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Comparison of knowledge and attitudes towards the use of scientific research in clinical practice among departmental and charge nurses

Abstract

Introduction. The awareness of benefits arising from the use of the latest results of scientific research (EBNP – Evidence-Based Nursing Practice) among departmental and charge nurses is a necessary condition to ensure effective and safe health services and nursing care meeting the highest standards of patient care.

Aim. The comparison of knowledge of and attitudes towards EBNP among nurses depending on their position.

Material and methods. Twenty one departmental nurses (PO) (mean age 50.38 years, min. 37, max. 62, SD=7.35) and 20 Bachelor's degree students of a bridge programme (SSP) (mean age 43 years, min. 34, max. 55, SD=6.37). Qualitative study and analysis of the results, structured interview, extended focus.

Results. PO and SSP were not able to define the acronyms EBM and EBP correctly and did not have detailed knowledge of the criteria for assessment of reliability of scientific literature. A majority of DN was familiar with the available journals for nurses and was aware of benefits resulting from using EBNP. The use of EBNP in everyday clinical practice in SSP group was limited by a lack of time, insufficient knowledge of English and access to the Internet, as well as working at the position that makes taking decisions on developing procedures and standards for nursing care impossible.

Conclusions.

1. The level of knowledge about EBNP in both groups was inadequate and needs urgent supplementation of knowledge and skills of nurses with reference to this subject area.
2. The attitudes of nurses towards EBNP were different depending on their work position. Departmental nurses were aware of benefits resulting from using the most recent study results in everyday clinical practice and being up-to-date with medical knowledge.
3. The boundaries limiting the use of EBNP in everyday clinical practice by the study participants were objective and they require system changes with reference to the organization of work and the system of continuing education.

Keywords: nursing, evidence-based practice, quality of health care, work, position.

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INTRODUCTION

In accordance with world trends, an increased emphasis is being placed on the use of study results in the professional practice of nurses, which positively contributes not only to the safety of patients, medical personnel and the effectiveness of medical procedures, but also the financial efficiency of the latter [1-4].

Awareness of benefits resulting from using the newest research results among managing nurses is necessary to encourage junior nurses to widen their knowledge and improve competence in methodology of research, critical analysis of the results, and capability of critical reading of scientific texts, i.e. all components of evidence-based nursing practice [1-7].

A review of the world literature on using EBNP by departmental nurses and the role of nursing managerial staff in promotion and encouraging charge nurses to apply

evidence-based nursing practice demonstrated the need for education of nurses in order to provide health services effectively and safely and nursing care that meets the highest standards of quality [1-31].

AIM

The aim of the study was to compare the knowledge of and attitudes towards using scientific research in clinical practice (Evidence-Based Nursing Practice – EBNP) among nurses by the positions held.

MATERIAL

The study involved 41 nurses: 20 part-time Bachelor's degree (bridging) students of Nursing (1 man) and 21 departmental nurses (100% women). See Table 1 for detailed characteristics of the study groups of nurses.

TABLE 1. Detailed characteristics of study groups of nurses.

Group of Bachelor's degree (bridging) students in Nursing (SSP)	Group of nurses working at the position of a departmental nurse (PO)
Number of study participants	
20 (19 women, 1 man)	21 women
Mean age of the study participants	
43 years (min. 34, max. 55, SD=6.378)	50.38 years (min. 37, max. 62 years, SD=7.351)
Mean length of service	
17 years (min. 1 year, max. 35 years, SD=10.440)	28.65 years (min. 16, max. 39, SD=6.714).
Education level	
20 persons – medical vocational school	7 persons – medical vocational school 7 persons – Bachelor's degree 7 persons – Master's degree
Workplace	
9 – teaching hospital 4 – scientific and research institute 3 – city hospital 2 – primary care unit	21 – teaching hospital
Position	
26 – charge nurse 2 – senior nurse 1 – nurse manager 1 – project manager	21 – departmental nurse 1 – deputy departmental nurse

METHODS

This was a qualitative study.

The study among first-year Bachelor's degree (bridging) students in Nursing (SSP) was conducted on January 19, 2014 during seminar classes of the "Research in Nursing" course. The study among nurses holding the position of a departmental nurse (PO) was conducted on February 18, 2014 in their meeting in a Warsaw teaching hospital. Both meetings were moderated by academics of the Division of Teaching and Outcomes of Education, Faculty of Health Science, Medical University of Warsaw. After an analysis of the Polish and world literature on Evidence-Based Practice, most important issues had been selected to serve as a scenario for the interview.

