

# Knowledge, Behaviors, and Attitudes of Polish Nurses As Compared With Evidence-Based Practice in Relation to the Guidelines of the European Resuscitation Council

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## Abstract

**Background:** The emphasis on Evidence-Based Practice (EBP) is taking on new importance as the profession of nursing strives to meet the challenge of defining the direction of health care, promoting optimal outcomes, and ensuring patient safety. Therefore, Evidence-Based Practice has never been more important to nursing than in the current health-care environment.

**Objective:** The study was designed to assess the knowledge, behaviors, and attitudes of nurses as compared with Evidence-Based Practice in relation to the Guidelines of the European Resuscitation Council.

**Methods:** The study covered involved a total of 236 nurses who participated in a cardiopulmonary resuscitation course over a period of 12 months. The nurses who qualified for the study followed a complete study registration procedure.

**Results:** The current findings show that the lowest score was achieved in the domain of attitude toward selected Evidence-Based Practice aspects in professional work. Detailed domain questions concerned nurses' Evidence-Based Practice and its limitations related to procedures, the lack of equipment and personnel issues, as well as the lack of scientific evidence. Furthermore, nurses saw clinical experience as being more valuable than research findings for practical decision-making than research findings, and, according to the respondents, they presented opinions that the best way to assess the effectiveness of an action was through clinical experience. In addition, the nurses gave low scores and tended to underestimate the critical literature review aspect within the domain, along with its significance for the general professional practice, believing that search for scientific evidence alone does not apply into their professional work.

**Conclusions:** The validated Polish version of the Evidence-Based Practice profile questionnaire is a reliable instrument. The study demonstrates that nurses are facing a multitude of limitations due to procedures, the lack of equipment, and personnel issues. Currently perceived as very poor, the ability to make critical assessments and synthesize evidence should be improved. According to the nurses, clinical experience cannot be the only and the best way to assess the effectiveness of a given measure.

## Keywords

health knowledge, attitudes, practice, Evidence-Based Practice, patient safety

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## Introduction

Evidence-Based Practice (EBP) is defined as the integration of best research evidence, clinical expertise, and patient values in a specific care context.<sup>1</sup> It is assumed

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that this practice provides patients with the best care based on the latest research (most reliable scientific evidence).<sup>1,2</sup> EBP principles, when followed by nurses, are believed to improve the quality of patient care, aid their professional development, and help them to accept responsibility for decisions made.<sup>3</sup> Furthermore, the application of EBP is likely to reduce costs of medical care by eliminating ineffective and risky medical procedures.<sup>4</sup> Nurses and midwives in Poland are both entitled and required to update their professional knowledge and skills at each stage of their postgraduate education. The legal basis for this is the Nursing and Midwifery Professions Act of 15 July 2011 (Journal of Laws of 2016, item 1251), which defines the following types of postgraduate education: specialty training, also known as specialization, as well as qualification course, specialist course, and refresher course.<sup>5</sup> To make decisions according to the EBP paradigm, nurses must have the skills and specialist knowledge to perform critical analysis of the available scientific evidence.<sup>6</sup> The main obstacles to this include the inadequate EBP competences of the nursing staff.<sup>7</sup> Therefore, additional training in the ways to search for and assess the available scientific research, and how to use the evidence in practice is necessary at all stages of nursing education. Accordingly, both tertiary vocational programs and postgraduate courses should train nurses in research methodology and teach them the skills required to use EBP at work.<sup>8,9</sup> The 5 steps of EBP training—ask, acquire, appraise, apply, and analyze/adjust—are seen as the key skills required for professional decision-making, which should be developed through lifelong learning.<sup>10</sup> It is a challenge to assess EBP competence, involving all the 5 EBP steps, with only 1 instrument.<sup>11,12</sup> Self-reported assessment of competences in EBP may result in respondents' overestimation of their actual competence,<sup>13</sup> and the most common way to measure EBP learning has been to evaluate attitudes and self-efficacy with self-report instruments.<sup>11</sup> According to the CREATE framework (classification rubric for EBP assessment tools in education), actual EBP knowledge, skills, and behaviors need to be assessed through cognitive testing, performance assessment, and activity monitoring.<sup>11</sup> Hence, the limitations of the EBP profile (EBP2) tool should ideally be triangulated with additional information gained from instruments assessing actual knowledge and skills. The aim of this study was to measure EBP knowledge, behaviors, and attitudes among nurses in relation to European Resuscitation Council (ERC) guidelines.

