

Validation of the Croatian Translation of Perceived Professional Preparedness of Senior Nursing Students' Questionnaire

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Abstract

Background: Numerous studies highlight the importance of monitoring the preparedness of final-year nursing students for entry into the profession. Although various questionnaires assessing professional preparedness among students have been developed, most of them have not yet been translated into Croatian or validated for use among Croatian nursing students.

Aim: The aim of this study was to present the Croatian translation of the Perceived Professional Preparedness of Nursing Students Questionnaire (PPPNS), evaluate its construct validity, and determine its reliability for application among Croatian nursing students in their final year of study.

Methods: A cross-sectional observational study was conducted among 200 final-year students of Bachelor of Nursing (BN) and Master of Nursing (MN) studies. Data were collected using the Professional Preparedness of Nursing Students questionnaire during January 2024. Confirmatory factor analysis was performed.

Results: The initial 19-item model did not demonstrate satisfactory fit indices; therefore, four items with low factor loadings were removed. After revision, the modified 15-item questionnaire demonstrated good psychometric properties with acceptable model fit indices and high overall internal consistency.

Conclusion: The results indicate that the Croatian version of the PPPNS-15 questionnaire is a reliable and valid instrument for assessing nursing students' perceived preparedness for independent clinical practice. Its use can significantly contribute to enhancing the quality of nursing education for future nurses in Croatia.

Keywords: professional preparedness, students, nursing, PPPNS

Introduction

The transition from nursing education to professional practice represents a significant challenge for nursing students necessitating an effective application of both theoretical knowledge and clinical skills within a complex healthcare environment (1, 2). The educational journey equips students with diverse nursing competencies. However, the actualization of these skills in practice is heavily influenced by their subjective perception of readiness for independent work, self-confidence, and the ability to adapt to specific healthcare settings (3). Research indicates that final-year nursing students' perceptions of their professional preparedness critically impact their self-esteem, job satisfaction, and motivation for professional development, eventually affecting their long-term career trajectories and retention in the nursing field (4). Notably, a study reported that more than 50% of graduating nursing students expressed feelings of unpreparedness for clinical practice, struggling particularly with effective communication and problem-solving in real-life scenarios; this reflects a gap between theoretical knowledge acquired and practical competencies required (4).

Monitoring nursing students' preparedness for professional practice is crucial, as it enables timely identification of areas where students feel uncertain or lack competencies, thus facilitating targeted educational interventions (5). Accurate evaluation of perceived preparedness can be performed using various methods, with validated questionnaires being among the most effective tools. These instruments provide detailed insights into students' subjective evaluations of their clinical skills, theoretical knowledge, and emotional readiness. Systematic use of these questionnaires contributes significantly to improving the quality of nursing education, assisting institutions in designing curricula that align more closely with the demands of future professional practice (6).

The Perceived Professional Preparedness of Senior Nursing Students (PPNS) questionnaire (7) is a tool in the assessment of nursing students' readiness for professional practice. It provides valuable insights into students'

subjective perception of their preparedness, thereby identifying competency gaps and evaluating the effectiveness of nursing education programmes. This tool has been widely adopted in various international studies, revealing significant trends regarding students' confidence and readiness levels upon transitioning to professional roles (7, 8).

However, it is crucial to note that a validated Croatian version of this questionnaire does not currently exist, which poses a substantial limitation for educational assessments and outcomes comparisons within Croatia. The lack of a Croatian version of the PPNS limits not only the local assessment of nursing students but also the potential for comparative research with international cohorts. Establishing a validated version of this questionnaire could facilitate deeper insights into the unique challenges faced by Croatian nursing students and allow for a more significant contribution to global discussions on nursing education and preparedness (9).

Considering the importance of subjective assessment of professional readiness, it is essential to have a reliable and valid instrument to evaluate this crucial aspect of nursing education. Validation of the PPNS questionnaire in the Croatian language would enable educators and institutions to better understand the areas where students feel prepared or identify their perceived shortcomings, thus serving as a basis for directing educational interventions and enhancing curricula. This would ultimately contribute to better preparing nursing students for the challenges awaiting them in professional practice. Therefore, the aim of this study was to validate the Croatian translation of the PPNS questionnaire. Additionally, the study aimed to investigate whether there are differences in the perception of professional readiness between full-time and part-time students, thereby deepening the understanding of factors affecting perceived readiness. The results of this study aim to enable a more accurate assessment of students' readiness for professional practice and provide a foundation for further research and improvement of nursing education in Croatia.

