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Perceived Readiness of Evidence-Based Practice Among Croatian Nurses

Spremnost medicinskih sestara u Republici Hrvatskoj za primjenu prakse utemeljene na dokazima

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Abstract. ***Aim:*** To close the gaps between nurses' application of Evidence-Based Practice (EBP) knowledge and their readiness to apply EBP, nurses need education and mentoring. Understanding nurses' EBP capability is an essential first step for planning to grow EBP. The aim of the research was to evaluate the psychometric properties of the Croatian translation of the Nursing EBP Survey and to examine the perceptions of Croatian nurses about EBP. ***Patients and methods:*** The study was conducted from May to June 2021 with nurses working in different areas in Croatia. Data were collected using the validated 2005 Nursing Evidence-Based Practice Survey questionnaire. ***Results:*** A total of 210 registered nurses completed the survey. The exploratory factor analysis revealed five factors with strong internal consistency. Internal consistency using Cronbach's alpha was α=0.92 for the entire questionnaire. Statistical significance was found for all factors except Factor 3 for educational level and for nurses currently studying nursing for Factors 1 and 5 and for graduate level for Factor 4. No statistically significant difference was found with regard to age and length of service. ***Conclusion:*** We demonstrate that the Croatian version of the Nurse EBP Survey is a valid and reliable instrument for assessing nurses' perceptions of EBP and capacity within their organization. The results indicate that the level of education has a significant impact on almost all aspects of EBP. Through university-led curriculum updates and EU standards, Croatia is investing in the academic preparation of nurses as an important step for the national health system.

Keywords: evidence-based practice; nurses; psychometrics; surveys and questionnaires; validation study

Sažetak. ***Cilj:*** Kako bi se premostile razlike između primjene znanja o praksi utemeljenoj na dokazima (*Evidence-Based Practice*, EBP) kod medicinskih sestara i njihove spremnosti za primjenu EBP-a, potrebna im je edukacija i mentorstvo. Razumijevanje sposobnosti medicinskih sestara za EBP ključan je prvi korak u planiranju razvoja EBP-a. Cilj istraživanja bio je evalvirati psihometrijska svojstva hrvatskog prijevoda upitnika *Nursing EBP Survey* i ispitati percepciju hrvatskih sestara o EBP-u. ***Ispitanici i metode****:* Provedeno je presječno opisno istraživanje u razdoblju od svibnja do lipnja 2021. godine među 210 registriranih medicinskih sestara zaposlenih u različitim zdravstvenim ustanovama diljem Hrvatske. Podatci su prikupljeni pomoću validiranog upitnika *Nursing Evidence-Based Practice Survey* iz 2005. godine. ***Rezultati:*** Faktorskom analizom identificirano je pet čimbenika s visokom unutarnjom konzistencijom (Cronbach α = 0,92). Statistički značajne razlike utvrđene su za većinu faktora u odnosu na razinu obrazovanja, posebno kod medicinskih sestara koje su trenutno u procesu obrazovanja te kod onih s diplomskim obrazovanjem. Dob i duljina radnog staža nisu pokazale značajan utjecaj na percepciju EBP-a. ***Zaključak:*** Hrvatska verzija upitnika pokazala se valjanom i pouzdanom za procjenu spremnosti medicinskih sestara za primjenu prakse utemeljene na dokazima. Rezultati potvrđuju važnost akademske edukacije u jačanju EBP kompetencija, što podupire napore Hrvatske u usklađivanju obrazovanja medicinskih sestara s europskim standardima.