## Method

### Design

A cross-sectional survey design was employed.

### Study Settings

The cross-sectional survey was administered to participants of a course in *Cardiopulmonary resuscitation for nurses and midwives*. The program of the course was approved by the Minister of Health on August 31, 2017.<sup>14</sup>

### Ethical Consideration

The study involved no risks for human life and health and was approved by a Bioethics Committee (Approval No. 5/9/2017).

### Participants

The survey was carried out between January 2 and December 31, 2017 during a specialist course in cardiopulmonary resuscitation (CPR). The study was designed to involve a group of 325 individuals who applied for and participated in the course. The survey was completed by 276 individuals, accounting for 84.9% of the initial sample. At this stage, 40 surveys were rejected (14.5% out of  $N=276$ ) due to formal reasons, that is, surveys filled in incorrectly or illegibly, or lack of responses. Ultimately, the analyses took into account data from 236 subjects, accounting for 72.6% of the initial sample. With this size of the sample, maximum error of the estimate amounts to 3%. The nurses received information about the study from the main researcher, via e-mail sent to the addresses given in the application forms, and gave their consent to participate. Another invitation was made orally on the day of the course. Then, those willing to participate were informed about the aim of the study; they were also told where to get the questionnaires and shown a designated box in which they were to deposit the completed questionnaires before the start of the course. Registered nurses (RNs) were eligible to participate. Participation in the study was voluntary and confidentiality was guaranteed. The respondents were advised that the collected data would be used for research purposes only.

### Data Collection

Implementation of educational solutions which meet the individual needs of each specific group necessitates competence assessment using standardized questionnaires.<sup>11</sup>

The EBP2 questionnaire is a tool that assesses EBP knowledge, attitudes, and behaviors among health-care students.<sup>15</sup> It was developed in Australia by McEvoy et al.<sup>15</sup> and validated for students and health-care professionals in various health-care disciplines. The EBP2 is a self-report instrument with satisfying measurement properties. It is the only identified tool designed to assess the principal factors related to EBP and the

5 steps of EBP, which is suitable for measuring EBP across health professions. The EBP2 takes 10 to 12 minutes to complete and consists of a total of 58 items, each rated on a 5-point Likert scale. The questionnaire includes 5 domains (Relevance, Terminology, Confidence, Practice, and Sympathy).<sup>15</sup> In the Polish version, validated by Panczyk et al., Cronbach's alpha ranged from .800 to .972.<sup>16</sup>

### Statistical Analysis

The analysis was conducted using the Polish version of the Statistica 13 package. The answers to individual questions were rated on a scale from 1 to 5. Next, the results for 6 subscales were calculated as described in the Polish version of the EBP questionnaire. Variables from each subscale were described by the mean, median and standard deviation, and their distributions were determined. For all analyses, a *P* value of <.05 was considered statistically significant.

### Results

A total of 236 nurses, participating in a CPR training course, were involved in the study. Items concerning sociodemographic variables were excluded from the questionnaire to ensure full anonymity, gender being the only independent variable retrieved from the course provider's entry forms.

The analysis was conducted for each of the 6 EBP domains. In the domain *Attitude towards expanding one's own competence in Evidence-Based Practice*, the mean score was  $50.50 \pm 9.01$ , with a median of 50. Possible score: minimum (min.) 26, maximum (max.) 70. In the domain *Attitude towards selected aspects of Evidence-Based Practice in professional work*, the mean was  $20 \pm 3.77$  with a median of 20. Possible score: min. 11, max. 31 out of 35. This was the only domain in which the maximum number of answers was not achieved. In the domain *Level of knowledge of the terminology related to scientific research*, the mean was  $45.66 \pm 14.91$  with a median of 47. Possible score: min. 17, max. 85.

