

THE COMPARISON OF KNOWLEDGE AND ATTITUDES OF STUDENTS OF NURSING AND MIDWIFERY STUDIES WITH RESPECT TO PRACTICE BASED ON SCIENTIFIC FACTS

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Abstract

In order to ensure safe midwifery care satisfying the highest standards it is necessary to raise awareness of health professionals' about the need to use the latest research results in their daily practice. The dissemination of research findings conducted by nurses and midwives in the field of their specialization and the development of the profession, knowledge and practice based on scientific facts can help to increase the level and effectiveness of provided health services. Thus it is extremely important to expand students' of nursing and midwifery knowledge and to improve the competencies related to methodology of research and critical analysis of scientific literature.

Aim

The aim of the study was to compare the knowledge and attitudes of midwifery and nursing students with respect to Evidence-Based Medicine (EBM) and Evidence-Based Practice (EBP).

Material and Method

243 student's of Master's studies in Medical University of Warsaw, including 116 students of midwifery (group MS, 1 male) and 127 students of nursing (group NS, 4 male), 68% full-time students, 54% has taken up work in nursing or midwifery. The mean age of the population studied 26.46 years (min. 22, max. 51, SD = 7,06). Voluntary, anonymous survey, standardized Evidence-Based Practice questionnaire from University of South Australia, quantitative analysis of research findings. Statistical analysis, non-parametric U Mann-Whitney and chi2 tests: STATISTICA version 10.0.

Results

Over 30% of students of both groups: NS and MS have never met with the discussed subject of EBP. Significantly more NS does not know the meaning of the term EBP (43%) in contrast to MS (18%). More students from MS group intends to use the relevant scientific literature in order to update their knowledge (75%) and improve the skills necessary to integrate EBP into their professional practice (66%) than students from NS group (respectively 53.5% and 52%). Only for 12.5% NS scientific reports are useful in their professional practice in comparison to 35% MS. In the group of NS the reading of published research results each day reading declared only 1.5% of students in contrast to a group of MS where the percentage was much higher (10.5%). A comparable number of students of groups MS and NS have never assessed the methodological correctness of the used scientific literature (respectively 40% and 35%) and did not refer the results of research to self-diagnosis (32% and 33%). Only three students from the group NS declared the knowledge and ability to explain the term „statistical significance” (2.5%) in comparison to MS group where the possession of this competency declared 21 students (18%).

Conclusions

1. In the group of students of nursing (NS) and midwifery (MS) the level of knowledge and attitudes with respect to Evidence – Based Practice were different depending on the field of study.
2. In order to improve the knowledge of nurses and midwives with respect to the use of EBP in everyday clinical work it is advisable to provide them additional training and to expand their skills in the area of methodology of scientific research.
3. The educational programs as part of nursing and midwifery studies should be supplemented by the content related to Evidence-based Practice in order to expand students' knowledge about the benefits resulting from using the latest research findings in their future professional practice.

Keywords: evidence- based medicine, evidence-based practice, safety.

1 INTRODUCTION

The ability to make use of and apply up-to-date scientific research findings by health care workers, including nurses or midwives, in their everyday professional practice is absolutely necessary to ensure effective and safe patient care which would satisfy the highest quality standards. The use of scientific evidence in clinical practice has a beneficial impact not only on the safety of the very patient and medical personnel but also on the growth of the financial effectiveness and efficiency of medical procedures performed [1-10].

In health sciences, adequate decision-making requires not only an adequate clinical diagnosis but also knowledge of scientific data and determination of the degree of their credibility. Hence the ever growing emphasis on the use of scientific research findings in the professional practice of midwives which is intended to contribute favourably not only to the safety of both the patient and the medical personnel but also to the effectiveness of the medical procedures performed. A prerequisite is thus to make students of midwifery and nursing aware of the necessity of using the latest scientific research findings and development of their skills and competence in the field of methodology of conducting scientific research [1-11].

Having been awarded the right to practise the profession students simultaneously take up work in the profession of a midwife or nurse and continue their education attending second-level studies.

The education of midwifery and nursing students in the course of first- and second-level studies at higher education medical institutions with long-term experience in conducting scientific research and implementing their results in clinical practice should place an even greater emphasis on education in the field of conducting scientific research, analysis of research findings or ability to critically read scientific texts, that is all the key elements of Evidence-based Practice and Evidence-based Medicine.

