

THE KNOWLEDGE OF, AND ATTITUDES TOWARDS, EVIDENCE-BASED PROFESSIONAL PRACTICE AMONG NURSES

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Authors' contribution:

A. Study design/planning • B. Data collection/entry • C. Data analysis/statistics • D. Data interpretation • E. Preparation of manuscript • F. Literature analysis/search • G. Funds collection

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SUBMITTED: 13.02.2020
 ACCEPTED: 16.03.2020
 DOI: <https://doi.org/10.5114/ppiel.2020.96093>

ABSTRACT

Introduction: Meeting the highest standards of nursing care requires high professionalism and thus continuous education, as well as the use of scientific evidence in everyday professional practice. Currently, it is believed that the process of education and training of nursing staff has a significant impact on the subsequent use of scientific evidence in professional practice.

Aim of the study: The purpose of the research undertaken was to analyse the knowledge and skills of nursing staff related to the use of scientific evidence in everyday professional practice.

Material and methods: The study was carried out among nurses working in Westpomeranian Province, and full-time and part-time students in their second year of a second degree in nursing at the Pomeranian Medical University in Szczecin. The study was conducted by means of a diagnostic survey using the Polish language version (v.1.0) Evidence-Based Practice Profile (EBP2) Questionnaire.

Results: The education of professionally active nurses influences aspects related to evidence-based practice (EBP). The highest score in four subscales: knowledge and attitudes towards EBP, application of EBP in professional practice, knowledge of EBP concepts, frequency of using individual elements of EBP, was observed in the group with a bachelor's degree, while the lowest was seen in the group with secondary medical education.

Conclusions: The level of education of the studied group has a positive effect on knowledge and the basis for EBP and knowledge of the concepts related to EBP. The respondents taking part in the chosen form of postgraduate education in the previous year showed greater knowledge about EBP and a positive attitude towards extending their own competences in the field of EBP.

Key words: evidence-based nursing practice, nursing, nursing research.

INTRODUCTION

Evidence-based nursing practice (EBNP) involves the collection, interpretation, evaluation, and integration of clinically significant and applicable research with regard to patients' individual needs [1, 2]. The term EBNP is derived from evidence-based medicine (EBM), which is an approach to medical practice aiming at the optimisation of the decision-making process through using scientific evidence coming from well-designed and correctly performed studies [3, 4].

Scientific research is a systematic process that utilises methodology to answer questions or to solve research problems. The purpose of scientific research is to improve and expand knowledge. Scientific research in nursing relies heavily on the premises of medical science. A medical model dominated

in the development of nursing for a relatively long time; however, it has been extended by the knowledge of humanities (including psychology, pedagogy, and sociology) due to the professionalisation of nursing [3].

Gotlib *et al.*, in their literature review, proved the importance of the use of the current scientific research results in daily medical practice. This is necessary to effectively ensure safety and the highest patient care standards [5]. The use of evidence-based nursing (EBN) in nursing rests on the following aspects: independent thinking, curiosity, asking questions, imitation models of conduct in patient care, and shaping the professional environment for EBNP [6]. Students of nursing learn the necessary skills and competences on new practice "scientific evidence-based nursing". This subject introduces principles of "evidence-based medicine" and "evidence-based

nursing practice” and also prepares the students to use scientific literature, scientific databases, and other information from international nursing organisations or associations [7].

Both the International Council of Nurses (ICN) and scientific societies embracing representatives of this professional group emphasise the role of scientific research in the development of nursing. Reliable scientific research is regarded as a precondition for professional nursing performance [8]. The stand of the ICN is that scientific research is necessary to develop and update the knowledge base, to implement nursing practice, and to obtain evidence that gives scope for a better understanding of the nature of nursing practice [9].

Evidence-based nursing practice is the process of care, in which patients and their preferences and actions, clinical environment, and measures available to it, as well as current and applicable scientific evidence, are taken into account and combined together owing to the clinical knowledge and training of healthcare workers. Nurses are experts in a narrow field, and the care they provide is tailored to fit the needs of particular patients and the capacity of the clinical environment [10]. All clinical decisions are compared with the best available medical knowledge. Note, however, that the ultimate decision and choice are made by the patient [2]. All clinical decisions and care should be safe for both the patient and the nurse and should be performed in accordance with current medical knowledge and so-called external evidence, with the patient’s active participation [11].