In the domain *Frequency of use of individual elements of Evidence-Based Practice in daily clinical work*, the mean was  $21.92 \pm 8.90$  with a median of 21. Possible score: min. 9, max. 45. In the domain *Skills related to Evidence-Based Practice in everyday clinical practice*, the mean was  $37.19 \pm 7.06$  with a median of 38. Possible score: min. 11, max. 55. In the domain *Other aspects of Evidence-Based Practice*, the mean was  $54.73 \pm 7.97$  with a median of 54. Possible score: min. 25, max. 80 (Table 1).

The measurement showed the highest variable strength in the domains *Attitude towards expanding one's own competence in Evidence-Based Practice*; *The*

*level of knowledge of the terminology related to scientific research*; and *Other aspects of Evidence-Based Practice*. The lowest variable strength was found in the domains *Attitude towards selected aspects of Evidence-Based Practice in professional work*; *Frequency of use of individual elements of Evidence-Based Practice in daily clinical work*; and *Skills related to Evidence-Based Practice in everyday clinical practice* (Figure 1).

The present findings show that the lowest score was achieved in the domain of attitude toward selected EBP aspects in professional work. Detailed domain questions concerning nurses' EBP practice and its limitations were related to procedures, lack of equipment, and personnel issues, as well as lack of scientific evidence. Furthermore, the nurses perceived clinical experience to be more valuable for actual decision-making than research findings, and the respondents believed the best way to assess the effectiveness of an action was through clinical experience. In addition, the nurses tended to underestimate the critical literature review aspect within the domain along with its significance for the general professional practice, believing that search for scientific evidence alone does not apply to their professional work.

### Discussion

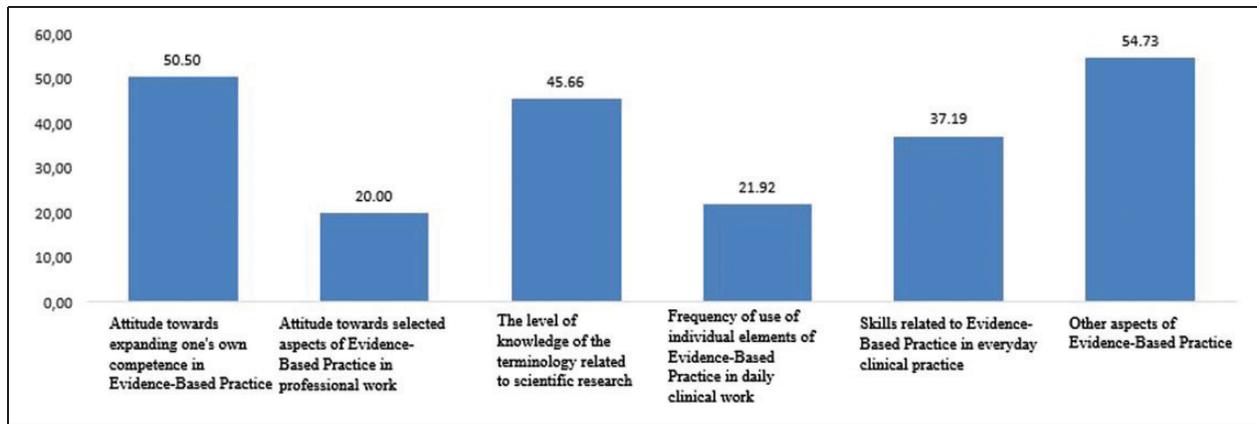
This is the first study to assess the knowledge, behaviors, and attitudes of nurses toward EBP, in relation to the Polish translation of ERC guidelines by the Polish Resuscitation Council, Krakow 2015.<sup>17</sup> The validation undertaken by Panczyk et al. involved a group of respondents comprising 3 subgroups: (1) nurses and midwives taking specialty exams organized by the Center of Postgraduate Education for Nurses and Midwives during the spring term of 2014; (2) second-cycle nursing and midwifery students; and (3) RNs. However, the study also included analysis of reliability, theoretical validity, and discriminative validity, as well as an assessment of unidimensionality of domains.