Ključne riječi: ankete i upitnici; medicinske sestre; praksa utemeljena na dokazima; psihometrija; studija validacije

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INTRODUCTION

To prepare clinicians for evidence-based practice (EBP), a strong foundation must be laid in academic education. Interprofessional European efforts are guiding the preparation of nurses to meet this need[1, 2]. As competences and responsibilities increase, so does the expected contribution of clinical staff to the application of EBP[3]. Training must begin during the academic training of nurses to enable the application of EBP throughout their careers. In Croatia, nursing education is highly technical, with academic education only recently evolving from vocational to college preparation[4, 5]. As a result, conduct and application of research in nursing is insufficient, which negatively affects the availability of relevant clinical evidence in nursing specific to this context and for use in the academic and practice communities in Croatia.

There is an urgent need to close the gap between the development of knowledge and application to improve human health. There is insufficient organizational and educational capacity for EBP in patient care and a lack of nursing knowledge about EBP. Therefore, it is important to build the EBP capacity of nursing in Croatia.

As a member of the EU, the Republic of Croatia had to harmonize legislation and practice with EU directives and regulations[5]. The most important directive for the healthcare sector at the EU level is Directive 2005/36/EC on the recognition of professional qualifications and Directive 2013/55/EU amending Directive 2005/36/. The Directive defines how the professional qualification acquired in one Member State are recognized in another, and prescribes minimum standards for the title and qualification of nurses. According to Directive 2005/36/EC, the training of nurses for general care incorporates science and clinical training. Nursing education in the Republic of Croatia comprises basic training provided through a five-year vocational school program, and subsequent higher education leading to bachelor's and master's degrees. Completion of higher education offers the possibility of further education up to a doctoral degree. The competencies of nurses are regulated by the Nursing Act, which defines the competencies of nurses with a basic education, a bachelor's degree, and a master's degree in nursing. Competences of nurses with specialized education and graduate higher education are defined by a list of initial competences/learning outcomes according to the regulations on specialized education, i.e., the regulations for higher education institutions[6]. The importance of EBP is emphasized in providing the best healthcare to achieve the best outcomes for each individual patient. This approach allows for customization to the individual needs of the patient. Nurses must apply an EBP model and use these five common steps: identifying a problem to address, obtaining the evidence, assessing the evidence, applying the evidence, and evaluation, that guide practice updates[7]. EBP and implementation are essential competencies for all nurses and healthcare professionals[8, 9] Teaching nurses the knowledge, attitudes, beliefs, and skills to implement EBP enable nurses to make clinical decisions based on the best evidence and integrate evidence into their daily practice to improve health care quality and patient care outcomes. Systematic integration of evidence into practice is challenging due to the complexity of the multistep process, and requires development of individual, leader, and organizational capacity that supports EBP[10, 11].

The main barriers to the implementation and adoption of EBP are lack of knowledge and skills related to EBP, strong traditional practice patterns, negative attitudes towards science in general, lack of trust in innovation, lack of available information, time, and lack of resources to find and critically appraise evidence, busy workload, organizational barriers, lack of EBP mentoring, and education that is not focused on evidence-based healthcare[12–14]. There is an urgent need to close the gap between the development of knowledge and application to improve human health. There is insufficient organizational and educational capacity for EBP in patient care and a lack of nursing knowledge about EBP. Therefore, it is important to build the EBP capacity of nursing in Croatia. Building EBP capacity requires re-

search into the beliefs, needs and wishes of Croatian nurses. However, there are no Croatian questionnaires to assess nurses' perceptions of EBP and the organizational capacities in which nurses work.

With this in mind, our aim is to systematically develop a foundation for nursing EBP in Croatia.

The main aim of the research was to evaluate the psychometric properties of the Croatian translation of the Nursing EBP Survey and to examine the perceptions of Croatian nurses about EBP.

Hypotheses:

H_0: There are no differences in questionnaire results between different educational levels.

H_1: There are differences in questionnaire results between different educational levels.

