Cultural adaptation and validation of the Family Nursing Practice Scale (FNPS) for use with Spanish-speaking Nursing Degree students

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ABSTRACT

Aim: The task proposed was to conduct a cultural adaptation of the Family Nursing Practice Scale and to assess the psychometric properties of the resulting instrument.
Background: Nursing students must obtain sufficient personal competence and confidence to act with patients and their families. For this purpose, an assessment scale is needed to inform teachers of the student's progress and to determine whether further training or changes in teaching methods are required.
Design: A cross-sectional study design was used.
Methods: The researchers conducted this study with 202 students of nursing at two Spanish universities. In the cultural adaptation, the following steps were followed: definition of concepts, translation, back translation, expert group review and implementation by a pilot group with a subsequent cognitive interview. Internal consistency was determined by Cronbach's alpha. Reliability was verified by an initial application of the scale, followed by a repetition after seven days, analysing the results obtained in terms of the intraclass correlation coefficient, the construct validity (by Spearman's non-parametric correlation test) and confirmatory factor analysis (using JASP 0.16.4 statistical software).
Results: Cronbach's alpha resulted in 0.95. Spearman's correlation coefficient Family Nursing Practice Scale total with the course year was $-0.26 < 0.001$. The intraclass correlation coefficient for the total score of the scale was 0.91. The confirmatory factor analysis was performed on a model in which the total score for the scale was considered in relation to the two subscales, and each subscale in relation to its constituent items. The p-value associated with the chi-square was 0.550. The root mean square error of approximation and comparative fit indices presented values of <0.001 (90 % C.I. $<0.001–0.048$) and 1.000, respectively.
Conclusions: These results indicate that the Spanish version presents good internal consistency, construct validity and reliability. Moreover, the confirmatory factor analysis confirms that it presents a good fit to the model initially proposed for this scale for Nursing Degree students.

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1. Introduction

When a patient suffers an acute or chronic disease, or is terminally ill, this situation can affect the whole family, impacting on family wellbeing and provoking anxiety, stress, feelings of vulnerability and, in some cases, feelings of abandonment by the healthcare system (Soroka et al., 2022; Burns and Petrucka, 2020; Deek et al., 2016). Therefore, care should be provided for the family as a whole, not only the patient, since in many cases family members will need personal support and guidance on caring, coping with the situation and communicating with the patient (Wang et al., 2018).

In addition, care within the family is believed to benefit the health status of all concerned, since other family members are often affected by the patient's physical and psychological situation (Niedling and Hämel, 2023; Wang et al., 2021; Dellafiore et al., 2022). However, for these benefits to be obtained, attending nurses must provide appropriate family-centred care, which is not always the case (Thürlimann et al., 2022). To do so, these nurses must first receive adequate training, not only in caring for patients, but also to acquire the skills needed to relate usefully with other family members (Barreto et al., 2022; Coyne, 2015).

Teaching in this field demonstrates that it is a fundamental aspect for the improvement of knowledge, skills, and attitudes of family nursing students (Domingo-Osle et al., 2023), just as it is for practicing nurses, making them feel more competent in family communication (Broekema et al., 2018), giving them greater control over their work (Svavarsdottir et al., 2018), increasing their knowledge in conducting family assessments and interventions (Martinez et al., 2007), and enhancing their professional competence (Ma et al., 2018), among other benefits.

The characteristics of teaching in this field are of a highly diverse nature, as evidenced by some of the existing studies: an association of academic and clinical practice used digital storytelling as an educational strategy (Eggenberger and Sanders, 2016), theoretical lectures and a workshop focused on developing family nursing skills (Svavarsdottir et al., 2015), a continuous hospital education course in family system nursing (Svavarsdottir et al., 2018), the utilization of simulation (Fisher et al., 2014), live supervision (Petursdottir et al., 2019), case studies (Yamazaki et al., 2017), and the use of videos (Ma et al., 2018).

However, it is worth noting that all these educational actions need to be evaluated to obtain results on how such training has influenced the competence of the students. Different systems have been used for the evaluation of family nursing education: through semi-structured interviews conducted before and after the educational sessions (Martinez et al., 2007), using a mixed method of qualitative and quantitative evaluation (Broekema et al., 2018), and also through assessing families' perceptions of nurse support (Eggenberger and Sanders, 2016), among other approaches.