Methods

Participants

The participants were full-time and part-time students in their final years of Bachelor of Nursing (BN) and Master of Nursing (MN) studies from the Catholic University of Croatia and the University of Applied Health Sciences in Zagreb. The study sample consisted of students enrolled in the current academic year, specifically third-year undergraduate students and second-year graduate nursing students. Exclusion criteria included students who did not officially enrol in the current academic year and students participating in international mobility programmes.

Instrument

The instrument used in this study was the Perceived Professional Preparedness of Senior Nursing Students Questionnaire (PPPNS), originally developed by Shahsavari, et al. published in 2020 (7). Initially, the questionnaire consisted of 45 items, but following psychometric evaluation, it was reduced to a final version comprising 19 items grouped into four distinct factors: clinical competency, evidence-based practice, framework-oriented performance, and patient-centred care. It is a multifactorial instrument that measures four theoretical constructs:

1. Clinical Competency (5 items): assesses knowledge and skills related to disease management and treatment (e.g., "I think that I know medicines and their common complications.").
2. Evidence-Based Practice (5 items): evaluates the student's ability to apply current scientific evidence in nursing care (e.g., "I consider myself scientific and up to date on providing care.").
3. Framework-Oriented Performance (4 items): includes indicators related to understanding and applying professional standards and regulations (e.g., "I have the ability to enforce laws and regulations related to my profession.").
4. Patient-Centred Care (5 items): measures ethical behaviour and sensitivity to patient

needs (e.g., "I feel that I can remain focused during providing care services.").

Responses were recorded on a 5-point Likert scale, ranging from 1 ("not prepared at all") to 5 ("fully prepared"). After collecting all responses, the total raw score is converted into a standardised value on a scale from 0 to 100 using a linear transformation (10): $(\text{Obtained raw score} - \text{Lowest possible raw score}) \div (\text{Highest possible raw score} - \text{Lowest possible raw score}) \times 100$. Based on the resulting percentage score, the level of perceived professional preparedness is categorised as follows:

- less than 25% indicates low preparedness,
- 25% to 50% suggests moderate preparedness,
- 50% to 75% reflects good preparedness,
- more than 75% indicates excellent perceived professional preparedness.

According to the authors, the PPPNS is freely available for academic use, and no special permission is required for non-commercial research purposes. However, proper citation of the original source is necessary when using the tool.

The questionnaire was translated from English into Croatian using the forward-backward translation method. Initially, two independent bilingual translators translated the instrument into Croatian separately (forward translation). The two versions were then compared, and discrepancies were discussed until a consensus was reached to create a single Croatian version. Subsequently, this consensus version was translated back into English by two different independent bilingual translators neither of whom had access to the original questionnaire nor had prior knowledge of the tool's content or objectives. Finally, an expert panel—consisting of two nursing educators, one nursing researcher experienced in psychometrics, and one professional translator—compared the back-translated English version with the original PPPNS questionnaire. Minor differences were reviewed and adjusted, resulting in a final, culturally adapted Croatian version of the instrument.

Procedure

Data were collected during January 2024 online via electronic survey distribution to final-year nursing students of BN and MN studies. Participation was voluntary and anonymity was guaranteed. The data were collected over a period of one month during the final semester of the academic year. In our study construct validity of the PPNS questionnaire was assessed using confirmatory factor analysis (CFA) with the maximum likelihood estimation method via the IBM SPSS Amos 7 and JASP 0.18.3.0 software. The analysis regarding differences in perceived preparedness based on student status and prior work experience, including measurement invariance testing, was addressed in a previous publication and is not replicated in this paper (11).

Ethics

This study was approved by the Ethics Committee of the Catholic University of

Croatia. The approval code is 602-04/23-11/049, issued prior to the initiation of data collection. All participants provided informed consent, and their confidentiality was ensured throughout the research.

