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## Research

## Implementation and Validation of Competency-Based Spiritual Care Education using the EPICC Self-Assessment Tool in Undergraduate Nursing Students



Sara Sitefane, MSc, RN<sup>1\*</sup>, Ana Afonso, MSc, RN<sup>1</sup>, Wilfred McSherry, PhD, RN, FRCN<sup>2</sup>,  
Linda Ross, PhD, BA Nursing, RGN<sup>3</sup>, Isabel Rabiais, PhD, MSc, RN<sup>4</sup>,  
Sílvia Caldeira, PhD, MSc, PGDipPN, RN<sup>5</sup>

<sup>1</sup> Center for Interdisciplinary Research in Health, Faculty of Health Sciences and Nursing, Universidade Católica Portuguesa, Palma de Cima, Lisbon, Portugal

<sup>2</sup> Department of Nursing and Midwifery, School of Health, Education, Policing and Sciences, University of Staffordshire, Stoke-on-Trent, UK

<sup>3</sup> University of South Wales, Faculty of Life Sciences and Education, Pontypridd, UK

<sup>4</sup> Center for Interdisciplinary Research in Health, Universidade Atlântica, Higher School of Health Atlântica, Barcarena, Portugal

<sup>5</sup> Faculty of Health Sciences and Nursing, Center for Interdisciplinary Research in Health, Universidade Católica Portuguesa, Palma de Cima, Lisbon, Portugal

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## ABSTRACT

**Background:** The World Health Organization and various healthcare organizations recognize the spiritual dimension as crucial for well-being and health, particularly in person-centered care. The EPICC project developed a consensus-based model for spiritual care education, contributing tools like the EPICC Spiritual Care Competency Self-Assessment Tool to support competency development.

**Aim:** To translate, culturally adapt, and validate the EPICC Spiritual Care Competency Self-Assessment Tool for undergraduate nursing students in Portugal.

**Methods:** Cross-cultural adaptation followed by Beaton et al.'s method. Reliability and validity were assessed using Kaiser–Meyer–Olkin (KMO) and Bartlett's tests for factor analysis, with internal consistency measured using Cronbach's  $\alpha$ .

**Results:** Data collected between November 2023 and October 2024 showed 100% agreement and a Content Validity Index (CVI) of 1 among experts. A pretest with 39 students indicated 79.1% agreement and acceptable internal consistency (KR-20 = 0.573). Psychometric properties showed KMO of 0.845, CFI of 0.895, GFI of 0.805, RMSEA of 0.082 and Cronbach's  $\alpha$  of 0.92 ( $n = 161$  nursing students from a Portuguese higher education institution).

**Conclusions:** The European Portuguese version of the EPICC Spiritual Care Competency Self-Assessment Tool is a valid and reliable instrument for assessing spiritual care competency in nursing and midwifery students. However, some limitations of this study should be addressed in future research to enhance the generalisability of the findings to broader educational contexts.

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## Introduction

The spiritual dimension is enshrined within the World Health Organisation's concept of holistic person-centred care where it is considered to contribute significantly to quality of life (World Health Organization, 2012). Several healthcare institutions, organisations and professional bodies, recognise the importance of this dimension in their institutional vision, mission and/or code of ethics (International Council of Nurses, 2021; Ordem dos, 2015). In this regard, the ongoing recognition and differentiation of spiritual care in healthcare

has been shown to enhance the quality of life and well-being of individuals and families, promoting multiple health gains both individually and collectively (Bulut et al., 2023; Gijberts et al., 2019; Jones et al., 2016; Koenig, 2012; Ramezani et al., 2014). Therefore, it is essential to invest in the development of healthcare staff competencies for providing spiritual care within undergraduate and postgraduate degrees.

It is widely agreed within the scientific community that nurses provide holistic care to individuals, families, and communities which includes spiritual care (Attard et al., 2014, 2019b; Cooper & Chang, 2016). However, a gap remains in this field as nurses often feel uncomfortable and unprepared to address these patients' needs (Cone & Giske, 2017), frequently requesting further education and

\*Corresponding author.