Regarding quantitative evaluation, psychometrically validated instruments have been used in some of the studies, such as the Families' Importance in Nursing Care–Nurses' Attitudes (FINC-NA) (Broekema et al., 2018; Yamazaki et al., 2017), the Icelandic Health Care Practitioner Illness Beliefs Questionnaire (ICE-HCP-IBQ) (Petursdottir et al., 2019), and the Family Nurse Practice Scale (FNPS) (Petursdottir et al., 2019; Svavarsdottir et al., 2018; Eggenberger and Sanders, 2016).

The utilization of the FNPS as an evaluation system has proven to be very appropriate for assessing personal competence and confidence in interacting with patients and their families in the reviewed studies. However, for its application, it is necessary to adapt and validate the scale for nursing students in the language used (Wild et al., 2005). This evaluation is also crucial to inform educators about students' progress and determine if additional training or changes in teaching methods are necessary (Eggenberger et al., 2015; Shajani and Snell, 2019).

1.1. Background

Reviewing the existing literature on scales for assessing nurses' attitudes in the field of family intervention, various scales can be observed.

Most of them are in the pediatric area, such as the Family Nursing Caring Belief Scale (FNCBS), which evaluates nurses' attitudes towards providing family-sensitive care in relation to pediatric critical illnesses (Meiers et al., 2007), which has also been validated in nurses in neonatal care (Magri, 2018). The Family-Centered Care Questionnaire (FCCQ) was also developed in pediatrics (Bruce and Ritchie, 1997), and the Self-efficacy Scale for the Establishment of Good Relationships with Families in Neonatal and Pediatric Hospital Settings (Cruz et al., 2017).

Some instruments measure nurses' attitudes towards family needs in intensive care, such as the Needs of Families of Critically Ill Patients (O'Malley et al., 1991), and the assessment of family competence for psychosis, where the Family Intervention Competency Assessment and Reflection Scale (FICARS) has been found, which utilizes a systematic three-stage approach in developing health outcome measures (Gamble et al., 2013). The ICE-HCP-IBQ was also utilized to measure the beliefs of palliative care nurses regarding their understanding of the meaning of the oncological illness situation for the families under their care (Petursdottir et al., 2019).

For patients in general, the FINC-NA scale has been found, which measures attitudes towards the importance of involving the family in the care of the sick person (Benzein et al., 2008).

The FNPS was designed, developed and validated for use in English and Chinese (Cantonese) to assess, on the one hand, family nursing training and, on the other, nurses' self-perceived changes in their family-related work practices after completing their training. It consists of 10 items (Simpson and Tarrant, 2006).

The developed questionnaires are all suitable, but they primarily focus on families in a pediatric, neonatal, critical care, and psychosis context. Only one questionnaire, apart from the one adapted and validated in this study (Simpson and Tarrant, 2006), evaluates nurses' attitudes towards families in general, but the instrument consists of 26 items (Benzein et al., 2008). Therefore, the FNPS requires less time consumption and appears to be the most appropriate for use among nursing students (Petursdottir et al., 2019; Svavarsdottir et al., 2018; Eggenberger and Sanders, 2016).

The scale was developed within the field of psychiatric nursing, but it can also be used in other contexts, since it is not specific to any speciality (Simpson and Tarrant, 2006). Following its initial publication, a German-language version of the scale has been validated for use in four hospital departments: adult care, neonatal medicine, obstetrics and gynaecology (Naef et al., 2021). A Brazilian Portuguese version has also been validated for use by hospital nurses (Rodrigues et al., 2021). Not only have these existing versions of the FNPS been validated, the scale is also considered a very appropriate instrument for determining nurses' attitudes in relation to healthcare interventions in the family context (Alfaro Díaz et al., 2019).

The acquisition of skills in family nursing care practice is a fundamental objective of training programmes for undergraduate nursing students. In this respect, an appropriate system of evaluation is also needed and application of the FNPS provides the evaluator with essential data. With these considerations in mind, the aim of the present study is to perform a cultural adaptation and validation into Spanish of the FNPS tool for use with undergraduate nursing students.

2. Method

The task proposed was to conduct a cultural adaptation of the FNPS scale and to assess the psychometric properties of the resulting instrument. For this purpose, data were collected using an online survey that did not allow the questionnaire to be delivered if all the questions were not answered.