Results

Descriptive statistics and item analysis

A total of 350 students were invited to participate in the study, of whom 200 agreed, resulting in a response rate of 57.1%. Participants had a mean age of 26.38 ± 7.64 years and consisted of 180 women and 20 men. The distribution of full-time ($n = 98$) and part-time ($n = 102$) students was nearly equal.

The final Croatian version of the PPPNS scale consisted of 15 items. Descriptive indicators for each item are presented in Table 1. The mean total scale score was 4.04 ($SD = 0.39$) on a 5-point scale, indicating a generally high level of perceived professional preparedness

Table 1. Descriptive statistics for the PPPNS-15 questionnaire items and subscales

	M	SD	Min.	Max.
Clinical competencies (KL)	3.79	0.53	2	5
P1 I believe I have sufficient knowledge about diseases, their diagnosis, and treatment.	3.31	0.76	1	5
P2 I can prepare medications without the risk of error.	3.49	1.02	1	5
P3 I can provide nursing care for patients with various illnesses.	4.21	0.80	1	5
Evidence-Based Practice (EBP)	4.12	0.60	1	5
P4 I can create a nursing care plan for the patient in accordance with their cultural and spiritual needs.	3.91	0.95	1	5
P5 I am familiar with and apply evidence-based nursing practice.	3.93	0.78	1	5
P6 I consider myself educated and up-to-date in planning and providing nursing care.	4.01	0.92	1	5
Administration (JC)	3.85	0.64	2	5
P7 I am familiar with laws and behave according to those related to my profession.	4.12	0.79	2	5
P8 I can remain calm under any circumstances.	3.76	0.87	1	5
P9 I know how to correctly write an incident report.	3.24	1.12	1	5
P 10 Patients and their families can have complete trust in me.	4.31	0.77	2	5
Patient-centred care (POS)	4.40	0.46	1	5
P11 While providing nursing care, I remain focused on the patient and their needs.	4.56	0.54	2	5
P12 I adhere to all ethical principles.	4.47	0.63	1	5
P13 I am tolerant toward all patients.	4.26	0.69	1	5
P14 I can recognize changes in the patient's psychological condition (stress, anxiety, fear).	4.38	0.66	1	5
P 15 I notice changes in the patient's physical condition.	4.39	0.59	2	5

among participants. The highest ratings were for patient-centred care ($M = 4.40$, $SD = 0.46$), particularly in focusing on patient needs ($M = 4.56$, $SD = 0.54$). Evidence-Based Practice was also rated highly ($M = 4.12$, $SD = 0.60$). Administration showed moderate scores ($M = 3.85$, $SD = 0.64$), with lower confidence in incident reporting ($M = 3.24$, $SD = 1.12$). Clinical competencies scored lowest ($M = 3.79$, $SD = 0.53$), particularly regarding medication preparation ($M = 3.49$, $SD = 1.02$) and disease knowledge ($M = 3.31$, $SD = 0.76$).

CFA model

The following model fit indices were examined: a) Chi-square (χ^2) and its ratio relative to degrees of freedom (χ^2/df), where a relative chi-square value between 2 and 5 is commonly accepted as indicative of good model fit; b) the root mean squared error of approximation (RMSEA), with values $< .05$ indicating good model fit, values from .05 to .08 indicating moderate fit, values from .08 to .10 indicating marginal fit, and values $> .10$ suggesting poor fit between empirical data and the tested model; and c) the comparative fit index (CFI), where values between .90 and .95 indicate acceptable fit, and values above .95 indicate good or excellent model fit, d) Tucker-Lewis index (TLI), and e) SRMR.

To test the four-factor structure of the PPPNS questionnaire on the Croatian student sample, a confirmatory factor analysis was performed, with the proposed model presented in Figure 1. Empirical data did not support the PPPNS model with 19 items.