AIM OF THE STUDY

The purpose of the research undertaken was to analyse the knowledge and skills of nursing staff related to the use of scientific evidence in everyday professional practice with regard to education, and work-related variables, such as years worked, type of ward, and postgraduate education.

MATERIAL AND METHODS

The study involved 108 nurses working in West-pomeranian Province. The participants were selected using a stratified random sampling method from a group of voluntary nurses who met the criteria of the study. The inclusion criteria were as follows: current employment as a nurse, and consent to take part in the study. The study was conducted in accordance with the Declaration of Helsinki. Each respondent was informed about the purpose of the study and that the results will be used for scientific purposes. Participation in the study was voluntary and anonymous. The project was approved by the Bioethics Committee of the Pomeranian Medical University in Szczecin.

The study was based on a survey performed using a standardised questionnaire – the Polish-language version (v. 1.0) Evidence-Based Practice Profile (EBP2) (Table 1). Developed in Australia, the original Evidence-Based Practice Profile Questionnaire (EBP2 Q) is a structured and standardised diagnostic tool for measuring evidence-based practice (EBP)-related knowledge, attitudes, and skills [12]. The Polish-language version was developed by the team of research fellows of the Department of Didactics and Effects of Education, Medical University of Warsaw. The EBP2 questionnaire consists of 58 statements rated on a five-point Likert scale, which are divided into five domains. Where necessary, the EBP2 questionnaire can be supplemented with additional questions to obtain sociodemographic data. The questionnaire also includes 16 items that are not assigned to any of the five domains during the process of validation [13].

Statistical analysis of the collected material was performed using Statistica v. 12. The relationships between selected sociodemographic data and variables of the workplace (department, seniority) were assessed by two tests: ANOVA Kruskal-Wallis rank test, and the Mann-Whitney *U* test. Correlations between quantitative variables were analysed using the Pearson correlation coefficient. Statistical significance was set as $p < 0.05$.

Table 1. The structure of the EBP2 questionnaire with its subscales and included statements

Subscale	Item	Description
I	1-14 (14)	Attitudes towards improving competence in EBP were rated on a 1-5 scale
II	15-21 (7)	Attitudes towards selected aspects of EBP in professional work were rated by the respondents on a 1-5 scale
III	22-38 (17)	The knowledge of scientific research terminology; the given terms and issues were rated on a 1-5 scale
IV	39-47 (9)	The frequency of using particular EBP elements in everyday clinical work was rated on a 1-5 scale
V	48-58 (11)	EBP skills were rated on a 1-5 scale
VI	59-74 (16)	Other EBP aspects were rated on a 1-5 scale
VII	–	Selected sociodemographic data

Source: [11]; EBP – evidence-based practice

RESULTS

Analysis demonstrated that 84% of the respondents ($n = 91$) were women, 41% worked at conservative wards, 70% had a bachelor's degree, 69% did not have a specialisation, and 52% took part in postgraduate training, such as specialisation courses, specialised courses, qualification courses, and training courses. The participants attended mainly qualification courses (22%) and training courses (19%).

We assessed the impact of education on particular elements of EBP and found statistically significant differences in four subscales. In all cases, the highest scores were attained in the group of nurses with a bachelor's degree, and the lowest in those with secondary medical education. The strongest effect associated with the impact of education was observed for the subscale 'the frequency of using particular elements of EBP' ($d_{\text{Cohen}} = 0.670$) and for total EBP2 Q scores ($d_{\text{Cohen}} = 0.665$), and it was a medium-sized effect (Table 2).

We also analysed the effect of selected work-related variables (years worked, type of ward, participation in postgraduate education) on particular EBP elements. There was a statistically significant nega-

tive correlation between years worked and the scores obtained by the nurses for two EBP subscales: 'the knowledge of EBP terminology' and 'the frequency of using particular elements of EBP'. It was also observed that the more years worked, the lower the total EBP2 Q scores (Table 3).