2.1. Setting and sample

The original FNPS was subjected to a process of cultural adaptation and psychometric validation, in a study carried out at two Spanish

universities (Málaga and Granada) that offer an undergraduate degree in nursing. Participation was open to all students in these courses, from the first to the fourth years.

The FNPS consists of ten items, designed to measure and evaluate nurses' self-perception of their competence, knowledge and confidence in their ability to perform family nursing activities. The FNPS can also evaluate the relationship between the nurse and the patient's family (Simpson and Tarrant, 2006). An important aspect of this instrument is its ability to detect changes in self-perceptions of family nursing practice, which is a significant component of the undergraduate programme for nursing students (Eggenberger and Sanders, 2016).

The FNPS contains two subscales: practice appraisal (items 1–5) and nurse-family relationship (items 6–10), which in this study were both assessed by confirmatory factor analysis. Each of the questionnaire items was evaluated using a Likert-type scale ranging from 1 to 5 points, where one represents the best result possible, and five, the poorest. Thus, a low score on this scale would indicate good aptitude for the task in question.

The FNPS has been validated by the creators of the scale (Simpson and Tarrant, 2006), as have the respective adaptations into German (Naef et al., 2021) and Brazilian Portuguese (Rodrigues et al., 2021).

2.2. Translation and back translation

In translating the FNPS into Spanish, the recommendations of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) and of the Patient-Reported Outcomes Measurement Information System (PROMIS) were followed (Cha et al., 2007; Wild et al., 2005; Wild et al., 2009), as described below.

First, the concepts presented in the original scale were characterised, after which the scale was translated into Spanish by two nurses, for whom this was their native language and who, moreover, had level C proficiency in English. The two nurses worked independently. On completion, their two translations were reconciled to create a single definitive translation. This text then formed the basis for a back translation performed by an English-native translator, who was blinded to the original scale. This back translation was then reviewed, in comparison with the original scale. In the final stage of the process, a group of experts (seven practising nurses and three members of the Nursing Degree teaching staff) conducted another review of the Spanish-language scale, verifying its equivalence with the original.

The resulting Spanish-language questionnaire was then completed by ten Nursing Degree students. In a subsequent interview, they were each asked if they had any difficulty in understanding the questionnaire items, and any problems raised were addressed by the research team.

To verify the reliability of the FNPS for Spanish Nursing Degree students, it was completed twice, the second time seven days after the first. Three hundred students were invited to participate, anonymously. All who expressed interest were included in the study. The only criterion for exclusion was the lack of accredited Spanish-language proficiency (at level C) in the case of international exchange students.

2.3. Data collection

The study data were collected in October and November 2022, after obtaining permission to do so from the respective university authorities and ethics committees. The students were informed of the research project by email, and invited to ask any questions they might have about it. The email also provided two links enabling the respondent to complete the questionnaire (the first text, immediately, and the repetition, a week later). Reminders were sent (once) to any student who had not completed the second questionnaire within two weeks of the first.

To ensure the participation was anonymous, the students were asked to identify themselves (in both the first and second questionnaires) only by an arbitrary five-digit number of their choice. As sociodemographic data, they were also asked to state their age, sex and course year.

2.4. Ethical issues and permissions

The project was approved by the Ethics Committee for Experimentation of the University of Malaga (CEUMA) on 26 June 2022, under CEUMA registration number: 60–2022-H. Permission was obtained from the original authors to adapt and validate this Spanish-language version of the FNPS. The students' participation was voluntary and anonymous, and prior informed agreement to participate was obtained in every case.

2.5. Data analysis

The demographic and academic variables corresponding to the study sample were analysed using measures of central tendency, standard deviation and frequency. Structural validity was verified using Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) coefficient. Cronbach's alpha was calculated to assess the internal consistency of the results. The construct validity was tested using the hypothesis that more advanced students would obtain lower (i.e. better) scores on the scale items than those in earlier years of the course. This association was analysed using Spearman's nonparametric correlation test.

The reliability of the scale was analysed by a test-retest procedure, by which the students repeated their completion of the questionnaire, one week after the first time. The test-retest result is expressed as the intraclass correlation coefficient.