2 AIM OF STUDY

The aim of the study was to compare the knowledge and attitudes of midwifery and nursing students with respect to Evidence-Based Medicine (EBM) and Evidence-Based Practice (EBP).

3 MATERIAL

The study covered 243 students of second-level studies at Medical University of Warsaw, including 116 students of midwifery (1 male) and 127 students of nursing (4 males). 165 respondents were full-time students, 175 first-year students. 13 respondents worked as nurses or midwives. The mean age of the participants was 26.46 years (minimum 22, maximum 51, SD = 7.06). 59 participants were awarded the bachelor's degree in midwifery or nursing at a university other than Medical University of Warsaw. 120 respondents declared having met with the subject of Evidence - Based Practice subjects during theoretical classes at the University. Detailed information concerning the study group along with an analysis of equinumerability and age of respondents can be found in Table 1 and Figure 1.

Table 1 Characteristics of the studied groups.

	<i>n</i>	<i>p</i> *	<i>Średnia wieku</i>	<i>SD</i>	<i>p</i> **
Midwifery students	<i>n</i> = 127	> 0,05	26,5	± 7,47	< 0,05
Nursing students	<i>n</i> = 116		26,4	± 6,61	

**p* – nonparametric Chi² compliance test (for *p* > 0.05 no significant difference between number of people in the groups)

***p* – nonparametric *U* Mann-Whitney Test to compare the significance of age differences in the two study groups of students (for *p* < 0.05 both groups are significantly different)

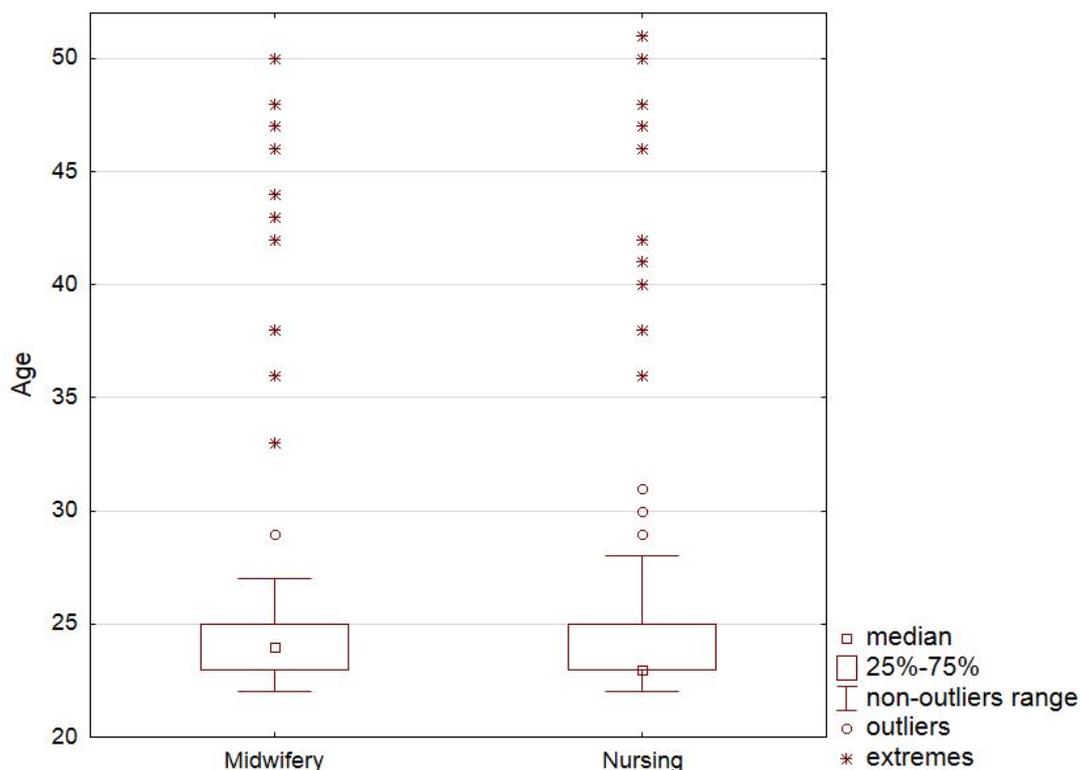


Figure 1. Age of respondents.