Analysis of the influence of the workplace (type of a ward) on particular elements of EBP demonstrated statistically significant differences in the subscale of 'the frequency of using particular elements of EBP' ($p = 0.013$, $d = 0.563$). Dunn's *post hoc* test revealed that nurses working in intensive care units (ICU) used particular elements of EBP at work significantly less often than nurses from conservative (Mdn: 15.0 vs. 17.5, $z = 2.516$, $p = 0.036$) and surgical wards (Mdn: 15.0 vs. 18.0, $z = 2.716$, $p = 0.020$) (Table 4).

There were statistically significant differences in two subscales depending on nurses' participation in training courses during the previous year. Participants of such courses scored significantly lower on the subscales of 'the knowledge of EBP terminology' ($d_{\text{Cohen}} = 0.551$) and 'the level of EBP skills' ($d_{\text{Cohen}} = 0.386$). Nurses who did not take part in training courses in the previous year had lower total EBP2 Q scores ($d_{\text{Cohen}} = 0.481$) (Table 5).

Table 2. The effect of education on particular elements of evidence-based practice (EBP)

Subscales	Secondary ($n = 14$)		Bachelor ($n = 76$)		Master ($n = 15$)		H	p^*	Effect size**
	Me	IQR	Me	IQR	Me	IQR			
Knowledge of, and attitudes towards, EBP	12	1	15	4	14	3	9.1	0.01	0.548
Attitudes towards improving competence in EBP	12	2	12.5	4.5	13	5	2.5	0.29	–
The use of EBP in professional practice	38.5	3	41.5	9	39	4	7	0.03	0.457
The knowledge of EBP terminology	24.5	8	38	24.5	31	13	9.4	0.01	0.556
The frequency of using particular elements of EBP	11.5	7	18	9	17	5	12.3	0.002	0.670
The level of EBP skills	34	4	37	8	34	8	4.3	0.12	–
Predisposition and barriers to using EBP	53	3	52.5	8	54	5	1.2	0.55	–
Total	186.5	20	214	44	197	37	12.2	0.002	0.665

Me – median, IQR – interquartile range, *ANOVA Kruskal-Wallis rank test, **Cohen's d coefficient

Table 3. The impact of years worked on particular elements of evidence-based practice (EBP)

Subscales	rho-Spearman	t	p
Knowledge of, and attitudes towards, EBP	–0.03	–0.300	0.765
Attitudes towards improving competence in EBP	–0.16	–1.692	0.094
The use of EBP in professional practice	–0.14	–1.489	0.139
The knowledge of EBP terminology	–0.24	–2.601	0.011
The frequency of using particular elements of EBP	–0.28	–2.974	0.004
The level of EBP skills	–0.10	–0.990	0.324
Predisposition and barriers to using EBP	–0.05	–0.506	0.614
Total	–0.26	–2.755	0.007

Table 4. The effect of the workplace (type of ward) on particular elements of evidence-based practice (EBP)

Subscales	Ward						H	p*	Effect size**
	Conservative (n = 44)		Surgical (n = 27)		ICU (n = 23)				
	Me	IQR	Me	IQR	Me	IQR			
Knowledge of, and attitudes towards, EBP	14.5	4	13	3	14	3	2.761	0.251	–
Attitudes towards improving competence in EBP	12	3	13	4	13	4	1.297	0.522	–
The use of EBP in professional practice	41	6	40	10	38	6	2.207	0.332	–
The knowledge of EBP terminology	37.5	24.5	34	26	31	18	1.418	0.492	–
The frequency of using particular elements of EBP	17.5	7.5	18	12	15	8	8.690	0.013	0.563
The level of EBP skills	36.5	6.5	37	8	35	8	1459	0.482	–
Predisposition and barriers to using EBP	52	7.5	54	8	53	6	3.895	0.143	–
Total	207	37.5	207	55	202	35	1,941	0.379	–

Me – median, IQR – interquartile range, *ANOVA Kruskal-Wallis rank test, **Cohen's d coefficient

Table 5. The effect of participating in training courses during the previous year on particular elements of evidence-based practice (EBP)