A confirmatory factor analysis was performed using JASP 0.16.4. statistical software, following the factorial model initially proposed by the authors (Simpson and Tarrant, 2006). The goodness of fit of the model was verified by the following statistics and cut-off points (Cho et al., 2020); chi-square (d.f.) $p > 0.05$ (the null hypothesis is that the theoretical model is adequate, then a p-value less than 0.05 means that this model is not correct, and a p-value greater than 0.05 allows accepting the goodness of the proposed model), incremental fit indices: comparative fit index (CFI > 0.95), goodness of fit index (GFI >0.93), Tucker-Lewis index (TLI >0.9) and absolute fit indices; root mean square error of approximation (RMSEA) and its 90 % confidence interval (upper limit <0.05), standardised root mean square residual (SRMR <0.05).

3. Results

3.1. Sample characteristics

Of the 300 students initially contacted, 202 agreed to participate in the study and completed the initial questionnaire and the retest (response rate: 67.33 %). Of these 202 participants, 8 (4.0 %) were first-year students, 108 (53.5 %) were in their second year, 43 (21.30 %) were in the third year and 43 (21.3 %) were in the fourth. 156 (77.2 %) students were female. The students' mean age was 22.39 years (standard deviation: 6.34).

3.2. Self-perceptions of capability in family nursing practice

According to the students' questionnaire answers, they believed themselves moderately well equipped to perform family nursing practice. The areas in which they felt least proficient were No. 3 (Level of knowledge) and No. 7 (Families always approach me about their ill relative), while those in which most confidence was expressed were numbers 2 (Level of satisfaction), 9 (Rewarding involvement) and 10 (Avoid drawing inferences from personal biases). These data are detailed in Table 1.

3.3. Structural validity

The good KMO test result of 0.942 reflects the low level of partial correlation between the variables. The Bartlett's sphericity test result ($\chi2$ (45) $= 1921.53$, $p < 0.001$) shows that the variables are not

Table 1

Single-item descriptors of the FNPS Spanish Version (*n* = 202).

Item	Mean	Std. Dev.
1. My confidence level in working with families is.	2.5	1.2
2. My level of satisfaction with family nursing is.	2.5	1.2
3. My knowledge level of family system nursing is.	3.0	1.1
4. My skill in working with the family system is.	2.7	1.2
5. I feel comfortable in initiating family involvement in nursing care planning.	2.6	1.3
6. I plan nursing interventions in consultation with the patient and family.	2.7	1.4
7. Families always approach me about their ill relative.	3.0	1.4
8. I promote patient/family participation, choice, and control in meeting health care needs.	2.6	1.4
9. My involvement with families is mostly rewarding	2.4	1.3
10. I avoid inferences of my own biases when collecting, interpreting, and communicating data about patients and families.	2.5	1.4
Subscale 1. Practice appraisal.	2.6	1.0
Subscale 2. Nurse–family relationship	2.7	1.2
FNPS* total	2.6	1.1

* Family Nursing Practice Scale (FNPS): Range of scores: 1–5.

Table 2

Full statistics for each item in the Spanish version of FNPS.

Scale item	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Item 1	23.9	95.2	0.8	0.95
Item 2	23.9	95.5	0.8	0.95
Item 3	23.4	98.2	0.7	0.95
Item 4	23.7	94.5	0.8	0.95
Item 5	23.8	93.0	0.8	0.95
Item 6	23.6	90.0	0.9	0.95
Item 7	23.4	91.0	0.8	0.95
Item 8	23.8	90.9	0.8	0.95
Item 9	24.0	91.2	0.9	0.95
Item 10	24.0	92.7	0.8	0.95

completely uncorrelated. From these two results, we conclude that the sample meets the requirements for carrying out a factorial analysis.

3.4. Internal consistency

The Cronbach's alpha result was 0.953. This index was not improved by removing any item from the scale, from which we conclude that all of the items should be included in the data analysis (see Table 2). The first factor of the scale demonstrated a Cronbach's alpha of 0.92, while the second factor had a Cronbach's alpha of 0.94.

3.5. Construct validity: hypothesis testing

The scores for the questionnaire items improved significantly when the student's course year was taken into account, in all cases except for item No. 1, when the same trend was observed, but without statistical significance. This relationship was determined using Spearman's non-parametric correlation test (see Table 3).

3.6. Reliability analysis

The intraclass correlation coefficient for the total score of the scale was 0.91, which reflects good stability. The coefficients obtained for each item are shown in Table 4.