E-mail address: [s-ssitefane@ucp.pt](mailto:s-ssitefane@ucp.pt) (S. Sitefane).

training to develop these specific competencies (Cone & Giske, 2018; Egan et al., 2017; Green et al., 2020; Paal et al., 2014). In line with this, studies also report improvement in students' spiritual care competencies when spiritual care is integrated into nursing curricula (Alvarenga et al., 2024; Brown et al., 2019; Chiang et al., 2020; Giske & Cone, 2012; McSherry et al., 2020; Pipkins et al., 2020; Ross et al., 2018; Rykkje et al., 2022; Van Leeuwen et al., 2021).

In this context, different types of methods have been used to support the advancement of students and practitioners spiritual care competencies, for example, the spiritual care competency framework of Marie Curie Cancer Care in 2003 within palliative care (Curie, 2003); the spiritual care competency framework of Van Leeuwen and Cusveller in 2004 for use in preregistration nurse education (van Leeuwen & Cusveller, 2004); the spiritual care competency framework of Baldacchino in 2006 (Baldacchino, 2006); and more recently, the EPICC (Enhancing Nurses' and Midwives' Competence in Providing Spiritual Care through Innovative Education and Compassionate Care) project network (Attard et al., 2019b, 2019c; McSherry et al., 2020, 2021; Ross et al., 2018, 2022; Van Leeuwen et al., 2021).

The EPICC Project was the first to reach consensus on a spiritual care competency framework for student nurses/midwives by involving European researchers, educators and nursing/midwifery professionals and stakeholders from around 21 countries between 2016 and 2019 (McSherry et al., 2020; Ross et al., 2018, 2022; Van Leeuwen et al., 2021). Portugal was among the participating countries involved in this pioneering endeavour, which has contributed to a more structured and cohesive integration of spiritual care competencies within undergraduate nursing and midwifery programmes in Europe and beyond.

Building on extensive research conducted by the EPICC project partners (Attard et al., 2019a, 2019c) this initiative underpinned the consensual establishment of the EPICC Spiritual Care Education Standard (Van Leeuwen et al., 2021) and the EPICC spiritual care competence self-assessment tool (Giske et al., 2023) for student nurses and midwives (Fig. 1).

The first instrument—EPICC Spiritual Care Education Standard—emerged from the original work of van Leeuwen & Cusveller framework (van Leeuwen & Cusveller, 2004) and the 58 competencies of spiritual care competency framework identified by Attard et al. (2019b, 2019c). This were compiled into 4 primary competencies – (1) Intrapersonal Spirituality, (2) Interpersonal Spirituality, (3) Spiritual Care Assessment and Planning, and (4) Spiritual Care Intervention and Evaluation – across 3 areas of development (knowledge, skills, attitudes) by Van Leeuwen et al. (EPICC Spiritual Care Education Standard – EPICC Network, 2019; van Leeuwen et al., 2021) (Fig. 1).

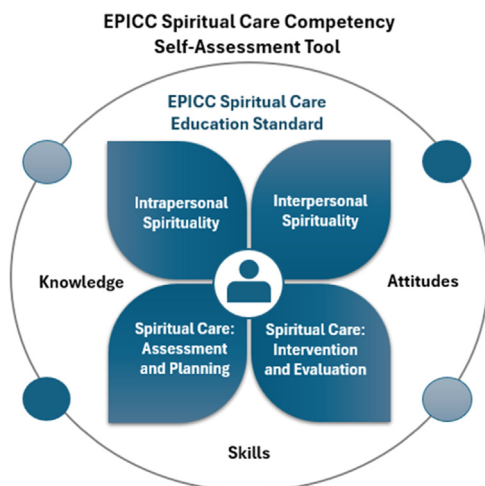


Fig. 1. EPICC tools graphic adaptation.

The EPICC Spiritual Care Education Standard was then developed into a valid and reliable self-assessment tool, the EPICC Spiritual Care Competence Self-Assessment Tool (Giske et al., 2023; EPICC Network, 2023, [www.epicc-network.org](http://www.epicc-network.org)), which has been applied in a range of educational and professional contexts (Cone et al., 2023; Giske et al., 2023) (Fig. 1).

Although scientific evidence highlights the benefits of integrating the spiritual dimension into holistic nursing care and acknowledges the applicability of the EPICC framework (term that refers to the collection of resources and tools developed as a result of the project) in developing nursing students' spiritual competencies (Fernández-Pascual et al., 2020), this is not clearly reflected in the undergraduate nursing curricula in Portugal (Afonso et al., 2023).