Subscales	Participation				z	p*	Effect size**
	Yes (n = 20)		No (n = 88)				
	Me	IQR	Me	IQR			
Knowledge of, and attitudes towards, EBP	13	4	14	4	–0.455	0.652	–
Attitudes towards improving competence in EBP	12.5	1	12	5	–0.524	0.607	–
The use of EBP in professional practice	39	6	40.5	8	–1.082	0.283	–
The knowledge of EBP terminology	27.5	9	38	24	–2.762	0.005	0.551
The frequency of using particular elements of EBP	16	5.5	17	10	–1.024	0.308	–
The level of EBP skills	35	5.5	37	7	–1.970	0.049	0.386
Predisposition and barriers to using EBP	51.5	5.5	53	6.5	–1.495	0.137	–
Total	195.5	18.5	214	47.5	–2.429	0.014	0.481

Me – median, IQR – quartile range, *Mann-Whitney U test, **Cohen's d coefficient

DISCUSSION

The scope of nursing practice is expanding, and increasing requirements are made of nurses. These expectations force nurses to improve their occupational qualifications by continuing education, and to base their decisions made in everyday professional practice on current scientific evidence.

Our findings show that education has a positive effect on nurses' knowledge and skills associated with using scientific evidence in everyday clinical practice. The highest scores for the subscales: 'knowledge of, and attitudes towards, EBP', 'the use of EBP in professional practice', 'the knowledge of EBP terminology', and 'the frequency of using particular elements of EBP' were obtained by nurses with a bachelor's degree, and the lowest by those with secondary medical education.

Belowska *et al.* [14] used the EBP2 questionnaire to analyse 820 nurses entering the state exam organised by the Centre of Postgraduate Education for Nurses and Midwives in 2014. Their results show clearly that respondents with a master's degree had substantially

greater knowledge and awareness of EBNP than those with secondary and bachelor medical education. They also scored higher on the subscale 'the use of EBP in professional practice'. The study of Belowska *et al.* titled "Evidence-Based Practice (EBP) in the professional practice of nurses – an analysis of knowledge, attitudes, and skills in relation to education" is the only publication in the Polish Medical Bibliography concerning the subject of research [14]. There are, however, review articles emphasising the significance of scientific research in nursing practice [5, 6, 14-16]. Available world literature offers many publications on attitudes towards EBNP adopted by various groups of nurses. A diversified system of education for nurses in the world makes it difficult to compare their levels of education and knowledge of EBNP issues with those of Polish nurses. Nevertheless, nurses from different countries described in the world literature have definitely higher levels of EBP knowledge than nurses in Poland [18].

In our study both nurses attending specialisation courses and specialised courses during the previous year had a higher level of knowledge of EBP and more

positive attitudes towards improving their own competence in the field of EBP than the rest of the study sample. In 2004 Veerman *et al.* examined 340 nurses from the South East of England and found that getting additional education (for example, completion of training or specialisation courses) is a positive contributor to the use of EBP at work [19]. While Veerman *et al.* focused on the use of scientific research in everyday practice, we assessed the impact of postgraduate training on the level of nurses' knowledge concerning EBP. Despite the fact that these two studies described various aspects of EBP, they both provided evidence that nurses attending postgraduate courses were more interested in the EBP issues.

Our results indicate that nurses who do not improve their qualifications, older ones, and those with secondary education know less about the EBP issues, which especially refers to the knowledge of EBP terminology and the frequency of using particular elements of EBP in professional practice. Moreover, we observed that a higher number of years worked was accompanied by lower total EBP scores. The data show that nurses with more years worked and older ones have lower levels of general knowledge concerning EBP, and are less interested in it and in using it in their everyday practice.

Worldwide trends indicate that the complexity of nursing knowledge and skills as well as continuous development of medical sciences and technologies mean that there are more and more areas that require from nurses' specialist qualifications, irrespective of their education or years worked [20]. Both our results and the review of Polish and world publications on EBNP suggest a close relationship between the knowledge of, and attitudes towards, EBNP and the level of nurses' education and participation in postgraduate training.

CONCLUSIONS

The level of education of employed nurses has an effect on EBP-related aspects.

Nurses attending training courses during the previous year attained lower scores for the knowledge of EBP terminology and the level of EBP skills.

The more years worked as a nurse, the lower the total EBP score.

The level of utilisation of particular EBP elements at work among nurses working in intensive care units was significantly lower than among their counterparts from conservative wards.

Disclosure

The authors declare no conflict of interest.

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