PATIENTS AND METHODS

The Instrument and translation process

The Nursing EBP Survey was used with permission[15, 16]. The original instrument consists of 29 items, each rated on a five-point Likert scale (strongly disagree = 1, to strongly agree = 5). Croatian language experts translated the instrument using the back-translation method. The team followed steps recommended for the validation of the questionnaire, with translation, synthesis and linguistic adaptation, back-translation, comparison of the translated version with the original version of the questionnaire and testing the reliability of the questionnaire[17]. The translators had expertise in nursing (faculty and clinical), English language, and psychology. The team translated the questionnaire into Croatian as follows: a) translation into Croatian by two independent translators (nursing faculty and psychology faculty); b) discussion of the translated versions and reaching agreement; c) translation into the original (English) language (English faculty and clinical nurse); and d) comparison of the translated version with the original version (all four people who did the translation)[18]. As a better fit with the Croatian language, two items that were discrete and required a "yes" or "no" response were transferred to the demographic section of the questionnaire prior to data collection. These two questions read, "I am actively pursuing a bachelor's degree (i.e., I am currently attending nursing school)" and "I am actively pursuing an advanced degree (i.e., I am currently attending nursing school)"." The resulting instrument contained 27 items.

Design

This work began with a validated tool for translation and back-translation into Croatian. Then we used psychometric properties evaluation and cross-sectional descriptive comparative study designs to address aims. The aim of the research was to evaluate the psychometric properties of the Croatian translation of the Nursing EBP Survey and to examine the perceptions of Croatian nurses about EBP.

Contribution: The first validated tool for assessing EBP perceptions among Croatian nurses.

Participants

We used a convenience sampling method to capture the perspectives of nurses reflected in who represents those "on hand" [19]. The nurses were invited to participate in and provided a link to the survey through Facebook, a social networking site, with an "Initiative of Nurses" support group. Group members come from all over Croatia and work in various settings and specialties.

Data collection

The online survey was distributed and data collected between May and June 2021. The survey took about 10 minutes to complete. Before completing the survey, respondents were informed about the purpose of the research and had to confirm that they agreed to participate in the research. Data were collected using the validated Nursing EBP Survey[15, 16]. Participants were asked to reflect on their immediate practice environment(s) and then rate their level of agreement with each item. Participation was completely voluntary and anonymous. Approval was obtained from the Ethics Committee of the Faculty of Health Studies in 2021 (No. 2170-15-21-1; classification code: 003-05/21-02/48) before data collection.

Data analysis

After the translation process, we completed a two-step analysis. First, psychometric properties

evaluation of the scale's reliability and validity used exploratory factor analysis (EFA). We selected EFA over principal component analysis (PCA). EFA was preferred over principal component analysis (PCA) because our aim was to identify latent constructs underlying the questionnaire items, rather than simply reducing data dimensionality. Content validity was ensured through expert review and cultural adaptation, while construct validity was evaluated via exploratory factor analysis (EFA). The number of factors was determined based on the results of the Cattell-Scree test using the Guttman-Keiser test (eigenvalues are greater than 1) with a cut point of ³ 0.4 for the factor loadings to retain the items[20, 21]. Demographic data were analyzed using descriptive statistics such as frequencies and percentages. Statistica version 14.0.0.15. (Tibco software Inc.) was utilized to analyze data. Second, we conducted a cross-sectional descriptive comparative analysis to compare differences among groups for each factor, we used the nonparametric Kruskal-Wallis ANOVA test for three age groups and educational levels. The analyses included post-hoc comparisons in each of the two groups. To compare the differences between the two independent groups (i.e., workplace and experience), we used the Mann-Whitney U test. In all analyses, results will be considered statistically significant at $p < 0.05$.

RESULTS

Two hundred and ten participants completed the on-line questionnaire. Since the group includes 11,653 nurses, the response rate was 1.8% of the group members. The mean age was 39 years (range 20 – 61 years). Participants were predominantly female (89%) and worked in hospital (72.3%) (Table 1). Almost a quarter (23.3%) of respondents were simultaneously working and enrolled as part-time undergraduate or graduate nursing students. Educational background was evenly distributed among high school, bachelor's, and master's degrees.

