.025*
Practical	-1.639 (-2697 a -0,581)	0.003*
Affective	-0.464 (-1.096 a 0,168)	0.150
Total TSET	-1.067 (-1815 a -0,320)	0.005*

* Significance ($p < 0.05$).

Table 2
Index of correlations of the TSET subscales.

Subscales	Cognitive	Practical	Affective
Cognitive			
Practical		0.643	0.504
Affective			0.600

$p < 0.001$ in all cases.

Table 3
Intraclass correlation coefficient of the TSET (0–14 days).

Subscales	Correlation coefficient	p	Assessment
Cognitive	0.872 (0.836 to 0.900)	<0.001*	Good
Practical	0.833 (0.786 to 0.870)	<0.001*	Good
Affective	0.839 (0.794 to 0.874)	<0.001*	Good
Total TSET	0.901 (0.873 to 0.923)	<0.001*	Good

* Significance ($p < 0.05$).

Table 4
Comparison of scores before and after the teaching of the cross-cultural care course.

Subscales	Increased self-knowledge	p
Cognitive	2.230 (1874 to 2586)	<0.001*
Practical	2.212 (1841 to 2598)	<0.001*
Affective	1.228 (1012 to 1444)	<0.001*
Total TSET	1.820 (1558 to 2083)	<0.001*

* Significance ($p < 0.05$).

original study (Jeffreys, 2000) and of the psychometric validations performed of Chinese and Greek versions of the TSET (Li et al., 2016; Sarafis et al., 2014).

The discrimination capacity of the tool is good, since when comparing the results of students born in another country other than Spain, they obtained significantly higher scores in their self-confidence in caring for patients from different cultures in the cognitive and practical subscales. Therefore, they have greater self-confidence in these components of the TSET regarding to serving people of different ethnic and cultural origins, this may be reinforced by their personal experience of at least two different cultures.

The TSET has good discriminatory capacity, as demonstrated by comparison of the questionnaire responses of students of Spanish and non-Spanish origin, according to which the latter, for all of the TSET subscales, reported significantly higher levels of self-confidence in caring for patients from different cultures. In other words, these students had greater self-confidence, in all the TSET components, in their ability to interact with people of different ethnic and cultural origins, a quality that may be underpinned by the students' first-hand experience of at least two different cultures.

The correlation between the TSET subscales was moderately strong and statistically significant. Regarding the stability of the questionnaire through the analysis of the intraclass correlation coefficient carried out by means of the results obtained from the nursing degree students in the completion of the questionnaire and subsequently a repetition at 14 days, an assessment of the entire TEST is observed good, equally good in all the cognitive, practical and affective subscales (Jeffreys, 2000).

The stability of the questionnaire was ascertained by determining the intraclass correlation coefficient for the questionnaire responses made initially and 14 days later. This analysis revealed good levels of stability, both for the TSET as a whole and for the cognitive and practical subscales. A moderate level of stability was observed for the affective subscale (Jeffreys, 2000).

All of the 82 items, considered individually, presented a statistically significant intraclass correlation, reflecting the stability of the questionnaire throughout its content.

The sensitivity to change of the TSET was analysed by evaluating the

Table 5

Intraclass correlation coefficient of each evaluated items (0–14 days) and sensitivity to change before and after the delivery of the 6 credits of the Cross-Cultural Care course.