In this context, it is essential to advance the translation, validation, and cross-cultural adaptation of the tools and resources encompassed within the EPICC framework. This study seeks to evaluate the validity and reliability of the EPICC Spiritual Care Competence Self-Assessment Tool in European Portuguese, aiming to rigorously test the psychometric properties of this instrument.

## Methods

### Aim

To translate, culturally adapt, and validate the EPICC Spiritual Care Competence Self-Assessment Tool (hereafter 'the Tool') for undergraduate nursing students in Portugal.

### Design

The Cross-Cultural Adaptation method by Beaton et al. (Beaton et al., 2007, 2000) was selected by the authors due to its predominant use in the nursing context (Machado et al., 2018). The Tool (originally in English) was translated by a cross-cultural adaptation into European Portuguese and uses a 6-step framework (Beaton et al., 2007, 2000; Cruchinho et al., 2024; Guillemin et al., 1993):

- Step 1: Translation of the original instrument into European Portuguese through 2 separate translations by distinct bilingual translators, referred to as T1 and T2.
- Step 2: Synthesis of the T1 and T2 translations into a single document known as T12 by the research team.
- Step 3: Back-translation of version T12 into the original language of the questionnaire is initiated by 2 other bilingual translators, independent from the first 2 translators, whose native language matches that of the original document, referred to as BT1 and BT2.
- Step 4: Review of all versions by a panel of 6 experts in spirituality, health professionals and methodologists—plus the 4 forward and back translators involved in the process up to this stage (10 people in total).
- Step 5: Pretesting.
- Step 6: Submission and approval of all documents by the original instrument authors and the expert panel.

In the first 3 steps, the authors collaborated with a certified translation company, Traductanet - ISO 9001:2015 / ISO 17100:2015 certified company.

Also, in addition, the authors proceed with the psychometric assessment of the translated instrument's reliability and validity.

### Sample/Participants

A nonprobabilistic convenience sample of undergraduate nursing students attending the fourth year (curricular year 2023/2024) of a Nursing Degree in a Portuguese University ( $n = 39$ ) participated and

tested the prefinal version of the EPICC Spiritual Care Competency Self-Assessment Tool – *Versão Portuguesa de Portugal: Instrumento de Autoavaliação de Competências relacionadas com Cuidados Espirituais da EPICC* (EPICC Spiritual Care Competency Self-Assessment Tool ©) (Polit & Beck, 2021).

Additionally, another nonprobabilistic convenience sample of undergraduate nursing students ( $n = 161$ , curricular-year 2024–2025), that didn't integrate the first group of students, was used to assess the reliability and validity of the instrument into European Portuguese language and culture. The eligibility criteria for sample selection included all nursing students enrolled in the 4 years of the Undergraduate Nursing Degree in the same Portuguese University, excluding those who had participated in the previous pretest and/or those whose enrolment was suspended at the time of data collection.

The target sample size for validation of the scale is 5–10 times the number of items in the scale, with a minimum of  $5 \times 28 = 140$  respondents (DeVellis, 2017). Also, the rule of 10 times the number of items of the scale is only a guide, as there is no universal respondent-to-item ratio that applies to all survey's development contexts as the ideal sample size is often constrained by available resources (Boateng et al., 2018). The original study was conducted with 323 students (Giske et al., 2023). Therefore, in Portuguese context with 161 responses obtained from the administered questionnaire, the decision made by the research team were to proceed with the factor analysis of the instrument.

#### Data collection

Data for the third step, the expert committee panel of the cross-cultural adaptation method, were collected from 3rd November 2023 to 3rd April 2024 using an online form distributed via Qualtrics® software, sent by email. The prefinal version of the instrument was then tested from May 6 to May 18, 2024, also via an online form sent by the university's administrative services to all fourth-year students (a total of 86 got the invitation by email and 39 participate). By clicking the link in the email, students were directed to the online platform hosted on Qualtrics® software.