Questions 22 and 24 moved to demographics. Exploratory factor analysis (EFA) led to discarding item 23, but all other questions follow in the original order. The remaining 26 items in the questionnaire loaded into five factors: EBP climate – individual, data collection, EBP climate – team, access to evidence, and appraisal of best evidence (Table 2). Bolded loadings were greater than 0.4. We confirmed that both the entire questionnaire and the five-factor model had

Table 1. Demographic Characteristic

	N	%
Sex		
Male	21	10
Female	187	89
Other	2	1
Level of education		
HS	70	33.3
BSN	69	32.9
MSN	70	33.3
PhD	1	0.5
Workplace		
Hospital (Inpatient)	156	72.3
Other working place (Educ. system, Students, Ambulatory, Kindergarten)	54	27.7
Currently in undergraduate studies		
Yes	30	14.3
No	180	85.7
Currently in graduate studies		
Yes	19	9
No	191	90.1
Total	210	100

N – number of respondents, HS-high school degree, BSN-bachelor's degree, MSN-master's degree, PhD-doctoral degree

Table 2. Exploratory Factor Loading for 26 items: Nursing Evidence-Based Practice Survey (N=210)

Item number	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	EBP Climate-Individual	Data Collection	EBP Climate-Team	Access to Evidence	Appraisal of Best Evidence
1.	0.273	0.270	-0.063	**0.564**	**0.403**
2.	**0.631**	0.090	0.057	0.314	0.394
3.	0.337	-0.017	0.274	0.244	**0.428**
4.	0.169	0.363	0.201	**0.514**	0.309
5.	0.241	**0.431**	-0.041	**0.470**	0.342
6.	**0.697**	0.098	-0.033	0.019	**0.408**
7.	**0.695**	0.152	0.107	0.107	0.261
8.	**0.805**	0.006	0.035	-0.001	0.223
9.	0.226	-0.026	**0.470**	0.297	**0.422**
10.	0.247	0.145	0.084	0.016	**0.838**
11.	0.305	0.158	0.127	0.049	**0.831**
12.	0.203	0.298	0.032	0.155	**0.682**
13.	**0.639**	-0.006	-0.015	-0.020	0.375
14.	0.042	0.111	**0.673**	0.081	0.274
15.	**0.659**	0.138	-0.019	-0.030	0.291
16.	**0.526**	0.004	**0.491**	-0.067	-0.115
17.	-0.120	0.289	**0.668**	-0.131	-0.041
18.	0.082	**0.426**	**0.647**	-0.040	0.111
19.	**0.445**	**0.436**	0.330	0.267	0.172
20.	**0.580**	0.359	0.230	0.279	0.079
21.	**0.439**	0.260	0.282	-0.089	0.101
25.	0.171	**0.501**	**0.534**	0.086	0.125
26.	0.068	**0.887**	0.036	-0.009	0.148
27.	0.035	**0.874**	0.131	0.068	0.123
28.	0.013	**0.872**	0.197	0.008	0.081
29.	0.298	**0.648**	0.081	0.074	0.116

Note: Loadings greater than 0.4 (bolded) were included in the five-factor model. Items 22 and 24 were reassigned to the demographic section, while item 23 was discarded following the EFA.

strong internal consistency with the five-factor model accounted for 61.41% of the total variance.

The Cronbach's alpha for the overall 26-item scale was 0.92, and for the five factors ranged from 0.74 to 0.89 (Table 3).