The reconstructive accuracy analysis performed in order to assess the reliability of the EBP2 scale confirmed its high psychometric quality. The reliability of the scale and its respective subscales measured with Cronbach's alpha turned out to be very high. The results obtained by the Panczyk et al.<sup>16</sup> correspond to those acquired in the validation of the English version of EBP2. As far as the psychometric accuracy is concerned, McEvoy et al.,<sup>15</sup> in their assessment of the internal consistency of EBP2 questionnaire, reported a Cronbach's alpha value similar to that obtained in the study by Panczyk et al. To assess the reliability of EBP2 questionnaire, McEvoy et al.<sup>15</sup> estimated the absolute stability of the scale using a test-retest method. The initial test results were compared with the retest scores. The related literature describes 2 complete language versions of the

**Table 1.** Characteristics of Descriptive Statistics for Particular Subscales of the EBP Questionnaire in the Relevant Group of Nurses.

Domain	Item numbers	Description	N	M	95% CI	Me	Min	Max	Q <sub>1</sub>	Q <sub>3</sub>	IQR	SD
I. Relevance	1–14 (14 items)	Attitude toward expanding one's own competence in Evidence-Based Practice, on a scale from 1 to 5 (1—not at all true; 5—very true)	236	50.50	49.34–51.66	50	26	70	44	57	13	9.01
II. Sympathy	15–21 (7 items)	Attitude toward selected aspects of Evidence-Based Practice in professional work, assessed by respondents on a scale from 1 to 5 (1—strongly disagree; 5—strongly agree)	236	20.00	19.52–20.49	20	11	31	18	22	4	3.77
III. Terminology	22–38 (17 items)	The level of knowledge of the terminology related to scientific research; specific terms and issues were rated on a scale from 1 to 5 (1—I never heard the term; 5—I understand the term and could explain it to others)	236	45.66	43.75–47.57	47	17	85	36	55	19	14.91
IV. Practice	39–47 (9 items)	Frequency of use of individual elements of Evidence-Based Practice in daily clinical work, assessed on a scale from 1 to 5 (1—never; 5—daily)	236	21.92	20.78–23.06	21	9	45	15	28	13	8.90
V. Confidence	48–58 (11 items)	Confidence in skills related to Evidence-Based Practice rated on a scale from 1 to 5 (1—not at all confident; 5—very confident)	236	37.19	36.29–38.10	38	11	55	33	42	9	7.06
VI. Non-domain items	59–74 (16 items)	Other aspects of Evidence-Based Practice, expressed on a scale from 1 to 5 (1—strongly disagree; 5—strongly agree)	236	54.73	53.71–55.75	54	25	80	50	59	9	7.97

Abbreviations: N, number; M, mean; CI, confidence interval; Me, median; Min, minimum value; Max, maximum value; Q<sub>1</sub>, lower quartile; Q<sub>3</sub>, upper quartile; IQR, interquartile range; SD, standard deviation.



**Figure 1.** Comparison of Measurement Strength in Individual EBP Domains Within the Studied Group.

tool (Polish and English), confirming its satisfactory validation quality. In Canadian and Norwegian research, only the terminology domain (17 items) was selected to evaluate knowledge related to the understanding of common research terms.

In the first domain, that is, attitude toward expanding one's own competence in EBP, this study confirmed the participants' intention to improve their competence and it pointed to the key significance of EBP in decision-making. Attitudes are considered to be difficult to learn<sup>10</sup> and they depend on a number of factors, such as work culture, environment, and profession. In this domain, mean values were lower than those presented in the study by McEvoy et al.<sup>18</sup>

The next domain investigated was connected with the participants' attitudes toward selected aspects of EBP. The analysis covered the aspect of using EBP in daily work while taking into consideration patients' preferences. Other analyzed aspects included clinical experience as the main factor helpful in assessing the effectiveness of specific actions as well as the impact of scientific literature review and its application in practice. In this study, the results in this domain were low. McEvoy et al. obtained slightly higher scores in their first and second studies, repeated after a year.<sup>18</sup> The findings suggest that the environment of the participants did not contribute to the continuous development of EBP skills. Furthermore, some practitioners with whom they worked could also differ in terms of their empathy and support for EBP.