Quantitative data for the psychometric assessment of the reliability and validity study were collected from 24th September to 20th October 2024 using an online form. The university's administrative services distributed this form via email to all students enrolled in the Nursing Undergraduate Degree (a total of 350 got the invitation by email and 161 participate). Additionally, the invitation to participate in the study was shared with students via social media communication (WhatsApp). Students were directed to the online platform hosted on Qualtrics® software by clicking the link in the email/WhatsApp.

#### Instruments

The pretest version of the instrument included closed-ended demographic questions for sample characterisation (gender and age) and 28 dichotomous questions for the semantic and linguistic evaluation of the translated instrument.

The instrument conceptualized for the psychometric assessment of the reliability and validity study contained closed-ended questions for sample characterisation (attribute variables: gender, age and year of the Degree course) and a scale of 28 items using a 5-point Likert scale: (1) I strongly disagree, (2) I disagree, (3) I am undecided, (4) I agree, and (5) I strongly agree. The total score of the scale consists of the sum of the items scored according to the answers given by the nursing students in line with the above scoring. The scale includes the 4 spiritual care competencies from the EPICC Spiritual Care Education Standard. The original instrument obtained Cronbach  $\alpha$  of the

scale of 0.91 and Kaiser–Meyer–Olkin (KMO) test for the whole database was 0.90 (Giske et al., 2023).

#### Data analysis

Only fully completed questionnaires were included in the analysis ( $n = 161$ ). IBM SPSS statistics version 29.0.2.0 software programs and AMOS software programs were used in the analysis of the data. The results were developed in collaboration with the University Biostatistics Reference and Research Support Service of a Portuguese University.

#### Pretest study

Descriptive analyses of students' characteristics where performed—attribute variables: gender and age—data number, percentage, mean and mode values were calculated.

Language and content reliability and validity were studied during the pretest version with the calculation of index of agreement among the students—with a minimum acceptable agreement ratio among panel members set at 80% (Sousa & Rojjanasrirat, 2011); as well as the Kuder-Richardson Formula 20 (KR-20) measure for assessments with dichotomous items (DeVellis, 2017).

#### Reliability and validity study

Descriptive analyses of students' characteristics where performed - attribute variables: gender, age and year of the degree course—data number, percentage, mean and mode values were calculated.

Reliability and validity analyses were conducted with KMO and Bartlett's sphericity tests, and the reliability with the internal consistency of Cronbach's  $\alpha$ . Coefficient was calculated for the Tool as a whole and for the 4 sub-scales (DeVellis, 2017; Giske et al., 2023).

#### Ethical considerations

Permission to use the EPICC Spiritual Care Competency Self-Assessment Tool was obtained from the EPICC Steering Group. Ethics Committee approval (19.07.2023) was obtained for this project. It was communicated to the expert committee panel and nursing students involved in the study that the choice to participate was entirely voluntary, that the data collected would solely be utilised for the research, and that strict confidentiality would be maintained. Their consent was also obtained. All ethical considerations were observed, considering the principles guiding the advancement of innovation, with particular emphasis on prioritising the human being, which takes precedence over any social and/or scientific interests.

## Results

#### Pretest study

Of the 39 fourth year students enrolled in this step, the majority were female. The mean age of participants was 21.9y, the median was 22y, and the mode was 21y.

The percentage of agreement between the students in this step was 79.1% (table results are available in [Supplementary Files 1](#)). Although an agreement index of 80% among the students was expected at this stage, the obtained result of 79.1% was very close to this threshold. Therefore, the authors decided to proceed with the study, as they had also achieved 100% agreement within the expert panel and 90% agreement in the pretest of the EPICC Spiritual Care Education Standard instrument, which forms the theoretical foundation for developing this tool.

The KR-20 calculation is acceptable, KR-20 = 0.573-positive dichotomous response (Table results are available in [Supplementary Files 2](#)).

After the pretest study, the students understood the scale items, and the students did not report any problems regarding the intelligibility of the items. None of the students in the pretest study participated in the reliability and validation study.

#### Reliability and validity study

##### Socio-demographic characteristics

The distribution of nursing students who participated in this study was 161 respondents and their socio-demographic characteristics are outlined in Table 1; 94% ( $n = 151$ ) were female and 40% ( $n = 64$ ) were fourth grade students.