4 METHODS

In the study we used the diagnostic probe method, the questionnaire technique. Research was carried out from March to April 2014 via the Internet (Internet Address of the Questionnaire: https://docs.google.com/forms/d/1oC0rcwPJFWLvzg74rP1rZOf3UvtpE_yuQzhR845Uk8/viewform?usp=send_form). We used the questionnaire 'Evidence-Based Practice Profile Questionnaire developed by a team of authors: McEvoy MP, Williams MT, Olds TS. of the School of Health Sciences, University of South Australia, Adelaide, Australia, published in 2010 in the journal *Medical Education*: McEvoy MP, Williams MT, Olds TS. Evidence based practice profiles: Differences among allied health professions. *BMC Medical Education* 2010, 10:69 doi:10.1186/1472-6920-10-69. [13] The authors of the present study obtained the consent for its use. The questionnaire was validated and doubly translated by independent translators for the use in our own research.

Participation in the study was voluntary and the questionnaire was anonymous. The questionnaire consisted of 4 questions with the Likert scale or the nominal scale in the area of professional practice based on scientific evidence, 13 questions concerning personal information, education and employment as well as one question concerning an earlier encounter with the subject-matter discussed. Questions concerning evidence-based practice were divided into 7 subject domains:

1. Midwifery and nursing students' knowledge of and attitudes to EBP
2. Students' relation to expanding their EPB competence
3. EBP application in the professional midwifery and nursing practice
4. Knowledge of EBP terminology
5. Frequency of the application of individual EBP elements in everyday clinical practice
6. Level of EBP-related skills
7. Predispositions and barriers limiting the application of EBP by students

The obtained data were gathered in Microsoft Excel Sheet 2010 (v14.0). Two groups of midwives were compared: Group 1 (NS) were students pursuing studies in the field of nursing Chile Group 2 (MS) students pursuing studies in the field of midwifery. STATISTICA version 10.0 statistical packet licensed by Medical University of Warsaw was used to perform an analysis of the data.

In the comparative analysis of the obtained questionnaire results we used nonparametric tests for independent groups: U Mann-Whitney test for Likert scale questions (domains 1, 3, 6 and 7) or Pearson Chi² test for questions with the nominal scale (domains 2,3 and 5). In addition, to determine the degree of reliability of the questions based on the Likert scale we estimated the value of α -Cronbach coefficient which serves to evaluate the internal compliance of measurement results. $P < 0.05$ was adopted as the level of statistical significance for all analyses.

5 RESULTS

In the evaluation of the degree of reliability of the questions based on the Likert scale (domains 1, 3, 6 and 7; a total of 44 questions) the total level of the internal compliance of the measurement findings was high and amounted to $\alpha = 0.867$. A detailed analysis of reliability showed that in the case of Domain 3 the questions fell into two separate groups which cross-measured the same set of features and properties of the respondent. That is why this domain was divided into two sub-domains 3a and 3b. The results of the reliability analysis for questions based on the Likert scale is given in Table 2.

Table 2 Results of the reliability analysis for individual domains of the questionnaire based on the Likert scale.

Subject scope of the domain	α -Cronbach Coefficient
1: Midwifery and nursing students' knowledge of and attitudes to EBP	0.94
3a: Application of EBP in professional midwifery and nursing practice	0.88
3b: Application of EBP in professional midwifery and nursing practice	0.74
6: Level of EBP-related skills	0.93
7: Predispositions and barriers to the application of EBP by midwifery and nursing students	0.71

In the comparative analysis of the subject-domains based on the Likert scale statistically significant differences between the two study groups were found only with respect to domains: 1, 3a, 3b and 6.

In Domain 1 midwifery students (MS Group) showed higher awareness of the existence, importance and development of EBP in the field of health sciences than it was in the case of nursing students (NS Group) (medians 14 *versus* 11, respectively; ANOVA test, $p = 0.0001$) (Figure 2).

