Pilot testing and psychometric validation of the Nijmegen Professionalism Scale for Spanish Nursing

Abstract

Aim: To analyse the psychometric properties of the Nijmegen Professionalism Scale for Spanish (NPS-S) nursing in order to verify its validity and reliability.

Background: Professional commitment is frequently used as a humanistic care indicator. Thus, it is important to design and validate a tool which is able to measure professional commitment in Spanish nurses.

Methods: We undertook the pilot testing and psychometric validation of the NPS-S. A total sample of 249 nursing professionals from xxx took part in this study.

Results: The NPS-S achieved a high degree of content validity, construct validity, internal consistency, temporal stability and usability; this version is, thus, equivalent to the Nijmegen Professionalism Scale in its original version.

Conclusions: Based on the results obtained from the validation of this tool, it is possible to affirm that the NPS-S is an effective instrument for measuring professional commitment in this population. Future studies should analyze the evaluation capacity of this tool.

Implications for nursing management: The NPS-S will evaluate and thus contribute to the promotion of professional commitment in Spanish nursing. Additionally, it will serve to establish correlations between professional commitment and other variables including quality of care and patient satisfaction.

Keywords: commitment, engagement, nursing, validation.

Introduction

Professional commitment in nursing can be defined as "the acquisition of knowledge and skills that allow for a moral idea about the provision of good service of care to be formed. This is individually achieved through personal values, acknowledging the autonomy, self-regulation and responsibility inherent to the nursing profession, and creating a feeling of belonging to the profession. It is an attitude that provides a physical, mental and emotional connection to work and professional behaviour, in which the offering of the best services should prevail, taking into account the professional and personal characteristics of the patients according to each situation. Such attitude should be placed at the service of others and can be measured by quality standards" (García-Moyano et al., 2017).

The concept of professional commitment is currently being widely studied (Brunetto et al., 2013; Caricati et al., 2014; Catlett & Lovan, 2011; Chang & Yeh, 2016, 2016; Jafaraghaee, Mehrdad, & Parvizy, 2014; Manojlovich, 2005; McCabe & Sambrook, 2013; Royer, 2011; Trinchero, Borgonovi, & Farr-Wharton, 2014; Tsai, Tsai, Chen, & Lee, 2014; van Dam, van der Heijden, & Hasselhorn, 2009; Wang, Tao, Ellenbecker, & Liu, 2012). Nevertheless, no validated tools to assess and measure professional commitment in Spanish nurses existed prior to the translation and cultural adaptation of the Nijmegen Professionalism Scale for Spanish nursing undertaken by the authors. The Nijmegen Professionalism Scale is a 106-item instrument originally designed and validated to measure and assess professional behaviour of general practitioner trainees. Each item describes an element of professional conduct, whose frequency is measured using a Likert scale ranging from seldom or never (1), to always (4) (Tromp & Rademakers, 2007; Tromp, Vernooij-Dassen, Kramer, Grol, & Bottema, 2010).

The aim of this study is to analyse the psychometric properties of the Nijmegen Professionalism Scale for Spanish nursing (NPS-S) in order to verify the validity and reliability of this instrument.

Methodology

The adapted version of the NPS-S was carried out using a debriefing technique, according to the recommendations of Beaton, Bombardier, Guillemin, & Ferraz, 2000) and Epstein, Osborne, Elsworth, Beaton, & Guillemin (2015). Following this process, a 49-item, conceptually equivalent instrument was created. In this new version, the 49 items were categorized into four dimensions:

- Dimension 1: Professional behavior towards the patient (12 items).

- Dimension 2: Professional behavior towards other professionals (10 items)

- Dimension 3: Professional behavior towards society (8 items).

- Dimension 4: Professional behavior towards oneself (19 items) (García-Moyano et al., 2019).

According to Muñiz, Elosua, & Hambleton (2013), it is essential to pilot test the translated and adapted version of the instrument in order to record the participants' reactions, ensure that the new items and the instructions for the completion of the tool are adequate and understandable, register the time needed to complete the scale, collect data about possible content and/or format errors, which may be rectified prior to the operational phase, and undertake an analysis of the sense and direction of the most relevant psychometric parameters. Additionally, it is important to verify the psychometric characteristics of the translation and cultural and linguistic adaptation of the NPS-S, in order to complete the process of linguistic validation.