The study employed the method of a partly structured group interview. This type of interview is carried out in line with issues and guidelines previously prepared based on a literature review, leaving moderators a possibility of broadening knowledge in this area. The issues were introduced by a Power Point Presentation. During the meeting, study participants proposed their ideas and key words associated with the Evidence-Based Practice that were written on a flipchart.

Following the standards of qualitative studies, interviews were performed in rooms that facilitated the maintenance of eye contact between all study participants and moderators as well as equipped with a screen, multimedia projector, flipchart, and paper sheets for notes.

The research study was performed as a hidden interview: respondents had not been informed that they were participating in a qualitative study. The discussion that developed in the meeting was recorded on a tape recorder. After the

meetings, the recorded discussion and ideas written on the flipchart were qualitatively analysed. MP3 files with the recordings of the discussion are available at the authors. Table 2 demonstrates a detailed scenario of a partly structured group interview, which was followed during both studies.

TABLE 2. Partly-structured group interview scenario.

1	Knowledge of definition and meaning of the terms Evidence-Based Medicine (EBM) and Evidence-Based Nursing Practice (EBNP)
2	Knowledge of definition and criteria of research evidence
3	Frequency of using Polish/world scientific literature for nurses, knowledge of scientific and peer-reviewed journals
4	Knowledge of sources of scientific evidence
5	Capability to evaluate scientific data with regard to their reliability and opinions of study group on who and when should teach students such skills
6	Possibility of using Evidence-Based Nursing Practice in the workplace
7	Attitude of managerial staff towards continuing education of nurses
8	Opinions of study participants on advantages and disadvantages of EBP in nursing practice
9	Possibility of improving quality of nursing care for patients and work safety for medical personnel by using EBP in the workplace

RESULTS

While only one person in the group of departmental nurses provided the Polish equivalent to EBP, none of the bridging students knew anything about this. See Table 3 for details.

TABLE 3. Knowledge of definition of Evidence-Based Practice (EBP) among the study groups of nurses.

Group of Bachelor's degree (bridging) students in Nursing (SSP)	Group of nurses working at the position of a departmental nurse (PO)
Knowledge and understanding of the term of EBP	
-	5 nurses
Polish language term/foreign-language term	
-	"practice based on knowledge, facts, research"
What does EBP stand for?	
-	-

Selected scientific and peer-reviewed journals devoted to nursing and health sciences were presented in the subsequent meetings. All nurses in both groups knew the following journals: Impulse and Magazine for Nurses and Midwives; nevertheless, none of them knew any of the international medical journals. Opinions on and attitudes towards using professional medical literature among the study participants were presented in detail in Table 4.

TABLE 4. Attitudes of the study groups of nurses towards using Polish and world scientific literature and possibilities of using it in everyday clinical practice.

Group of Bachelor's degree (bridging) students in Nursing (SSP)	Group of nurses working at the position of a departmental nurse (PO)
Knowledge of world journals	
-	
Knowledge of Polish journals	
Impulse Magazine for Nurses and Midwives	Impulse Magazine for Nurses and Midwives Needles (Igielki) Nursing of the 21st century Public Health Practical Medicine
Availability of scientific journals	
"For whom and why are these journals published if none of us have ever seen them before?", "(journals should be available) at least in the EMPiK store, why not?"	"Continuous access to scientific journals is particularly important due to the fact that nurses are obliged by law to update their knowledge".
Capability of critical reading of scientific literature	
They do not feel prepared to interpret scientific findings, read tables and graphs	They do not feel prepared to analyse scientific articles critically
Most frequently reported problems with analysis of scientific texts	
Lack of knowledge of principles of methodology of conducting research Ignorance of statistics Incomprehensible language	Lack of knowledge of the principles of methodology of conducting research Unfamiliarity with those components of research studies that need to be taken into consideration during a critical analysis of the research material Ignorance of statistics
"But our question is as follows: is there a point to teach all this to nurses? I expect something completely different from such a journal; I expect to read about problems in nursing, more qualitative than quantitative data, more tips rather than statistical information". "Statistical information is also useful, but it needs to be understandable for an average nurse, not every average nurse can understand it, we rather expect a kind of a guidebook. What I mean is that language should be more adjusted to a reader". "A person, who knows nothing about statistics would accept it without batting an eye, wouldn't even know what they are reading about, honestly, chi ² test would tell us nothing, and there is a huge fashion for using statistical programs, because they are very easy and available to everybody".	"The contents of this table does not appeal to me, I prefer columns, like those in opinion polls". "Tables are also important, because if you analyse the contents of a table, you may draw conclusions on your own and that's what it's all about". "We have our own opinion on surveys and we often have doubts whether facts described in articles are true or not".
Sources of scientific information	
Internet Google browser Ibuk.pl portal textbooks published by ELSEVIER	Internet Google browser portals of professional associations of nurses portals of associations Termedia portal portal of the Practical Medicine journal of the Centre of Postgraduate Education for Nurses and Midwives