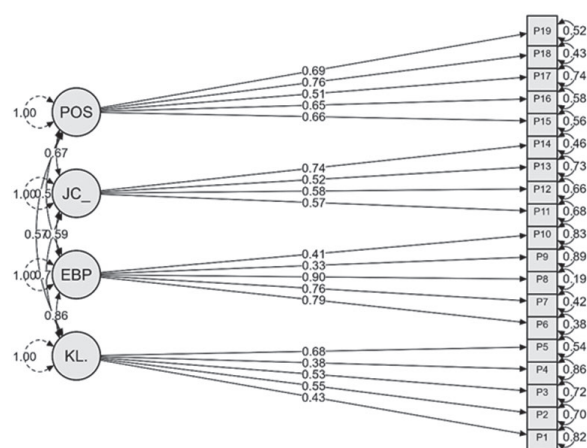


Figure 1. Model PPPNS - 19

The ratio of X^2 to degrees of freedom was acceptable at 3.19 ($X^2 = 466.2$, $df = 146$; $p < 0.001$). However, other fit indices were unsatisfactory: CFI = 0.76, TLI = 0.73, RMSEA = 0.105, and SRMR = 0.09.

Since certain items exhibited low factor loadings, four questions (item: 1, 4, 9, 10) with factor loadings below 0.50 were removed from the questionnaire. This revised model demonstrated good model fit indices. The ratio of X^2 to degrees of freedom was 2.05 ($X^2 = 160.5$, $df = 78$; $p < 0.001$), with CFI = 0.93, TLI = 0.90, RMSEA = 0.073, and SRMR = 0.062. Internal consistency coefficients for subscales were as follows: Clinical Competence Assessment Scale = 0.568; Evidence-Based Practice Skills = 0.857; Administrative Tasks = 0.672; and Patient-Centred Care = 0.789 (Figure 2). The internal consistency of the PPPNS-15 questionnaire, assessed using Cronbach's alpha coefficient, was 0.864.

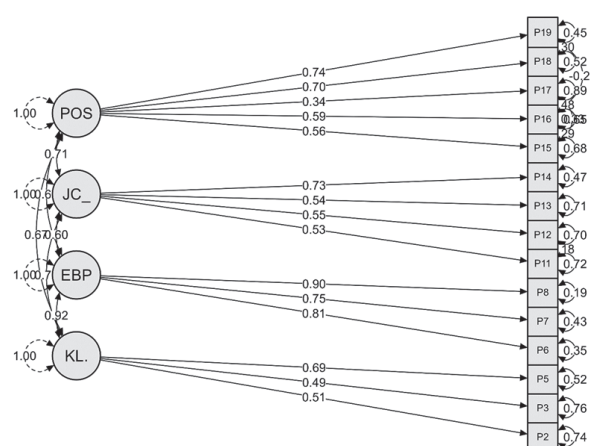


Figure 2. Model PPPNS - 15

Discussion

The findings of this study indicate that the Croatian version of the Perceived Professional Preparedness of Senior Nursing Students (PPNS) questionnaire with 15 items exhibits strong psychometric properties, confirming its factorial structure and reliability. The confirmatory factor analysis supported the four-factor structure consistent with the original instrument, highlighting the questionnaire's robustness and appropriateness for assessing professional preparedness among Croatian nursing students.

The high internal consistency (Cronbach's $\alpha = 0.92$ for the total scale and ranging from 0.85 to 0.91 for the subscales) further underscores the reliability of the instrument. Such robust internal consistency suggests that the Croatian PPNS effectively captures the multifaceted construct of perceived professional preparedness, thus providing educators and policymakers with reliable insights into areas where students feel adequately prepared or perceive deficiencies.

Based on the descriptive statistics for the PPPNS-15 students in their final year of BN and MN studies rated themselves highest in patient-centred care, indicating strong patient orientation, adherence to ethical principles, and a high level of empathy and tolerance during clinical practice. This finding is congruent with contemporary nursing programmes that emphasize a holistic approach to patient care, recognising the emotional, physical, and psychological needs of patients. However, despite the strengths demonstrated in patient-centred care, students expressed notable concerns regarding their clinical competencies. Specifically, they reported feeling less confident in their knowledge related to diseases, diagnoses, treatment protocols, and the safe preparation of medications (12). This perceived inadequacy indicates a potential gap between the theoretical knowledge acquired in nursing education and the practical skills necessary for effective clinical practice.

Similar studies have shown that nursing students frequently underestimate their preparedness for specific clinical competencies, thus suggesting a misalignment between their self-assessment and actual capabilities (13, 14). These findings highlight the urgent need for targeted educational interventions and specialised practical training aimed at bolstering both theoretical knowledge and clinical competencies. Programmes that incorporate simulation-based learning and hands-on clinical experiences can significantly enhance student confidence and the competence in performing clinical tasks (15).