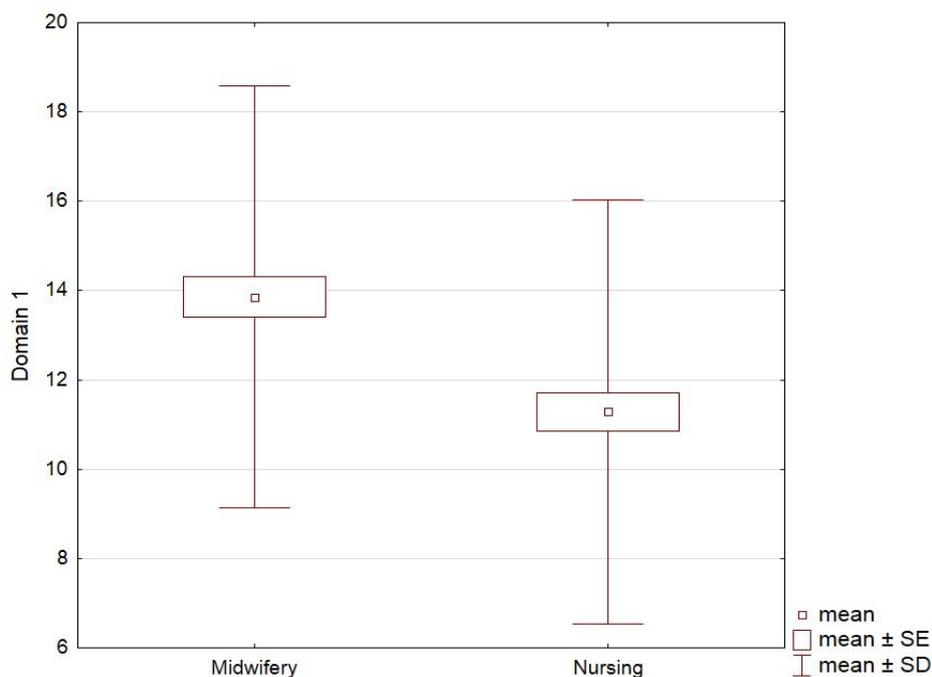


Figure 2. Knowledge of and attitudes to EBP of midwifery and nursing students.

In Domain 3a it was also students of midwifery (MS Group) who showed a higher level of the knowledge regarding the use of individual elements of EBP in their professional practice than students of nursing (NS Group) (medians 27 versus 24, respectively, ANOVA test, $p = 0.0001$) (Figure 3).

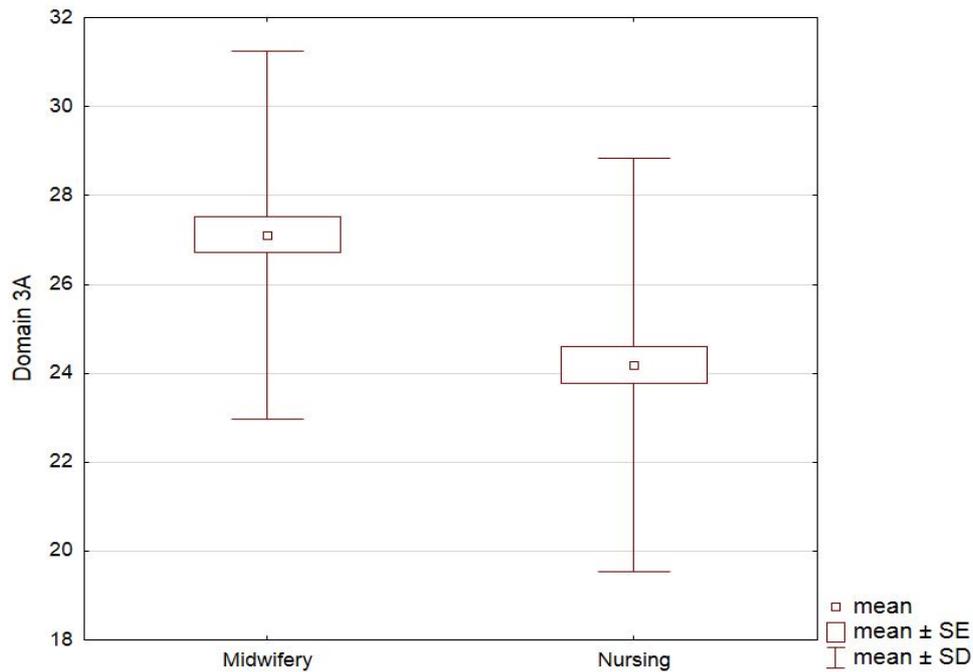


Figure 3. Students' knowledge regarding the application of EBP in the professional practice of nurses and midwives.

In Domain 3b which cross-measured the same set of features and properties of students in relation to Domain 3a, midwifery students (MS Group) revealed greater knowledge in the field than nursing students (NS Group) (medians 18 versus 17, respectively, ANOVA test, $p = 0.044$) (Figure 4).