Nurses with Master's degrees (MSN) scored higher on average on four of the five factors compared to nurses with only a high school or bachelor's degree, except for Factor 3 – EBP Climate – team, which showed similar scores across all education levels (Table 4). Among participants currently enrolled in undergraduate nursing programs, statistically significant differences were found for Factor 1: EBP Climate – Individual ($p = 0.012$) and Factor 5: Appraisal of best evidence ($p = 0.049$). Among participants in graduate nursing programs, a statistically significant difference was observed for Factor 4: Access to evidence ($p = 0.018$). Among younger (20-35 years), middle-aged (36-50 years) and older (over 51 years). there were no statistically significant differences in any factor, factor 1: EBP climate – individual ($p = 0.246$), factor 2: Data collection ($p = 0.309$), factor 3: EBP climate – team ($p = 0.396$), factor 4: Access to evidence ($p = 0.378$) and factor 5: Appraisal of best evidence ($p = 0.237$).

The results showed no statistically significant differences in any factors based on length of service. Similarly, no significant differences were

Table 3. Final Factor Structure

Factor 1. EBP Climate – Individual (α_1=0.879) **Eigenvalues = 34.06% of variance**	**λ**
2. Evidence-based nursing practice is important to me.	0.63
6. A journal club to discuss nursing research findings would be helpful	0.70
7. I seek out evidence-based solutions to patient care problems.	0.70
8. Someone to assist with a literature search and obtain articles would increase use of evidence-based practices.	0.80
13. A bulletin board on my unit to share research articles would be helpful.	0.64
15. I am willing to try out new innovations found to be effective.	0.66
16. In general, staff nurses care about evidence-based practice.	0.53
19. I understand the process for implementing evidence into practice in my organization.	0.44
20. I am aware of effective strategies for implementing practice changes.	0.58
21. I could find one hour per week on the job for evidence-based practice activities if I made it a priority.	0.44
Factor 2. Data Collection (α_2=0.89) **Eigenvalues=11.6% of variance**	**λ**
26. I participate in the collection of data for research studies (i.e., conduct of research, not evidence-based practice projects).	0.89
27. I participate in the collection of data for quality improvement projects.	0.87
28. I participate in the collection of data for evidence-based practice projects.	0.87
29. I am able to develop an evaluation plan to monitor practice improvements made through use of evidence-based nursing.	0.65
Factor 3. EBP Climate – Team (α_3=0.74) **Eigenvalues=6.44% of variance**	**λ**
9. Advance practice nurses (e.g., clinical nurse specialists, nurse educators, etc.) act as mentors for evidence-based practice.	0.47
14. Physicians are cooperative in the implementation of evidence-based practices (e.g., evidence-based policies or procedures).	0.67
17. Nurses have enough time on the job to implement evidence-based practice findings.	0.67
18. Nurse managers I work with promote and implement evidence-based practices in the clinical setting.	0.65
25. I am aware of evidence-based practice projects implemented in my organization.	0.53
Factor 4. Access to Evidence (α_4=0.77) **Eigenvalues=5.26% of variance**	**λ**
1. I am aware of evidence-based practice in general.	0.56
4. I have convenient access to nursing research journals.	0.51
5. I know where to find evidence (e.g., research findings or evidence-based clinical guidelines) to guide my practice.	0.47
Factor 5. Appraisal of Best Evidence (α_5=0.83) **Eigenvalues=4.05% of variance**	**λ**
3. I am aware of nursing research related to my clinical area because of discussions with colleagues.	0.43
10. I can read a nursing research report and have a general notion about its strengths and weaknesses.	0.84
11. I can read a nursing research report and make a sound judgment about its scientific merit.	0.83
12. I am able to critique "synthesis" reports or technology assessments (e.g., systematic reviews) for a general understanding of their strengths and weaknesses.	0.68

Note: For each factor, the questions from the Nursing EPB Survey are listed in order, along with the eigenvalues of variance and Cronbach's alpha (α), as well as the factor loadings (λ) for each individual question.