The study participants were also asked about their participation in scientific conferences devoted to their profession. Unlike the bridging Nursing students, a vast majority of departmental nurses took part in symposia and meetings on a regular basis. Attention was also drawn to the fact that conferences for nurses were not promoted enough among this professional group and a large number of nurses, despite their willingness to participate, were not informed enough about conferences that are about to take place e.g. in higher schools. See Table 5 for the exact statements of nurses from both groups.

Another question asked in both groups was associated with their attitudes towards and roles in participation

in studies at their workplace. Nurses working at the position of a departmental nurse in a teaching hospital participated in clinical trials very often. None of the Bachelor's degree (bridging) students has participated in such a study. Table 6 presents opinions of departmental nurses on this topic.

A possibility of introducing by nurses changes in comprehensive nursing care for patients in their workplace was also discussed. Whereas a vast majority of Bachelor's degree students reported that they had no possibility of introducing any changes into procedures, departmental nurses emphasised the importance of having up-to-date medical knowledge necessary to develop some procedures and improve the level of comprehensive nursing care. See Table 7 for details.

TABLE 5. Attitudes of the study groups of nurses towards participation in scientific conferences.

Group of Bachelor's degree (bridging) students in Nursing (SSP)	Group of nurses working at the position of a departmental nurse (PO)
Participation in scientific conferences	
-	Most nurses
“I don't have time for continuous improvement, I drive from one work to the other, and then to another one at home”.	“We know it from our Head Nurse, but our colleagues from other hospitals know nothing about it”.
“We were invited once because there were too few doctors”.	“Conferences give an opportunity to broaden our intellectual horizons, improve and broaden knowledge in our field, get familiar with other fields of knowledge, an exchange of experience encourages development”.
	“If study results are presented on a conference, we can verify whether the actions we perform every day over the years are scientifically justified or whether there is a need to change anything about them”.
	“Every day we work in accordance with certain standards and we are quite firmly embedded in these standards and the world sometimes goes in a different direction or is a step ahead of us, if you don't take part in such meetings (conferences), you have a feeling that you stand still, and your everyday performance of your duties is OK”.

TABLE 6. Participation of the study groups of nurses in clinical trials.

Group of Bachelor's degree (bridging) students in Nursing (SSP)	Group of nurses working at the position of a departmental nurse (PO)
Participation in clinical trials	
Nurses or midwives	
-	6 nurses
Teams	
-	“Clinical trials have been conducted in our hospital for years. As a departmental nurse, I participated in a clinical trial years ago. In those times, a nurse did not have to know about it, it would be even rude to ask why we were performing certain activities; there was a news blackout and a narrow circle of those “in the know”. We were only supposed to do what we were told to do. As far as clinical trials are concerned, a lot has been changed lately from our point of view. At present, we sign an agreement and we are allowed to consult a lawyer about it. We know our role in clinical trials, we are aware of our duties and liability and we have the access to all records of a clinical trial. This is a milestone in legal regulations concerning participation of nurses in clinical trials”.
Role in clinical trials	
-	“Before a clinical trial, nurses attend trainings together with researchers, their participation in a study is often very important since it is them who e.g. collect samples for tests”.
Attitudes towards participation in clinical trials	
-	“Nurses in our hospital have a lot of opportunities to join research teams, as long as they wish to do so. Nurses do not object and are not disapproved of the participation in clinical trials”.

TABLE 7. Attitudes of the study groups of nurses towards introduction of changes in comprehensive nursing care in the workplace.