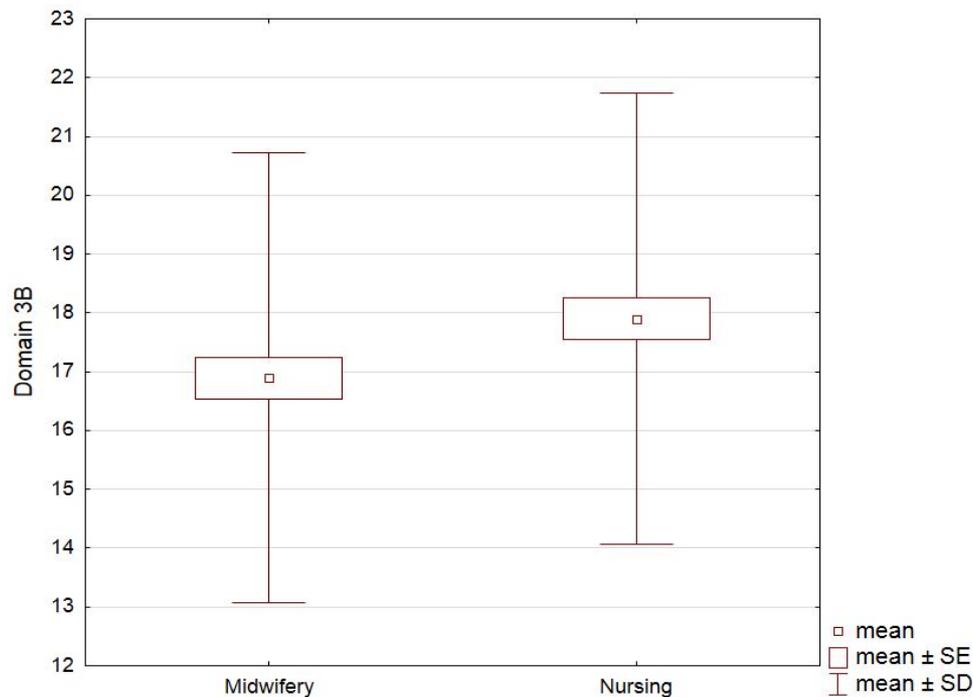


Figure 4. Students' knowledge regarding the application of EBP in the professional practice of nurses and midwives.

The last of the domains, based on the Likert scale, analysed the level of EBP skills of students taking part in the study. Also in this part of the questionnaire midwifery students (MS Group) revealed a higher level of skills in the examined field than nursing students (NS Group) (medians 39 versus 36, respectively, ANOVA test, $p = 0.01$) (Figure 5).

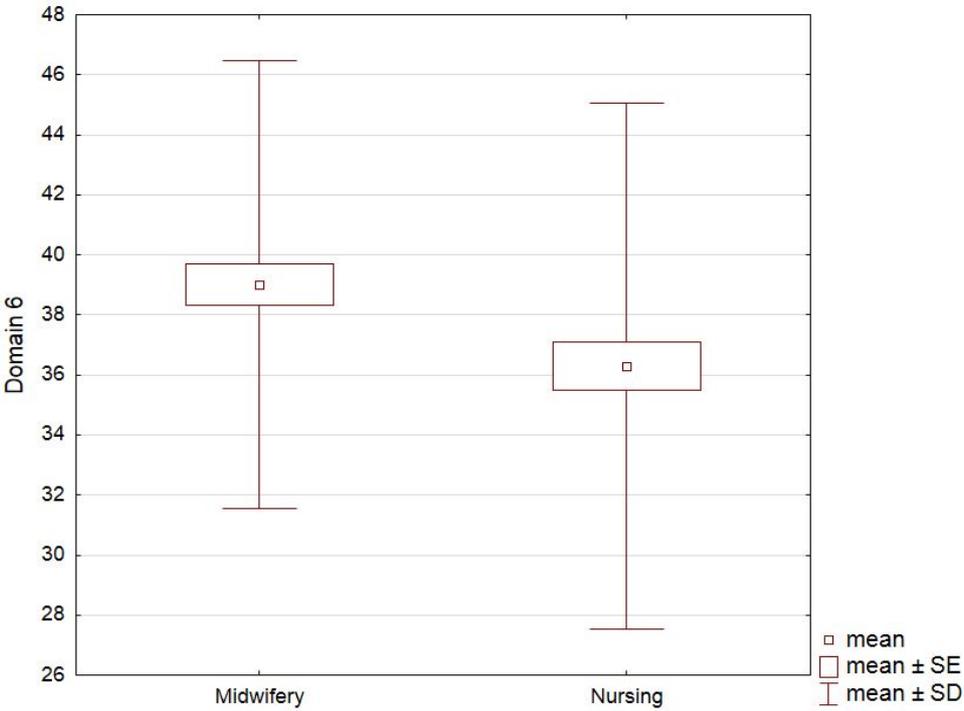


Figure 5. Level of students' EBP skills.