Table 4. Differences-Education degree

Factors and Total score N=210 M_e (Q_1-Q_3)	Highschool degree N_{HS} = 70 M_e (Q_1-Q_3)	BsN N_{BSN} = 69 M_e (Q_1-Q_3)	MsN N_{MSN} = 70 M_e (Q_1-Q_3)	p value
Factor 1 EBP Climate – Individual **3.9 (3.50-4.30)**	3.70 (3.20-4.10)	3.90 (3.50-4.20)	4.20 (3.80-4.50)	0.001
Factor 2 Data Collection **3.0 (2.00-4.00)**	3.00 (2.00-3.75)	3.00 (1.75-3.75)	3.50 (2.75-4.75)	0.000
Factor 3 EBP Climate – Team **3.0 (2.40-3.40)**	3.00 (2.40-3.20)	3.00 (2.40-3.40)	3.00 (2.60-3.60)	0.882
Factor 4 Access to Evidence **3.5 (3.00-4.00)**	3.25 (2.75-3.75)	3.50 (3.00-4.00)	3.88 (3.50-4.25)	0.000
Factor 5 Appraisal of Best Evidence **4.0 (3.50-4.50)**	3.75 (3.25-4.00)	4.00 (3.50-4.25)	4.50 (4.00-5.00)	0.000

N-Number of respondents, M_e-Median, Q_1-Q_3-Quartile

found between participants working in hospitals and those working in other workplaces (e.g., education, nurseries, social services).

DISCUSSION

The Nursing EBP Survey is shown to be a strong tool that provides a mechanism for obtaining important input from frontline nurses when planning activities that promote provision of EBP. Translation and validation for use with Croatian nurses were required. The 26- item questionnaire loaded into five factors: EBP climate – individual, data collection, EBP climate – team, access to evidence, and appraisal of best evidence (Table 2 and 3). The five factors identified are core concepts in the EBP process[7, 22, 23]. These results in combination with a study in a U.S. sample[15, 24] show a powerful instrument that is valuable for measuring specific EBP-related concepts.

These results show that the Nursing EBP Survey has good psychometric properties with good validity and internal consistency. Our analysis revealed five factors, consisting of 26 items, which demonstrate the acceptability, reliability and validity of the questionnaire and overall reliability with a $\alpha = 0.92$. However, the study by Crawford et al. 2020 using the Nursing EBP Survey resulted in only 15 items. The deleted items can still provide valuable information about the specifics of EBP. Just as in the US study, our results are consistent with the five general steps established for the EBP process[7].

Educational preparation and current enrollment in academic education were found to impact results, as nurses with a graduate degree (MsN) differ significantly from nurses with a bachelor's degree (BsN) and nurses with a high school diploma. The difference was found in all factors except factor 3: EBP climate – team (Table 4). It can be interpreted that nurses with a college degree are most likely to use EBP, have significantly more support for implementation and feel that they can access and read articles critically (i.e., Factors 4: Access to evidence and 5: Appraisal of best evidence, Table 2). Most research similarly shows that educational preparation is impactful[12, 25]. This expected difference indicates EBP knowledge, beliefs, and skills is impacted by preparation at the master's and doctoral levels in our study and in previous research[15, 26]. The analysis of the five factors also allows for a more detailed understanding of how each factor relates to facilitators and barriers in the Croatian context. For example, while individual climate and access to evidence are generally positive, team climate shows lower scores, indicating organizational and team-level barriers to EBP implementation. Further exploration of these factors provides

practical insights into areas requiring targeted interventions.

Factors with statistical significance varied when comparing current enrollment in nursing schools and which program of study the nurse was attending (Table 4). Respondents with up to 20 years of work experience also have a low score on Factor 1: EBP Climate – Individual. The reason for this discrepancy can be found in the well-established barriers to EBP[14, 27, 28]. However, these barriers may be less well established when comparing nurses working in different clinical settings. We found no statistically significant difference in any of the factors between the working in hospitals and those working in other settings. There is lack of consensus in comparative studies representing nurses in outpatient and community settings[15, 27]. These findings add to our understanding and indicate more explorative research is warranted.