Group of Bachelor's degree (bridging) students in Nursing (SSP)	Group of nurses working at the position of a departmental nurse (PO)
Participation in development of procedures	
“An average nurse in typical circumstances is not able to translate research into nursing practice without taking into consideration their results in nursing procedures and without consent of managerial staff”.	“Knowledge of principles of conducting and analysing studies may be our bargaining chip in talks with officials and decision makers e.g. in the Ministry of Health, National Health Fund, or even hospital directors about nursing standards and procedures”.
	„Although a change in the argumentation style in talks with decision makers is essential, a nurse should be equipped with tools and knowledge for a discussion, because sometimes it is possible to force through some changes”.
Attitudes towards introduction of changes in comprehensive nursing care in the workplace	
There is no possibility of introducing any changes into the procedures „In our department, we have firmly defined procedures and we cannot modify them”.	“It is also worth underlining that we constitute nursing managerial staff that is used to changes, but our nursing teams include also charge nurses that are not ready for these changes at all; changes usually cost, not only money but also time and change of habits, they require effort and disturb stability in our professional activity”.
„But what can I do?”	

TABLE 8. Opinions of the study groups of nurses on benefits resulting from using research results in everyday clinical practice.

Group of Bachelor's degree (bridging) students in Nursing (SSP)	Group of nurses working at the position of a departmental nurse (PO)
Benefits	
Patient safety	
Nurses' safety	
Financial efficiency	
Increase in quality of services	
	<p>“Knowledge of principles of conducting and analysing research may be our bargaining chip in talks with officials and decision makers e.g. in the Ministry of Health, National Health Fund, or even hospital directors about nursing standards and procedures”.</p>
	<p>“By maintaining old procedures and standards and not normalizing them and adjusting to the most recent research results, we are going backwards rather than forwards and long-term costs of performing certain medical procedures are increasing proportionately to their inefficiency”.</p>
	<p>“It is also worth underlining that we constitute nursing managerial staff that is used to changes, but our nursing teams include also charge nurses that are not ready for these changes at all; changes usually cost, not only money but also time and change of habits, they require effort and disturb stability in our professional activity”.</p>

At the end of the series of meetings, the study participants were asked about their opinions on the benefits of using results of studies in their workplace. Both groups reported an increase in safety and quality of medical services and optimization of costs related to those services. All departmental nurses emphasized that they would like to learn practical principles of using the most recent study results in everyday clinical practice in order to provide health benefits of highest quality. Table 8 presents opinions of departmental nurses on this topic.

DISCUSSION

The available Polish scientific literature (Polish Medical Bibliography – PBL) does not comprise publications comparing the level of knowledge and attitudes towards using research results in everyday clinical practice among nursing managerial staff and charge nurses; therefore, the present study is innovative. The authors have found only review articles that put the emphasis on using the most recent research results in nursing practice [8,9]. A study by J. Gotlib presents the level of knowledge of charge nurses about broadly defined evidence-based nursing practice. It describes a focus group interview about opinions of the study group on possibilities, willingness, motivation, and skills associated with using the most recent research results in everyday clinical practice [31].

The available world scientific literature (PubMed, SCOPUS, EMBASE, PROQUEST, search dates: January 1, 2000-November 12, 2013, publication language: English, key words: nursing, evidence-based practice, evidence-based nursing practice) does not comprise publications comparing knowledge of and attitudes towards EBNP among nurses holding various positions. There were found as many as 20 publications devoted to a broadly defined role of nursing managerial staff in promoting and encouraging the use of evidence-based practice [10-30].

Problems discussed in the world literature concern the introduction of EBNP into everyday clinical practice of charge

nurses and they result from similar systemic problems [11,14,21]. A study by K. Gerrish et al. enrolled 23 departmental nurses in England. A structured interview and observation were performed with reference to the level of knowledge of charge nurses about using EBP and possibilities of using it in practice [18]. Four groups of factors that influence relations between charge nurses and departmental nurses as well as engaging partners in using EBP were identified: character features, relations with co-workers, role of a departmental nurse, and organizational context of an institution. Apart from having skills and knowledge, managerial staff is supposed to be a group of clinical specialists as well as motivated, reliable and communicative managers who strive for introducing EBNP into everyday practice and therefore for providing health services of the highest level. Our study conducted among departmental nurses demonstrated that promoting and encouraging charge nurses to use EBNP in their everyday clinical practice may involve some changes in organization of nursing teams, require effort, increase costs, and disturb stability in professional activity.