To analyse questions from Domains 2, 4 and 5 which contained questions with a nominal scale Chi² Pearson Test (a total of 30 questions) was used. Statistically significant differences between the study groups were observed in 8 questions.

In the domain 'The attitude of students to expanding their own EBP-related competences' a statistically significant difference was found in the question concerning the expansion of one's own EBM knowledge. The intention to self-development in the field was declared by more midwifery (MS Group) than nursing (NS Group) students (Chi² Pearson Test, $p = 0.01$) (Table 3).

Table 3 Answers of the two compared groups (MS and NS) regarding self-development in the field of EBP.

<i>I intend to expand my own knowledge of EBP</i>	Midwifery students (MS)	Nursing students (NS)
No intention at all	4	9
Unlikely to consider doing it	9	23
Could consider doing it	46	53
Highly likely to consider doing it	29	25
Absolutely intend to do it/keep doing it	28	16

In the following domain entitled 'Knowledge of EBP terms' a total of 5 statistically significant differences was observed between the compared groups. In all questions which concerned the degree of the understanding of terms such as: *systematic review*, *meta-analysis*, *statistical significance*, *clinical importance* and *randomised controlled trial*, midwifery students (MS Group) declared their

understanding and ability to explain the meaning of a given term definitely more frequently and thus had knowledge higher than NS Group (Chi² Pearson) (Table 4).

Table 4 Answers of the two compared groups (MS and NS) regarding knowledge of EBP terms.

	Never heard the term		Have heard it but don't understand		Have some understanding		Understand quite well		Understand and could explain to others		p
	MS	NS	MS	NS	MS	NS	MS	NS	MS	NS	
<u>Systematic review</u>	24	45	22	19	30	41	29	19	11	2	p=0.002
<u>Meta – analysis</u>	21	45	24	34	35	31	24	14	12	2	p=0.001
<u>Statistical significance</u>	16	48	19	30	25	33	35	11	21	3	p=0.001
<u>Clinical importance</u>	14	33	19	22	26	34	43	29	14	7	p=0.008
<u>RCT – Randomised controlled trial</u>	18	49	9	22	30	27	36	14	23	11	p=0.004

In the subject domain concerning 'Frequency of the application of individual EBP elements in everyday professional practice of nurses and midwives' statistically significant differences between the compared MS and NS Groups were found in answers to two questions. In reply to the question 'How often last year did you find scientific evidence adequate to a question posed?' the formulation of such questions once a month or more rarely was declared by a higher number of midwifery students (Chi² Pearson Test, p = 0.05) (Table 5).

Table 5 Frequency of the application of individual EBP elements in everyday professional practice of respondents.

<u>In the past year how often have you tracked down the relevant evidence once you have formulated the question?</u>	Midwifery students (MS)	Nursing students (NS)
Never	37	44
Monthly or less	51	35
Fortnightly	11	16
Weekly	13	16
Daily	4	13

The second question from this domain in which a statistically significant difference was noted between the compared MS and NS Groups concerned the reading of published research reports in the field of medicine. Students of nursing declared reading such publications much more frequently (Chi² Pearson Test, p = 0.001) (Table 6).

Table 6 MS and NS Group respondents' answers to the question: 'How often in the past year did you read published research reports?'

<i>In the past year how often did you read published research reports?</i>	Midwifery students (MS)	Nursing students (NS)
Never	9	25
Monthly or less	47	53
Fortnightly	22	29
Weekly	26	16
Daily	12	2

6 DISCUSSION

In the available world literature PubMed, SCOPUS, EMBASE, PROQUEST, dates of search: 1 January 2000-12 - November 2013, language of publication: English; key words: *nursing, evidence-based practice, evidence-based nursing practice*) we found numerous publications dealing with opinions and attitudes of different groups of nurses on *evidence-based nursing practice* [1-7, 27-30]. Search of the same database of publications according to the words: *midwifery, evidence-based practice, evidence-based midwifery practice*, allowed to find 7 items concerning the application of individual *evidence-based midwifery practice* [14-20] and 5 items on the subject of the use of EBM and EBP by midwives [21-26].