##### Reliability

Cronbach's  $\alpha$  coefficient was used to evaluate the internal consistency of the VPP: *Instrumento de Autoavaliação de Competências relacionadas com Cuidados Espirituais da EPICC Spiritual Care Competency Self-Assessment Tool* ©. In this study, Cronbach's  $\alpha$  for the scale was 0.92. For the sub-dimensions, it was 0.77 (Competency 1), 0.76 (Competency 2), 0.85 (Competency 3), and 0.80 (Competency 4), respectively. The item-total correlation of the scale was examined, and it was determined that the acceptable level ranged between 0.70 and 0.85. The European Portuguese version of the EPICC Spiritual Care Competency Self-Assessment Tool demonstrated strong reliability in its overall score and across all sub-dimensions (see Table 2).

##### Validity

The 28 items questionnaire of the VPP instrument were divided into 4 sub-dimensions, first factor (VPP - *Competência 1: Espiritualidade Intrapessoal*) equal to 7 items – Q7 1\_7; second factor (VPP - *Competência 2: Espiritualidade Interpessoal*) equal to 5 items – Q9 1\_5; third factor (VPP - *Competência 3: Recolha de dados e planeamento*) equal to 8 items – Q11 1\_8; fourth factor (VPP - *Competência 4: Intervenção e Avaliação*) equal to 8 items – Q13 1\_8.

Bartlett's test of sphericity for factor analysis compatibility was significant ( $X^2 = 3054,613$ ,  $df = 378$ ,  $P$ -value  $< 0.001$ ) and KMO was considered good – KMO = 0.845 (see Table 3).

The confirmatory factor analysis was conducted (CFI = 0.560; GFI = 0.517; RMSEA = 0.152) indicating a poor fit of the model. Not all standardised estimates/regression weights are below 0.7, which means that the correlations of these items with the latent factor are not that high. The correlations between the competencies/subscales are acceptable ( $>0.7$ ). If the model is run without the items with lower correlation values, the standardized estimates and the fit indices for the model do not change in the right direction. This same pattern was identified on the original instrument.

In an effort to improve model fit, the research team proceeded to refine the model by examining the modification indices and incorporating adjustments based on the largest covariances (Cunha et al., 2024). The revised model, presented in Fig. 2, demonstrated significantly improved fit indices (CFI = 0.895; GFI = 0.805; RMSEA = 0.082).

**Table 1**  
Socio-demographic characteristics.

	N	%	
Gender	Feminine	151	94%
	Masculine	10	6%
Degree nursing course	1	46	29%
	2	24	15%
	3	27	17%
	4	64	40%

## Discussion

The imperative need to effectively integrate spiritual care education into nursing curricula (Afonso et al., 2023; Alvarenga et al., 2024) continues to drive research efforts aimed at raising awareness, expanding knowledge, and fostering students' skills and attitudes in this domain. Accordingly, the utilisation of EPICC Framework resources and tools in spiritual care education can enhance students' spiritual competencies, promote both personal and professional growth in the context of holistic care (Chiang et al., 2020; Cone et al., 2023; Giske et al., 2023; Giske & Cone, 2012; McSherry et al., 2020) to further improve their ability to provide compassionate care to patients. Furthermore, the use of the EPICC Self-Assessment Tool proves to be a valid, reliable, and effective instrument that nursing and midwifery students can utilize to critically assess their spiritual care competencies (Giske et al., 2023). It also emphasises the importance of role models in spiritual care, enriching students' learning experiences and enhancing their ability to provide care while fostering collaboration with other healthcare professionals to address the spiritual needs of patients (Cone et al., 2023; Giske et al., 2023).

Although the inherent benefits of the EPICC framework's resources and tools are evident, it is also essential to consider potential limitations such as culture, context, and language (McSherry et al., 2020), as these factors can influence how students interpret and understand spiritual care (Cone et al., 2023).

Therefore, in this study, the validity and reliability of the EPICC Spiritual Care Self-Assessment Tool in European Portuguese were tested exclusively for nursing students, aligned with the professional framework of the Portuguese undergraduate nursing programme (Ministério da Educação, 1999).