A study by J. Profetto-McGrath carried out among Canadian departmental nurses showed that major obstacles in using EBNP in their everyday clinical practice included a lack of time and appropriate sources of scientific information as well as organizational difficulties [24]. This was also confirmed by our study performed among both groups of nurses who added the following obstacles: unfamiliarity with the principles of methodology of conducting research and components of research studies as well as ignorance of statistics, limited access to up-to-date scientific evidence and scientific publications for nurses.

A research study of 2005 conducted among 855 departmental nurses of 87 English hospitals concerned understanding of the idea of EBP, sources of scientific evidence, ways of working and relations with charge nurses as well as abilities to influence their work and the use of evidence-based practice [18]. These results show that departmental nurses are perfect mentors in introducing Evidence-Based Practice and teaching its basic components. With their own experi-

ence, education and self-esteem, departmental nurses help charge nurses to use reliable scientific sources in their workplace and teach them the best ways of providing patients with care, which is in contradiction with our findings, where departmental nurses cannot be EBP mentors in their workplace since they do not have the necessary knowledge.

A study by Thiel et al. performed in 2008 among 121 American charge nurses showed that most of them (72.5%) were less likely to consult journals or books if they needed advice and turned to their colleagues or superiors. Only 24% of the total used medical databases. The study participants rated their knowledge as average and emphasised that a change in the organisational culture is needed in order to make changes possible but their attitude towards EBNP was positive [1]. Other results were obtained by J. Profetto-McGrath. The study participants reported that scientific publications constituted their main source of scientific evidence as a solution to questions and clinical situations, followed by superiors and co-workers [24]. Our study demonstrates that the Internet is the major source of scientific evidence for both departmental and charge nurses and ignorance of the methodology of research and unfamiliarity with journals for nurses prevent them from updating and broadening their medical knowledge.

With reference to the world literature, our findings demonstrated insufficient knowledge of Evidence-Based Nursing Practice among both charge and departmental nurses. Thus, there is an urgent need for system changes in the training of nurses, with a particular emphasis being put on EBNP. This subject area could be more widely discussed during the Bachelor's and Master's degree programmes. More emphasis should also be placed on education in EBNP on an obligatory post-graduate training for nurses or additional courses in EBNP should be organized for persons particularly interested in research in nursing.

RESULTS

It needs to be emphasised that the opinions and attitudes of departmental nurses presented here concern employees of a teaching hospital, where conducting research is a component of its statutory activity. Because not all bridging students were professionally active, the present study results may not be objectively representative.

CONCLUSIONS

1. The level of knowledge of both groups of nurses about using EBNP in everyday clinical practice was inadequate and needs urgent supplementation of knowledge and skills of nurses with reference to this subject area.
2. The attitudes of nurses towards EBNP were different depending on their work position. Departmental nurses were aware of benefits resulting from using EBNP in everyday clinical practice and being up-to-date with medical knowledge.
3. The boundaries limiting the use of EBNP in everyday clinical practice by the study participants were objective and they require system changes with reference to the organization of work and the system of continuing education.