Assessment of the participants' knowledge of the terminology related to scientific research checked, for example, their understanding of 17 terms, such as "CL—confidence interval," "OR—odds ratio," and "systematic review." The current study showed a very poor understanding of the terminology required in EBP. The study by Snibsoer et al. demonstrated that the level of EBP-related knowledge increased in the

years directly following graduation and was related to job seniority.<sup>19</sup>

Snibsoer et al. found a generally low correlation between self-assessed and objectively evaluated knowledge of EBP-related terminology in health-care students. There were no differences in the students' ability to understand the terminology relative to their high or low exposure to EBP. However, the self-reported knowledge, in average terms, was better in the case of students with high exposure to EBP compared to those with low EBP exposure.<sup>19</sup> Knowledge is an EBP characteristic which, as demonstrated, improves along with EBP training, and it may show similarity to clinical skills, with the increase resulting from higher activity level in the years immediately following graduation.

Items in the domain referring to the frequency of use of individual elements of EBP in daily clinical work required the participants to report how often they formulated accurate clinical questions regarding the patient, the problem, the adopted measures, and their results. Other aspects assessed in this domain included getting access to and evaluation of evidence as well as its integration with specialized knowledge and patient preferences in decision-making and sharing the results with others in their workplace and their professional group. The scores were considerably lower in comparison to other studies.<sup>10,18</sup> The findings of this study are alarming, indicating that the nurses did not show direct involvement or ability to combine EBP and clinical practice during CPR procedures.

Confidence in one's skills related to EBP included factors such as the formulation of research questions, access to scientific resources and databases, evaluation, application of EBP, and technical (computer) skills. The ability to assess the clinical usability of the obtained materials seems crucial. In this domain, the mean in this study was also considerably lower in comparison to the values reported by McEvoy et al.<sup>18</sup>

This study included a sixth domain, that is, other aspects of EBP. While filling in the questionnaire, the participants could identify various opportunities for using their EBP skills in their professional work. This is linked with a need for supporting on-the-job training. Since health-care professionals are more and more often expected to use evidence from other sources to improve health-care outcomes, there is a growing need for educational programs aimed at increasing the knowledge and skills of students in the EBP process and those related to research methodology. The knowledge of EBP terminology and research methodology is a prerequisite for understanding the concept of EBP as well as for a critical assessment of research evidence and integration and use of evidence in clinical practice, with a major impact on patient safety.<sup>19</sup>

In the context of EBP, all the recommendations and guidelines, including ERC guidelines, are a collection of most recent evidence available. EBP should be a standard in all nursing specialties, including emergency and intensive care nursing. Nursing procedures applied in practice should be based on evidence, critical thinking, and self-reflection. It is unacceptable to deliberately continue adhering to tradition-based practice whenever evidence shows that it is not effective or safe. Being of essence to the nursing profession, occupational education should be customized, well-planned, practical and, above all, should involve lifelong learning,<sup>20</sup> which Polish nurses and education providers often seem to forget. Furthermore, according to ERC guidelines, high-quality knowledge as well as effective education of laypersons and health-care professionals are of key importance for improving survival rates.<sup>17</sup> Importantly, effectiveness of teaching also depends on the awareness that continuous professional self-improvement is essential.<sup>17</sup> Research largely suggests that CPR skills are lost within 3 to 6 months after the first training course. Hence, training frequency should be increased to consolidate and improve these skills, as well as to bolster confidence and motivation to perform CPR. It is also important for nurse training to teach nontechnical skills, as these play a vital role as well.<sup>17</sup>

## Conclusions

The EBP2 questionnaire, the validated Polish version, is a reliable instrument. The study has shown that nurses face a multitude of limitations due to procedures, the lack of equipment, and personnel matters. Currently perceived as very poor, the ability to make critical assessments and synthesize evidence should be improved. According to the nurses, clinical experience cannot be the only and the best way to assess the effectiveness of a given measure.

## Limitations

There are limitations to this study. The health-care professionals taken into account came from south-east Poland (Podkarpackie Region). The study sample represents a population of nurses from one region and is limited to participants in a specialist course. The study findings can only be generalized to a limited extent.

## Author Contributions

DO and MJ-C conceived and designed the study. DO, KW, EN, and MJ-C developed the study protocol. DO designed and tested the study instruments. DO and WM-D supervised data collection. DO analyzed the data. DO, ED, MJ-C, KW, and WM-D prepared and approved the manuscript.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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