Reliability and validity analyses of the original tool were conducted with Kaiser–Meyer–Olkin (KMO) and Bartlett's sphericity tests, and the reliability with the internal consistency of Cronbach's  $\alpha$ . Coefficient was also calculated for the Tool as a whole and for the 4 sub-scales (DeVellis, 2017; Giske et al., 2023). The original tool was found to be KMO = 0.9; CFI = 0.688; RMSEA = 0.098; Cronbach's coefficient was 0.91 and the coefficients of the 4 factors ranged between 0.70 and 0.80 (Giske et al., 2023). The Portuguese EPICC Spiritual Care Self-Assessment Tool was KMO = 0.845; CFI = 0.895; RMSEA = 0.082; Cronbach's coefficient was 0.92, and the coefficients of the 4 factors ranged between 0.77 and 0.85. The sub-dimensions in the Portuguese version of the tool were shown to be 0.77 for Intrapersonal Spirituality; 0.76 for Interpersonal Spirituality; 0.85 for spiritual care: assessment and planning, and 0.80 for spiritual care: intervention and evaluation. Although the CFI falls slightly below the conventional 0.90 threshold and the RMSEA slightly exceeds the recommended upper limit of 0.08 (Cruchinho et al., 2024; Marôco, 2021), these values may still be considered marginally acceptable given the complexity of the model (Giske et al., 2023) and the cultural adaptation process (Cordero et al., 2018; Domènech-Sorolla et al., 2025; McSherry et al., 2020).

In addition, several model modifications were explored in an attempt to improve the fit indices of the confirmatory factor analysis. However, in light of the exploratory nature of the study and the team's intention to uphold the conceptual integrity of the original EPICC framework, these adjustments were not pursued. Maintaining the original structure was considered essential to uphold the theoretical foundations of the instrument. Furthermore, the overall pattern of results was consistent with the framework underpinning the EPICC tool, thereby supporting its structural validity within the Portuguese context. These findings, which are in line with those of the original version of the instrument, suggest that the Portuguese adaptation constitutes a valid and reliable scale for assessing nursing students' perceptions of spiritual care competencies.

**Table 2**  
EPICC Spiritual Care Competency Self-Assessment Tool item-total statistics (n = 161).

Item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Q7_1	113.78	128.034	0.602	0.926
Q7_2	113.78	126.396	0.613	0.925
Q7_3	113.76	131.119	0.452	0.927
Q7_4	113.48	129.614	0.505	0.927
Q7_5	113.83	130.665	0.391	0.928
Q7_6	113.71	128.058	0.57	0.926
Q7_7	113.55	132.799	0.306	0.929
Q9_1	113.99	132.799	0.306	0.929
Q9_2	114.07	1320844	0.279	0.927
Q9_3	113.7	128.998	0.539	0.926
Q9_4	113.72	130.34	0.462	0.927
Q9_5	113.48	128.989	0.639	0.926
Q11_1	114.12	124.83	0.625	0.925
Q11_2	114.36	122.407	0.642	0.925
Q11_3	113.98	126.993	0.583	0.926
Q11_4	114.4	120.892	0.757	0.923
Q11_5	114.32	124.38	0.548	0.927
Q11_6	113.79	124.005	0.657	0.925
Q11_7	113.43	129.46	0.569	0.926
Q11_8	113.58	127.895	0.576	0.926
Q13_1	113.56	126.886	0.702	0.926
Q13_2	114.43	123.122	0.597	0.926
Q13_3	114.71	126.83	0.381	0.93
Q13_4	113.66	127.912	0.555	0.926
Q13_5	114.25	124.925	0.64	0.925
Q13_6	113.45	128.974	0.617	0.926
Q13_7	113.5	128.752	0.567	0.926
Q13_8	113.43	129.421	0.587	0.926

The tool consists of a total of 28 items—closed questions with 5-point Likert scale - distribute among the 4 sub-dimensions of spiritual care competencies and, in the last part of the scale it contains 3 open questions (“What are your strengths? Which areas do you need to develop further? How might you do that?”). However, most students did not respond to the open questions, precluding the possibility of conducting content analysis. This limited engagement may reflect students' initial lack of confidence, insufficient knowledge, and prevalent misconceptions about spiritual care—often conflated with religious beliefs—highlighting the unfamiliarity with this domain of care as well undercover the challenge of self-reflections (Cooper & Chang, 2016; Domènech-Sorolla et al., 2025; Kuven & Giske, 2019). These findings reinforce the need for academic training that fosters continuous reflection on spirituality and promotes the development of personal spiritual well-being, thereby enabling students to become professionals who are sensitive to the holistic needs of patients (Afonso et al., 2023; Domènech-Sorolla et al., 2025).