REFERENCES

1. Thiel L, Ghosh Y. Determining registered nurses' readiness for evidence-based practice. *Worldviews Evid Based Nurs.* 2008;4(5):182-92.
2. Chang SCh, Huang ChYi, Chen SYu, Liao YiCh. Evaluation of a Critical Appraisal Program for Clinical Nurses: A Controlled Before-and-After Study. *J Continuing Educ Nurs.* 2013;1:43-8.
3. Majid S, Foo S, Luyt B, et al. Adopting evidence-based practice in clinical decision making: nurses' perceptions, knowledge, and barriers (EC). *JMLA.* 2011;99(3):229-36.
4. Olade RA. Evidence-Based Practice and Research Utilization Activities Among Rural Nurses. *J Nurs Scholarsh.* 2004;36(3):220-5.
5. Melnyk BM, Fineout-Overholt E, Gallagher-Ford L, Kaplan L. The state of evidence-based practice in US nurses: critical implications for nurse leaders and educators. *J Nurs Adm.* 2012;42(9):410-7.
6. Eizenberg MM. Implementation of evidence-based nursing practice: nurses' personal and professional factors? *J Adv Nurs.* 2011;67(1):33-42.
7. Waters D, Crisp J, Rychetnik L, Barratt A. The Australian experience of nurses' preparedness for evidence-based practice. *J Nurs Manag.* 2009;17(4):510-8.
8. Williams AB. Praktyka pielęgnarska oparta na faktach. *Sztuka Pielęgnowania.* 2013;4:14-5.
9. Kózka M. Zastosowanie badań naukowych w praktyce pielęgnarskiej. *Pielęgn Epidemiol.* 2007;2/3:13-5.
10. O'Halloran P, Porter S, Blackwood B. Evidence based practice and its critics: what is a nurse manager to do? *J Nurs Manag.* 2010;18(1):90-5.
11. Gerrish K, Guillaume L, Kirshbaum M. Factors influencing the contribution of advanced practice nurses to promoting evidence-based practice among front-line nurses: findings from a cross-sectional survey. *J Adv Nurs.* 2011; 67(5):1079-90.
12. Lavoie-Tremblay M, Anderson M, Bonneville-Roussy A, et al. Nurse Executives' Perceptions of the Executive Training for Research Application (EXTRA) Program. *Worldviews Evid Based Nurs.* 2012;9(3): 186-92.
13. Gerrish K, McDonnell A, Nolan M. The role of advanced practice nurses in knowledge brokering as a means of promoting evidence-based practice among clinical nurses. *J Adv Nurs.* 2011;67(9):2004-14.
14. Wilkinson JE, Nutley SM, Davies HT. An exploration of the roles of nurse managers in evidence-based practice implementation. *Worldviews Evid Based Nurs.* 2011;8(4):236-46.
15. Bradway C, Trotta R, Bixby MB, et al. A qualitative analysis of an advanced practice nurse-directed transitional care model intervention. *Gerontol.* 2012;52(3):394-407.
16. Rutledge DN, Skelton K. Clinical expert facilitators of evidence-based practice: a community hospital program. *JNSD.* 2011;27(5):231-5.
17. Lauer L, Phalen AG. An example of a statistics course in a doctor of nursing practice (DNP) program. *Nurs Educ.* 2012;37(1):36-41.
18. Gerrish K, Nolan M, McDonnell A, Tod A. Factors influencing advanced practice nurses' ability to promote evidence-based practice among front-line nurses. *Worldviews Evid Based Nurs.* 2012;9(1):30-9.
19. Allen P, Lauchner K, Bridges RA, et al. Evaluating Continuing Competency: A Challenge for Nursing. *J Continuing Educ Nurs.* 2008;39(2):81-5.
20. Sredl D. Evidence-based nursing practice: what US nurse executives really think. *Nurs Res.* 2008;15(4):51-67.
21. Profetto-McGrath, J. Clinical nurse specialists' use of evidence in practice: A pilot study (2007) *Worldviews on Evidence-Based Nursing.* 4 (2), pp. 86-96.
22. Gifford W, Davies B, Edwards N. Managerial leadership for nurses' use of research evidence: An integrative review of the literature. *Worldviews Evid Based Nurs.* 2007;4(3):126-45.
23. Chummun H, Tiran D. Increasing research evidence in practice: A possible role for the consultant nurse. *J Nurs Manag.* 2008;16(3):327-33.
24. Profetto-McGrath J, Negrin KA, Hugo K. Clinical nurse specialists' approaches in selecting and using evidence to improve practice. *Worldviews Evid Based Nurs.* 2010;7(1):36-50.
25. Gunningberg L, Brudin L, Idvall E. Nurse Managers' prerequisite for nursing development: A survey on pressure ulcers and contextual factors in hospital organizations. *J Nurs Manag.* 2010;18(6):757-66.
26. Lavoie-Tremblay M, Anderson M, Bonneville-Roussy A. Nurse Executives' Perceptions of the Executive Training for Research Application (EXTRA) Program. *Worldviews Evid Based Nurs.* 2012;9(3):186-92.

27. Ovaska T. Making evidence-based decisions when organising information retrieval training for nurses and head nurses. *HILJ*. 2012;29(3):252-6.
28. Linton MJ, Prasun MA. Evidence-based practice: Collaboration between education and nursing management. *J Nurs Manag*. 2013;21(1):5-16.
29. Shirey M.R. Evidence-based practice: How nurse leaders can facilitate innovation. *Nurs Adm Q*. 2006;30(3):252-65.
30. Willmer M. How nursing leadership and management interventions could facilitate the effective use of ICT by student nurses. *J Nurs Manag*. 2007;15(2):207-13.
31. Gotlib J. Pielęgniarki o Evidence-based Nursing Practice. *Med Dydak Wych*. 2014;46(3):11-2.

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