Participants

A total sample of 249 qualified nurses from different professional backgrounds was selected to participate in the pilot testing and validation of the new instrument. A purposive maximum variation sampling technique was used in order to guarantee an as-wide-as-possible representation of Spanish nursing. Inclusion criteria included: 1) signing the consent form and agreeing to participate in the study, and 2) being fully qualified as a nurse in Spain. We excluded participants whose first language was not Spanish. In order to achieve maximum sample heterogeneity, we included nursing professionals with a

clinical, managerial, research and teaching background. Sample size was calculated following the recommendations for conducting factor analysis and included 5 times the number of variables (Chang & Yeh, 2016; Cuñado Barrio, Bernardo García, Rial Cereijo, Marco Arraiza, & García López, 2002).

The NPS-S was made available to our sample through an electronic platform, which guaranteed participant anonymity and ensured that the instrument was completed under similar conditions by all the participants. An ad hoc item was added at the end of the questionnaire in order to ascertain whether or not the tool prompted a personal reflection on professional commitment: "Were you inspired to self-reflect on the issue of professional commitment in nursing after completing this questionnaire?". Response options were: very inspired; quite inspired; somewhat inspired; not inspired; I have not thought about it. Data collection took place from January to March 2016. We used Stata software, version 10 (Stata Corporation), for statistical analyses.

Procedure

Validity was guaranteed through the evaluation of content, construct and criterion validity. Reliability was confirmed through the evaluation of the tool's internal consistency, temporal stability and utility. We did not test interrater reliability as the instrument is self-administered.

Content validity

The process of cross-cultural and linguistic translation and adaptation of the NPS-S and the assessment of content and face validity have been described in a previous study (García-Moyano et al., 2019). We used (Terwee et al., 2007) quality criteria for measurement properties of health status questionnaires, with the exception of the final phase, interpretability, which was not addressed as it was beyond the aims of this study.

Construct validity

Factorial analysis was used to measure construct validity as the variable professional commitment cannot be observed directly. We used Kayes-Meyer-Olkin (KMO) measure of sampling adequacy in order to evaluate the proportion of variance in our variables that might be caused by underlying factors, and Bartlett's test of sphericity in order to compare the observed correlation matrix

to the identity matrix. We used principal component (factor) analysis for factor extraction; we selected the four dimensions from the original scale in order to determine the number of factors. Finally, we shared the documentation (i.e. reports, formularies, statistical analyses) arising from the process of cross-cultural and linguistic translation with all who took part in this process so they were able to verify process adequacy (Beaton et al., 2000).

Criterion validity

No comparable, validated tool was identified in Spanish in order to establish criterion validity. Thus, criterion validity could not be established. Nevertheless, the participants' response to the ad hoc question was able to inform, at least, about the instrument's capacity to induce the respondent to reflect on professional commitment in nursing.

Internal consistency

Cronbach alpha was used to assess the internal consistency of the scale items. Acceptable values for this test range from 0,7 and 0,9 (70% to 90%) (Cabrera, Zabalegui, & Blanco, 2011). Low values suggest that the scale lacks homogeneity, whereas values >0,9 indicate too much inter-relation and the possibility of redundancy.

Temporal stability; test-retest reliability

Temporal stability and test-retest reliability were measured using Spearman's rank correlation, as the variables were not normally distributed, in sample of 115 individuals.

Utility

We described average time of completion of the NPS-S, the need for any specific conditions or requirements prior to the self-administration of the scale, and the process, method and time required to calculate the results.

Ethical considerations

Fred Tromp, principal author of the original Nijmegen Professionalism Scale, gave his authorization to undertake this investigation. The Clinical Research Ethics Committee of xxx approved this study on the 18th March 2015. Data collected as part of this investigation are protected by the Organic Law of

Personal Data Protection 15/1999 and the Declaration of Helsinki. The participants were informed about the aims of the study and its voluntariness, and gave their informed consent to participate prior to their inclusion in the study. Anonymity and confidentiality were guaranteed by the authors throughout.

Results

A total sample of 249 healthcare professionals participated in the process of validation of the NPS-S. Sociodemographic variables are presented in Table 1. 90,76% of our sample were women, which is a reflection of gender the Spanish nursing workforce. Approximately half of our sample reported not having anybody in their care. A third of our sample were trained to university degree/diploma level or held a vocational training certificate in nursing. The vast majority of our participants were employed in the Spanish national health service, with only 16% working in education.