3.7. Confirmatory factor analysis

The confirmatory factor analysis was performed on a model in which

Table 3

Correlation coefficient for each item in the Spanish version of FNPS.

	Course year	
Scale item	Spearman's correlation coefficient	Bilateral significance
Item 1	–0.13	0.069
Item 2	–0.22	0.002
Item 3	–0.30	<0.001
Item 4	–0.30	<0.001
Item 5	–0.26	<0.001
Item 6	–0.17	0.015
Item 7	–0.19	0.007
Item 8	–0.22	0.002
Item 9	–0.21	0.003
Item 10	–0.21	0.002
FNPS total	–0.26	<0.001

Table 4

Intraclass correlation coefficient for each item in the Spanish version of FNPS.

Scale item	Intraclass correlation coefficient	95 % C.I. for the ICC
Item 1	0.79	0.72–0.84
Item 2	0.79	0.72–0.84
Item 3	0.76	0.68–0.82
Item 4	0.82	0.76–0.86
Item 5	0.76	0.68–0.82
Item 6	0.82	0.77–0.87
Item 7	0.85	0.80–0.89
Item 8	0.87	0.82–0.90
Item 9	0.87	0.83–0.91
Item 10	0.83	0.77–0.87
FNPS total	0.91	0.88–0.93

Table 5

Goodness of fit to the confirmatory analysis.

Metric	Value
RMSEA	<0.001
RMSEA 90 % CI lower bound	<0.001
RMSEA 90 % CI upper bound	0.048
RMSEA p-value	0.961
RMSR	0.028
CFI	1.000
GFI	0.999
TLI	1.000

RMSEA= Root mean square error of approximation; SRMR= Standardised root mean square residual; CFI= Comparative fit index; GFI= Goodness of fit index; TLI= Tucker-Lewis index

the total score for the scale was considered in relation to the two subscales, and each subscale in relation to its constituent items. The p-value associated with the chi-square was 0.550. The RMSEA and comparative fit indices presented values of < 0.001 (90 % C.I. <0.001–0.048) and 1.000, respectively, indicating a good fit of our data to the model initially proposed for the scale. These data are presented in Table 5 and Fig. 1.

4. Discussion

In this study, the FNPS was translated, culturally adapted and validated for use with Spanish-speaking Nursing Degree students. Several modifications were made to the text during the process of translation and back-translation, specifically in five items. However, the same concepts were maintained throughout. The group of experts, while reviewing the scale to ensure its equivalence to the original scale, made only one modification in item 4, replacing the word "habilidad" with "capacidad" (ability). When the preliminary scale was administered to the 10 nursing students, two modifications were made in items 9 and 10, changing two words: "participación" (participation) was replaced with "intervención" (intervention), and "comunicar datos" (communicating
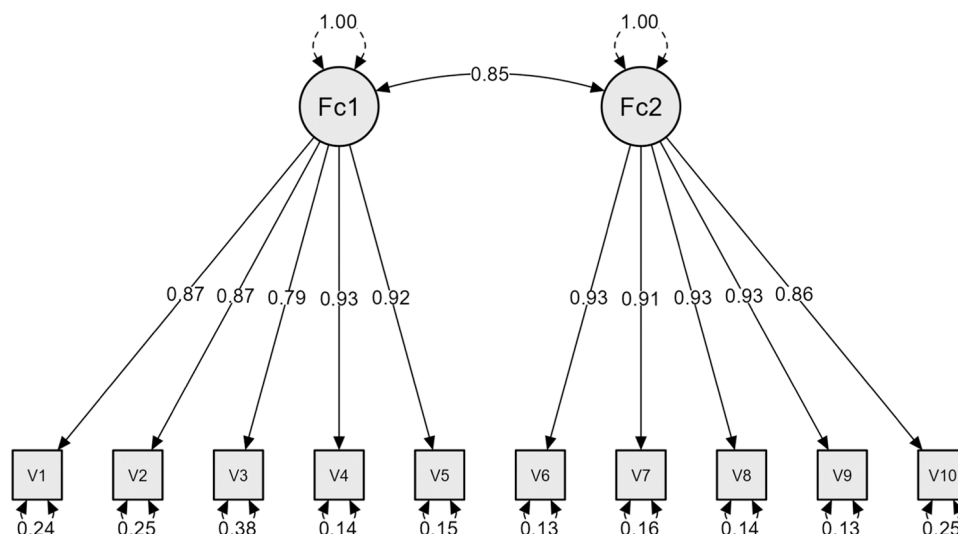
Fig. 1. Factor structure.

data) was changed to "comunicar información" (communicating information). The 202 students who completed the final questionnaire did not request any additional clarification, indicating that the adapted Spanish version did not pose comprehension problems. Therefore, the results of the semantic analysis were considered appropriate.