Moreover, the results underscore that internal factors and individual characteristics of students can significantly impact their ability to engage in self-reflection and self-assessment processes (Alvarenga et al., 2024; Balgopal & Montplaisir, 2011; Daudt et al., 2019; Giske et al., 2023; Ross et al., 2018). These internal factors and individual characteristics are crucial for developing the competencies needed to provide holistic care. Consequently, the use of reflexive approaches in education and teaching in terms of competency-based development are widely recognize as barriers but also as an opportunity to increase

learning outcomes (Costa et al., 2023; Jones et al., 2021; Segadães et al., 2025). This ultimately emphasises the critical importance of revising nursing curricula to enhance awareness, expand knowledge, and refine nursing and midwifery students' skills and attitudes in the domain of spirituality and spiritual care.

Hence, the integration of the EPICC Spiritual Care Self-Assessment Tool into nursing education demonstrates considerable practical relevance. It offers a structured, measurable, reflective, and consensual evidence-based approach to developing spiritual care competencies. Furthermore, it provides valuable guidance for curriculum planning by aligning learning outcomes with holistic and person-centred care principles. These findings reinforce the imperative to revise nursing curricula to better prepare students to deliver compassionate, spiritually sensitive care.

## Conclusion

The results obtained from this study, including both exploratory and confirmatory factor analyses, affirmed the 4-factor structure of the scale. Cronbach's  $\alpha$ , item-total correlation, and equivalent form analysis demonstrated high reliability. These findings indicate that the Portuguese version of the EPICC Spiritual Care Self-Assessment Tool is both valid and reliable, with the validity and reliability aligning with the original scale.

Furthermore, incorporating the EPICC Spiritual Care Self-Assessment Tool into nursing curricula in Portugal provides students with the opportunity to assess their own perceived competencies in spirituality and spiritual care over time. This innovative approach, combined with other resources and tools from the EPICC project, can effectively enhance nursing curricula in Portugal and beyond, ensuring all development are evidence-based. Recommended next steps include piloting the tool across educational contexts in Portugal to assess its applicability and influence on learning outcomes; embedding it into reflective portfolios and mentoring programmes to support students' personal and professional development; and providing targeted training for academic staff to ensure effective

**Table 3**  
EPICC Spiritual Care Competency Self-Assessment Tool KMO test and Bartlett measure.

KMO and Bartlett's test	
Kaiser-Meyer-Olkin measure of sampling adequacy	0.845
Bartlett's test of sphericity	Approx. chi-square 3054.613
	Df 378
	Sig. <.001