KMO was 0,8677, suggesting a good level of internal consistency (see Table 2). Bartlett's test of sphericity was used to compare the observed correlation and identity matrices, resulting in p <0,001. Table 3 shows variance values and cumulative variance. The factorial model with 4 factors explained 75,87% of the model variance. Item distribution and item-scale correlation are described in Table 4. As can be observed, factor 1 (items related to professional behavior towards the patient) explains 49,86% of the model; factor 2 (items related to professional behavior towards society) explains 14,98%; factor 3 (items related to professional behavior towards oneself) explains 6,2%; and factor 4 (items related to professional behavior towards other professionals) explains 4,83% of the model.

It was not possible to assess criterion validity. However, the results from the participants' response to the ad hoc question suggest that over 80% of our participants felt quite or very inspired to self-reflect on the issue of professional commitment in nursing after completing the questionnaire (Burgos et al., 2012; Kulich et al., 2005).

In order to assess temporal stability and test-retest reliability, we measured the paired data obtained from a total sample of 115 participants. The application of Spearman's rank correlation for not normally distributed variables demonstrated good test-retest reliability. All the dimensions adopted the same pattern, namely coefficients were statistically significant, correlations were positive and values were medium-high (Table 5). Cronbach alpha coefficients ranged from 0,78 to 0,85 (Table 6).

With regard to the scale's utility, median and average time of completion was 10 and 11,76 minutes respectively, which is adequate to avoid non-response bias. Additionally, the process of cross-cultural translation and linguistic translation resulted in a significant reduction in the number of items from the original scale.

Discussion

It is important to compare the results from the NPS-S with those from the original instrument (Gaite, Ramírez, Herrera, & Vázquez, 1997; Muñiz et al., 2013). Both the original Nijmegen Professionalism Scale and the NPS-S are conceptually equivalent. Our Cronbach alpha coefficient ranged from 0,78 to 0,85; these results are similar to those obtained by Tromp, Vernooij-Dassen, Kramer, Grol, & Bottema (2010) in their validation study of the original scale (0,78 to 0,95). Nevertheless, there are some key differences between the original scale and the NPS-S, owing to the fact that the purpose of the original instrument was primarily educational, whereas ours was to quantify professional commitment in nursing, as well as providing Spanish nurses with a means for personal reflection on their commitment not only to their profession but also to patients, colleagues and themselves. In addition, it is worth highlighting that the final version of the NPS-S resulted in a significant reduction in the number of items from the original scale, specifically from 106 to 49. Interestingly, Tromp et al. (2010) expressed their concern about the original scale's feasibility due to its extension.

The process of validation of the NPS-S was systematic and the results demonstrate that the Spanish version of the Nijmegen Professionalism Scale is a valid and reliable self-administered instrument to assess professional

commitment in Spanish nurses; no other validated instrument currently exists to measure this construct in this context.

It would be interesting to replicate this study in a random sample of Spanish nurses and also in other Spanish speaking contexts. Additionally, following in the steps of the original NPS, it would be interesting to analyse its value as an educational tool. We argue that the NPS-S has the potential to identify individuals with variable levels of professional commitment and, thus, open the door to the implementation of specific interventions specifically designed to increase commitment in this population, including training and/or the use of different types of incentives. Additionally, we hope that this instrument may be implemented in other studies measuring quality of care, patient satisfaction, stress and burnout, etc., in order to establish correlations between professional commitment in nursing and the aforementioned variables.

Limitations

In order to limit the possibility of selection bias arising from the purposive sampling method, we used clearly defined selection criteria in order to identify potential the potential participants. Additionally, we omitted to inform our participants of our intention to test the instrument's test-retest reliability so as to not to modify their behavior during their first attempt at completing the instrument. Finally, we cannot discard the possibility of a non-response or voluntary response bias due to a personal interest in participating in this investigation. However, the aim of this study was not to measure and interpret professional commitment in our sample but to assess the validity and reliability of the NPS-S.

Conclusion

The new Spanish version of the Nijmegen Professionalism Scale is a valid and reliable tool for the assessment of professional commitment in Spanish nurses. The NPS-S is 49-item, feasible tool specifically designed to evaluate and subsequently contribute to the promotion of professional commitment in Spanish nursing, compare and contrast professional commitment in Spain and

other healthcare contexts and cultures, and establish correlations between professional commitment and other variables including quality of care and patient satisfaction.

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