Analysis of the average scores obtained for the ten items of the FNPS shows that the training given in family nursing practice was considered moderate, scoring between 2 and 3 points. The most highly valued aspect was item No. 9 (My involvement with families is mostly rewarding), suggesting that even if the students do not feel fully empowered, they find the relationship with patients' families gratifying. This last aspect was also observed in the validation study conducted on Brazilian Portuguese in hospital nurses (Rodrigues et al., 2021).

Assessment of the scale indicated good internal consistency, with a Cronbach's alpha of 0.953. This assessment indicated that in no case would the elimination of any item produce a significant increase in internal consistency; i.e. all of the items presented good consistency. This finding corroborates the excellent internal validity of the scale, together with the Cronbach's alpha > 0.80, which is in line with other FNPS validation studies (Simpson and Tarrant, 2006; Naef et al., 2021; Rodrigues et al., 2021).

The construct validity analysis was based on the hypothesis that more advanced students would award lower FNPS scores (i.e., they would assess the items more favourably). This hypothesis was confirmed for each of the ten items of the scale, including the overall assessment. Moreover, the difference was statistically significant in every case except item No. 1, and even then it was close to significance. These results are comparable with those of the German-language validation study of the FNPS, which hypothesised that prior education in family nursing would improve nurses' perceived self-competence (Naef et al., 2021).

In the present study, the reliability of the findings obtained was measured using the intraclass correlation coefficient, between the initial results and those from the repetition, performed seven days later. Excellent stability was observed, both in the total result and in most of the items. Items 1, 2, 3 and 5 presented lower stability, but were still rated as satisfactory (Prieto et al., 1998).

Confirmatory factor analysis shows that our data present a good fit with the model initially proposed for the FNPS (Simpson and Tarrant, 2006).

Comparing the results obtained with other similar questionnaires, the FNPS would only be appropriate for comparison with the FINC-NA questionnaire, which evaluates nurses' attitudes towards families in general (Benzein et al., 2008) and has also been validated in Spanish (Pascual Fernández et al., 2015). It is a good work, but it is limited to assessing the internal consistency of the test and does not evaluate stability through test-retest or construct validity, which represents a limitation of its psychometric properties.

Taking these aspects into account, the validation of the FNPS demonstrates the validity of the questionnaire through various evaluation measures. However, it also has limitations, which are indicated below.

In summary, the cultural adaptation and validation of the FNPS into Spanish, for use with Nursing Degree students, is shown to be valid and reliable.

4.1. Limitations

The present study is subject to the following limitations. Firstly, no analysis was made of the sensitivity to change in the FNPS. This question could be addressed by asking respondents to complete the questionnaire before and after their training in family nursing practice.

The Cronbach's alpha value in our study was 0.95. With a value above 0.90, it can be considered that some of the items collect redundant information, suggesting the possibility of creating a shorter version with fewer items. Similarly, both factors of the scale showed high alpha values, further supporting the idea of considering a reduction in the number of items.

Another area of possible concern is that the questionnaire was completed by a population of undergraduate students, the majority of whom were female; the results obtained might vary in the case of a different population, such as working nurses, or among male nurses.

Future studies could consider conducting a more thorough examination to ensure that the items of the scale are distinct and accurately capture the intended constructs. Additionally, it would be valuable to assess the scale's sensitivity to change and its adaptation for use with clinical nurses and male nurses. This would help to further validate the FNPS and enhance its applicability in different populations and contexts.

5. Conclusion

We present a cultural adaptation and psychometric validation of the FNPS into Spanish for Nursing Degree students. The model proposed obtains good internal consistency, construct validity and reliability, and confirmatory factor analysis shows that it presents a good fit to the model initially proposed for this scale. This Spanish-language version of the FNPS is a useful instrument for evaluating the training of Nursing Degree students in the area of family nursing.

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CRediT authorship contribution statement

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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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