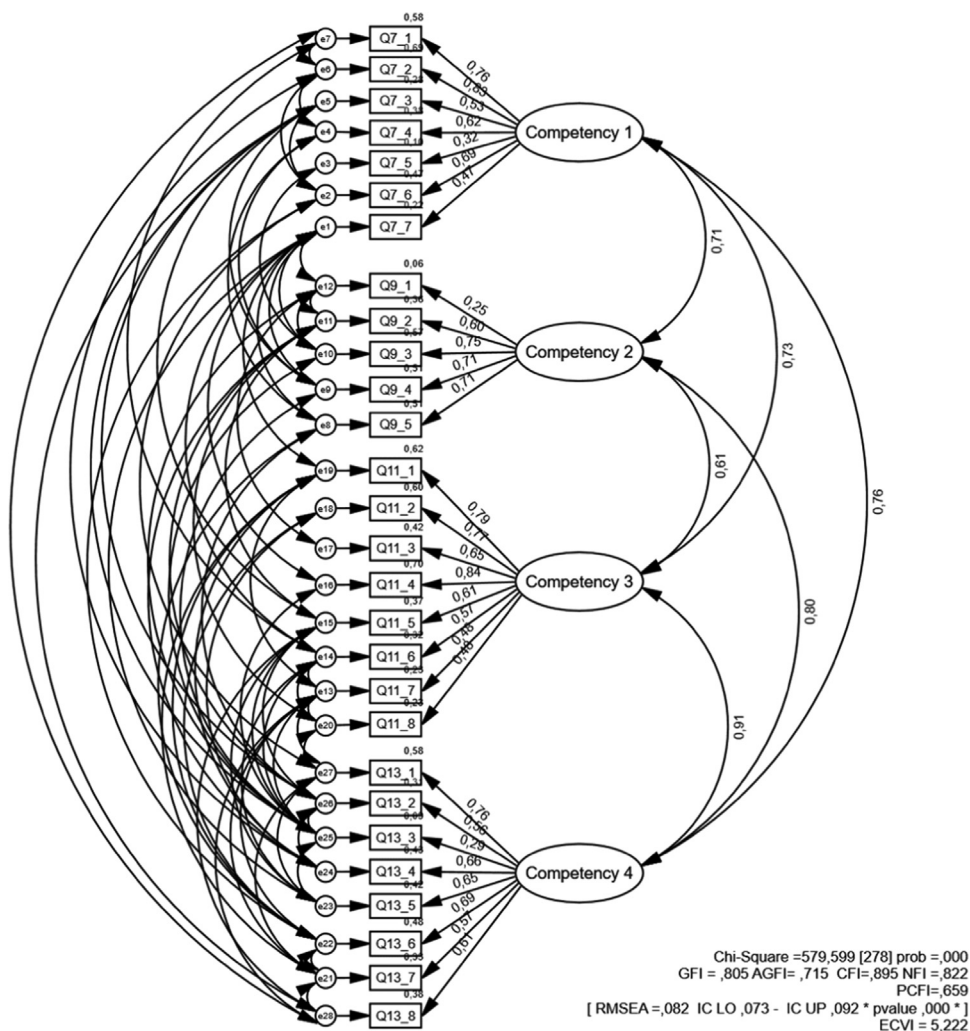


Fig. 2. Confirmatory factor analysis.

implementation. Collectively, these actions would contribute to the sustained and meaningful integration of spiritual care into nursing education, promoting a coherent, competency-based framework for holistic nursing practice.

### Limitations and implications

Although this study included nursing students from various course years, the sample lacks representation from other Portuguese universities, particularly public universities and polytechnic institutes, and is further limited to institutions located on the mainland. This limitation may impact the broader understanding and development of spiritual care competencies. Future studies should aim to encompass the entire network of nursing education in Portugal, thereby promoting the applicability of findings in the development of more inclusive curricula, tailored to diverse educational and regional contexts.

Also, the response rate was not very high, possibly due to the timing of the administration of the questionnaire and the fact that it was announced exclusively through online platforms and social media, at a time when students were busy integrating into a new course year meaning they felt less inclined to take part in this study. On the other hand, the students who participated demonstrated a notable interest in the area of spirituality and spiritual care, as the tool was being used for the first time within Portuguese society and addresses a

theme that necessitates some interpersonal awareness from the students. Additionally, the analysis of the open-ended questions could not be conducted due to the low response rate, which may indicate students' limited engagement with reflective writing or discomfort in expressing personal perspectives on spirituality - an aspect that merits further investigation. Nonetheless, when considering the complete dataset - including the committee expert, pretest study, reliability and validity study, there were enough responses to analyse and validate the EPICC Spiritual Care Competency Self-Assessment Tool with statistical significance, in line with the original instrument. Therefore, the results of this study may be generalisable to undergraduate nursing students in Portugal.

### Declaration of competing interest

The authors declare that they have no conflicts of interest related to this study. No financial, personal, or professional relationships influenced the research, analysis, or conclusions presented in this manuscript.

### CRedit authorship contribution statement

**Sara Sitefane:** Writing – original draft, Visualization, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Ana Afonso:** Writing – review & editing, Methodology,

Formal analysis, Data curation, Conceptualization. **Wilfred McSherry:** Writing – review & editing, Validation. **Linda Ross:** Writing – review & editing, Validation. **Isabel Rabiais:** Writing – review & editing, Validation, Supervision, Conceptualization. **Sílvia Caldeira:** Writing – review & editing, Validation, Supervision, Methodology, Formal analysis, Conceptualization.

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## Supplementary materials

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