The aim of the research was to evaluate the psychometric properties of the Croatian translation of the Nursing EBP Survey and to examine the perceptions of Croatian nurses about EBP. We showed that the Croatian version of the Nurse EBP Survey is a valid and reliable instrument to assess nurses' perceptions of EBP and capacity in their organization.

There are no statistically significant differences in terms of age distribution or work experience in this study. Comparative studies show mixed results, with some studies finding no relationship between nurses' age and EBP attitudes[17] or contrarily finding age as a significant predictor of EBP competence[29, 30], while others suggest that younger nurses with fewer years in practice showed more positive responses to EBP. A low score on factor 3: EBP climate – team, indicates barriers described in previous studies such as lack of time, busy workload, lack of staff, organizational support, and supervisor support[31, 32]. A study conducted by Warren et al. (2016) found nurses reported knowing how to access resources, yet few reported performing this activity. Nurses report a lack of confidence and skills to implement EBP[11, 32]. Saunders & Vehviläinen-Julkunen's (2016) also found a lack of autonomy, authority and support from their supervisors, peers and other colleagues to change practices. Given the current atmosphere in the Croatian healthcare system and the very large shortage of nurses, this result is not surprising. These findings highlight the importance of ongoing education and professional development, which are essential for strengthening EBP competencies among Croatian nurses. Additionally, implementing longitudinal follow-up studies could provide deeper insights into how EBP practices evolve over time and identify factors that support sustained improvements.

It is also evident that systemic barriers, including limited resources and lack of team support, significantly hinder EBP implementation, indicating a need for strategic interventions and organizational reforms in healthcare institutions.

Clinical Relevance

Nurses globally have an opportunity to develop the knowledge, attitudes, and skills needed to provide EBP. Academic preparation and academic-practice partnerships can support nurses' professional development and skill building to bring to the practice setting and grow the EBP capacity to improve patient outcomes. A systematic approach is needed and can begin with assessment using a valid EBP instrument, such as the Nursing EBP Survey. Based on the obtained results and the repeated research that we plan to conduct on a larger sample, we plan to design educational programs in Croatia that will enable the implementation of EBP in nursing clinical practice.

Limitation

Although the results of the study show that the questionnaire is suitable for use among nurses in Croatia, limitations must be taken into account. A direct comparison is difficult when using relatively small and contextually very different samples and analytical approaches with a translated version of the instrument. It is recommended that further research be conducted with a larger sample and samples representing wider and more international perspectives.

Next on the agenda is updating the accreditation standards for academic preparation that pro-

motes the necessary skills in nursing graduates at all levels of academic preparation[33, 34, 35]. Several steps are needed to achieve capacity building for EBP among frontline nurses and nurse leaders in Croatia, including funding for faculty development from federal and European Union sources, as well as standards that incentivize EBP in clinical settings and leadership development[36–38].

CONCLUSION

To our knowledge, this manuscript is the first EBP survey to be translated into Croatian. Using EFA, we found that 26 items from the Nursing EBP Survey yielded five factors. We showed that the Croatian version of the Nurse EBP Survey is a valid and reliable instrument to assess nurses' perceptions of EBP and capacity in their organization. The factor loading on five key concepts show a need to grow expertise in the EBP process and implementation leadership impacting nursing practice and building organizational capacity for EBP.

Croatian nurses have a significant opportunity to apply EBP in practice. Results find that level of education has a significant impact on almost all aspects of EBP. Through university led curricula updates and EU standards, Croatia is investing in academic preparation for nurses, as an important step for the national health system[39, 5]. What remains is the question of concrete application in practice, where EBP experts would play a key role. It is obvious that the biggest gap is in education. Being able to capture nurses' perspective of EBP concepts is also foundational to move nursing forward targeting their needs and grow the impact on quality and safety. Our goal is to use these findings as a guide when creating a culture of EBP that improves patient safety and quality of care in Croatia.

Conflicts of Interest: Authors declare no conflicts of interest.

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