What draws attention in the majority of the publications is the fact that the application of EBP presented concerns primarily everyday clinical practice or primary health care rather than programmes for the education of students of nursing and midwifery [25-30]. Nevertheless all publications emphasize the necessity of possibly earliest introduction of EBP issues in the programmes for the education of nurses and midwives [25-30].

Medical universities all over the world offer their students an opportunity of benefiting from different forms of education which are directly related with EBP [11]. In Polish curricula of nursing and midwifery studies elements of *Evidence-Based Nursing Practice* and *Evidence-Based Midwifery Practice* come to form part of subjects such as, for instance, *Scientific Research in Nursing* or *Scientific Research in Midwifery*.

Aronson writes that in the USA a new subject '*Evidence-Based Nursing Interventions*' was included to the curriculum of the 1st semester of nursing studies as early as in 2003 which had a marked impact on both the quality of education and student satisfaction with the educational contents of studies as well as improved students' preparation for the commencement of clinical classes in the following semesters [7]. Similar findings were described in 2011 by Iranian authors who conducted research among 41 students of medicine and nursing confirming that teaching students on the basis of the EBNP paradigm is very effective and should constitute grounds for clinical education [8].

The above findings remain in compliance with the results of the research carried out by Florin and co-workers [10] in 2006 on a group of 1440 students from 26 different universities (68% of the nursing students' population) in Sweden. The findings reveal that the emphasis on the importance of developing EBP-related skills in the course of pre-clinical education was markedly more extensive than in the course of clinical education, directly with a patient. Students were clearly better prepared for the application of published scientific research findings within theoretical education at university than within practical education. Moreover, students declared good preparation for the application of EBP in their professional work (≈ 8.1 , on a 10-grade scale) [10]. The research findings obtained by Florin and co-workers do not comply with our own findings. Less than a half of students of both midwifery and nursing declared adequate abilities to apply scientific information in their research work ($n = 106$), inability to determine the degree of the clinical usefulness of scientific evidence gained ($n = 94$) or inability to determine the degree of its reliability ($n = 85$).

Similar results were obtained by Morris and co-workers [11] who conducted a study on a group of students of different health sciences in the course of second-level studies who took part in EBP classes in the course of first-level studies. Morris analysed students' self-assessment with respect to

their clinical competence. Study findings confirmed that students' participation in EBP classes contributes to a growth in their self-assessment and confidence with respect to preparation for clinical classes and performance of professional tasks. It is worth emphasizing that factors responsible, in students' opinion, for the limitation of the application of EBP assumptions in work with a patient include lack of time and organization culture which make it impossible for nurses to fully apply the latest scientific research findings in everyday clinical practice. Our own research indicates as the principal factor limiting the application of research findings lack of time by nursing and midwifery students for personal scientific development and search for new, reliable research findings ($n = 121$) along with the professional work load ($n = 104$). In comparison to students of nursing, the majority of midwifery students participating in the study admit that the application of EBP in professional practice helps them take the right clinical decisions concerning patients ($p = 0.03$) and contributes to the improvement of medical services rendered by them ($p = 0.001$).

The dynamic development and growth of competences in modern patient care require from specialists in health sciences, including nurses and midwives, permanent development of professional skills, gaining of new information and upgrading of their knowledge on an ongoing basis already in the course of their studies. Expansion of these students' knowledge of methodology of scientific research, critical analysis of its results or their ability to critically read scientific texts, that is all the key elements of Evidence-Based Practice, can have a significant impact not only on the development of competences of students and specialists in this field but also on the future development of the whole midwifery and nursing as a science.

7 CONCLUSIONS

1. In both compared groups the level of knowledge of Evidence-Based Practice is not sufficient and requires urgent upgrading in terms of both knowledge and skills of students in this area.
2. Students not working as midwives have greater EBP-related knowledge than the studied group of students working in the profession.
3. In order to improve the knowledge of midwives with respect to the use of EBP in everyday clinical work it is advisable to provide them with additional training and to expand their skills in the area of methodology of scientific research.
4. There is a need for ongoing updating by midwives of their knowledge with respect to the use of the latest scientific research findings in professional practice.

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