The findings of our study are consistent with the original validation by Shahsavari et al. (7), who also identified four dimensions of preparedness—clinical competency, evidence-based practice, framework-oriented performance, and patient-centred care. Similar to their results, our participants reported the highest perceived preparedness in the domain of patient-centred care, which may reflect a strong emphasis on humanistic and ethical aspects in our nursing curriculum. However, unlike Shahsavari et al., who reported moderate scores in clinical competency (7), our students rated this domain the lowest, particularly in areas related to disease knowledge and medication preparation. This discrepancy may indicate curriculum differences or variations in clinical training intensity and exposure between educational systems.

As such, nursing curricula should emphasize the development of critical thinking and practical skills alongside patient-centred practices to ensure that students are well-prepared for the complexities of modern healthcare environments (15). By reinforcing clinical training and theoretical foundations, nursing education can better support students in their transition to successful professional practice (16).

Limitation

This study focused primarily on assessing the internal consistency, test-retest reliability, content validity, and construct validity of the Croatian version of the PPPNS instrument. Other important psychometric properties such as objectivity, criterion-related validity, and discriminative validity were not examined in this phase. Objectivity was assumed due to the structured self-report format and standardised instructions, but not empirically tested. Future research should aim to assess these additional properties using diverse samples and designs in line with international standards for psychological and educational measurement.

Conclusion

In conclusion, the validation of the Croatian PPNS questionnaire not only fills a gap in existing assessment tools but also offers valuable insights into nursing students' preparedness for practice. By using the validated Croatian PPNS questionnaire, educational institutions can identify specific areas requiring improvement in curriculum design, clinical training, and practical placements, ultimately enhancing students' professional preparedness. Continued use and further investigation of this instrument can support ongoing improvements in nursing education and professional practice readiness, ultimately benefiting the healthcare system as a whole.

Declarations

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Authors' contributions: Each of the undersigned authors confirms that they have contributed significantly to the work in the following ways (please put the appropriate author's initials in the appropriate brackets to specify the individual contribution to the manuscript): KF, and IM contributed to the study design; KF was responsible for data collection, MČ, KF, IM participated in analysis and interpretation of the data; MČ, KF, IM contributed to manuscript writing. KF, MČ and IM revised the manuscript critically for important intellectual content. All authors approved the final version of the manuscript.

Ethics consideration: This study was approved by the Ethics Committee of the Catholic University of Croatia. The approval code is 602-04/23-11/049.

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Competing interests: The authors declare that they have no conflict of interest.

Data sharing statement: data can be obtained by contacting the corresponding author

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Supplementary 1. The Croatian translation of the PPPNS questionnaire

Responses were recorded on a 5-point Likert scale, ranging from 1 ("not prepared at all") to 5 ("fully prepared").

Pitanje	1	2	3	4	5
Kliničke kompetencije					
1. Imam odgovarajuće znanje o bolestima, njihovom dijagnosticiranju i liječenju.					
2. Mogu pripremiti terapiju bez rizika za pogrešku.					
3. Mogu obaviti zdravstvenu njegu pacijenata koji boluju od različitih bolesti.					
Praksa utemeljena na dokazima					
4. Mogu izraditi plan zdravstvene njege za pacijente prema njihovom					
5. kulturnim i duhovnim potrebama.					
6. Dobro poznajem zdravstvenu njegu utemeljenu na dokazima.					
Sigurnosno orijentirana izvedba					
7. Poznajem i ponašam se u skladu sa zakonima koji se odnose na moju pro-					
8. fesiju.					
9. Mogu ostati miran/na pod bilo kojim okolnostima.					
10. Spreman/na sam ispravno napisati izvješće o incidentu.					
11. Pacijent i njegova obitelj mogu imati potpuno povjerenje u mene.					
Skrb usmjerena na pacijenta					
12. Tijekom pružanja zdravstvene njege usredotočen/a sam na pacijenta.					
13. Pridržavam se etičkih načela pod bilo kojim okolnostima svoga rada.					
14. Tolerantan/na sam prema svim pacijentima.					
15. Lako mogu uočiti promjene pacijentova mentalnog stanja.					
16. Primjećujem promjene fizičkog stanja pacijenta.					