Item	Intraclass correlation coefficient	Sensitivity to change	Item	Intraclass correlation coefficient	Sensitivity to change
Item 1	0.517	0.25 (0.16–1.08)	Item 42	0.550	1.58 (1.27–1.95)
Item 2	0.572	1.77 (1.48–2.11)	Item 43	0.505	1.69 (1.31–2.04)
Item 3	0.476	2.15 (1.80–2.54)	Item 44	0.575	1.82 (1.52–2.17)
Item 4	0.569	1.89 (1.58–2.24)	Item 45	0.575	1.83 (1.52–2.20)
Item 5	0.573	1.89 (1.58–2.23)	Item 46	0.539	1.59 (1.22–1.91)
Item 6	0.646	1.66 (1.36–2.02)	Item 47	0.529	1.72 (1.39–2.09)
Item 7	0.556	1.85 (1.53–2.23)	Item 48	0.571	1.44 (1.11–1.76)
Item 8	0.562	1.66 (1.35–2.02)	Item 49	0.533	1.64 (1.31–2.03)
Item 9	0.516	1.90 (1.59–2.27)	Item 50	0.577	1.39 (1.05–1.76)
Item 10	0.518	2.05 (1.72–2.42)	Item 51	0.517	1.53 (1.19–1.89)
Item 11	0.541	1.59 (1.31–1.91)	Item 52	0.581	1.53 (1.21–1.91)
Item 12	0.541	1.50 (1.20–1.82)	Item 53	0.458	0.60 (0.34–0.81)
Item 13	0.523	1.58 (1.28–1.94)	Item 54	0.440	0.73 (0.46–1.00)
Item 14	0.552	2.31 (2.01–2.67)	Item 55	0.309	0.70 (0.40–0.97)
Item 15	0.503	2.31 (1.98–2.71)	Item 56	0.383	0.85 (0.57–1.10)
Item 16	0.472	2.34 (1.97–2.77)	Item 57	0.356	1.06 (0.73–1.41)
Item 17	0.580	1.76 (1.45–2.11)	Item 58	0.474	1.37 (1.02–1.67)
Item 18	0.572	1.70 (1.39–2.08)	Item 59	0.517	1.16 (0.86–1.50)
Item 19	0.592	1.66 (1.37–2.04)	Item 60	0.435	1.29 (0.99–1.62)
Item 20	0.614	1.69 (1.40–2.10)	Item 61	0.544	1.57 (1.28–1.91)
Item 21	0.584	1.65 (1.33–2.05)	Item 62	0.474	0.64 (0.40–0.91)
Item 22	0.584	1.61 (1.31–2.01)	Item 63	0.514	0.38 (0.16–0.61)
Item 23	0.606	1.57 (1.20–1.97)	Item 64	0.428	1.46 (1.12–1.82)
Item 24	0.629	1.39 (1.12–1.75)	Item 65	0.500	0.41 (0.19–0.65)
Item 25	0.547	2.33 (2.01–2.78)	Item 66	0.515	0.44 (0.24–0.67)
Item 26	0.575	1.62 (1.29–2.01)	Item 67	0.532	0.88 (0.62–1.15)
Item 27	0.532	1.17 (0.87–1.55)	Item 68	0.456	0.40 (0.16–0.62)
Item 28	0.530	1.68 (1.37–2.06)	Item 69	0.445	0.78 (0.47–1.02)
Item 29	0.586	1.75 (1.46–2.12)	Item 70	0.371	0.81 (0.54–1.12)
Item 30	0.543	2.02 (1.68–2.37)	Item 71	0.409	1.49 (1.09–1.97)
Item 31	0.492	1.79 (1.47–2.18)	Item 72	0.449	0.95 (0.67–1.25)
Item 32	0.494	1.54 (1.22–1.88)	Item 73	0.315	1.04 (0.77–1.32)
Item 33	0.456	1.74 (1.36–2.12)	Item 74	0.441	0.89 (0.63–1.19)
Item 34	0.577	1.73 (1.38–2.08)	Item 75	0.445	0.83 (0.55–1.17)
Item 35	0.582	1.40 (1.07–1.77)	Item 76	0.456	1.03 (0.75–1.33)

Table 5 (continued)

Item	Intraclass correlation coefficient	Sensitivity to change	Item	Intraclass correlation coefficient	Sensitivity to change
Item 36	0.502	1.79 (1.45–2.13)	Item 77	0.428	1.24 (1.00–1.54)
Item 37	0.493	2.11 (1.77–2.46)	Item 78	0.492	1.24 (0.99–1.54)
Item 38	0.486	1.83 (1.48–2.20)	Item 79	0.370	1.20 (0.85–1.54)
Item 39	0.583	1.48 (1.14–1.85)	Item 80	0.358	1.14 (0.83–1.48)
Item 40	0.549	1.67 (1.34–2.00)	Item 81	0.541	1.21 (0.91–1.54)
Item 41	0.549	1.78 (1.48–2.14)	Item 82	0.527	1.47 (1.20–1.75)

Intraclass correlation coefficient with $p < 0.001$ in all cases.

changes in the questionnaire responses in relation to the students' level of self-confidence before and after taking the six-credit Transcultural Care course subject. Statistically significant results were obtained, with increased self-confidence apparent for all the subscales. In this respect, the cognitive subscale presented the greatest increase and the affective subscale, the smallest. This finding indicates that the questionnaire presents good sensitivity to change and, although this factor is not related to the validation of the questionnaire, shows that in teaching this subject, a stronger emphasis should be placed on aspects related to the affective subscale (Jeffreys and Dogan, 2012).

The item-by-item sensitivity to change was also statistically significant.

As regards the confirmatory factor analysis, the model fit was not satisfactory, but we do not consider this outcome to represent a defect in the questionnaire. When the students reflect on the different questions posed (and assuming they conduct an effective exercise of self-awareness), they will score more highly in some respects than in others, which is reflected as a greater heterogeneity of the questionnaire responses, i.e. the factor that is measured by the model fit values. In our view, this heterogeneity accurately reflects the students' acceptance of and adaptation to the need for transcultural care (Jeffreys and Dogan, 2010).

An overall consideration of the results obtained suggests that the TSET is a valid and reliable instrument, which can usefully be applied to assess changes in self-confidence among undergraduate nursing students in Spain. Importantly, it also highlights the aspects where the training programme needs to be strengthened, thus helping improve and advance teaching methods (Leung et al., 2020) and highlighting the aspects in which more time and effort should be invested (Hagqvist et al., 2020; Chang et al., 2019).

Future research in this field could usefully analyse the similarities between the students' self-confidence in their development of cultural competence and their real-world performance in healthcare practices.

6. Conclusions

Nursing education and training in matters related to safety and cultural competence are continuous processes, and so ongoing research is needed into these questions. Regular evaluation is crucial to the proper development of the education process, and the availability of a valid, reliable instrument for undergraduate nursing students in Spain provides valuable assistance in this regard. In conclusion, the Spanish-language version of the TSET is a valid and reliable questionnaire, and that its use is effective for evaluating the cultural competences acquired by Spanish undergraduate Nursing students.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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