

Culture crash regarding nursing students' experience of implementation of EBP in clinical practice

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ABSTRACT

Aims: The aim of this study was to examine nursing students' experiences of the implementation of evidence-based practice (EBP) in a clinical setting.

Background: Educating students in EBP is a challenge to both faculties and clinical practices, because EBP educational interventions may improve knowledge but do not ensure application of EBP in clinical settings. Becoming skilled in the application of EBP requires practice and nurses that motivate students to use EBP.

Methods: Fourteen second-year students were divided into three focus groups according to the ward in which they undertook their clinical practice. Each group contained 4–5 students.

Findings: The students were able to implement EBP according to the goals of the syllabus, but encountered a clinical setting that was insufficiently prepared, both structurally and in terms of knowledge, to mentor them regarding EBP. The findings indicate a culture crash between the students' learning goals of EBP at the faculty and the application of EBP in practice.

Conclusion: The results of this study demonstrated that EBP is feasible in clinical practice, but highlighted the various factors obstructing its implementation. There is a need to find pathways to reduce hindrance in implementation of EBP.

KEY WORDS: nursing students, EBP, implementation, clinical practice

Introduction

Nursing students undergo clinical training in a rapidly changing health care system and many stress the need for evidence-based health interventions (1). However, educating students in evidence-based practice (EBP) is a challenge for both faculties and clinical practice, because EBP educational interventions may improve students' knowledge, but do not ensure its application in a clinical setting (2,3). Improving the transmission of EBP from the classroom to the clinical setting and to facilitate students' ability to integrate EBP naturally into their professional upskilling, requires an environment that challenges students in terms of evidence-based issues. It is only in such critical clinical settings that students can experience the challenge of applying evidence in their care of real patients (1,4). Nurses should challenge students to identify clinical problems and search for evidence-based solutions during their clinical training just as they challenge them about their clinical observations, interventions, procedures, etc. (5). For example faced with the assignment whether sterile intermittent catheterization is better to prevent urinary track infection compare to clean intermittent catheterization, nurses should challenge the students to conduct search in different databases, instead of given them the answer or asked the students to find answer in the textbook. However, according to Sackett et al. (6) this requires nurses with the competence to formulate answerable questions, search and critically appraise the evidence, apply the evidence and evaluate it. Research has shown that this competence is still lacking among nurses (7, 8). A recent study in Norway concluded that nurses with skills in EBP could reduce the obstacles to the use of EBP and increase the use of science in practice (9), which is consistent with previous research (3,10).

As has been stressed in previous research, problems are associated with the implementation of EBP when it is transferred from the faculty to clinical practice. Consequently, a collaboration between a faculty and a clinical practice was established to allow the implementation of EBP by students during their clinical training. The aim of this study was to examine the nursing students' experiences during the implementation of EBP in a practical setting. This article presents the main findings of this study.

Literature review

In Norway, the focus on EBP in nursing education has increased since 2004, but no studies have examined Norwegian undergraduate nursing students' experiences of EBP or whether they support its use in clinical practice. Internationally, there is no research consensus about the role nursing students should play when EBP is integrated into clinical practice (11). A few studies have recommended a partnership between faculties and practices to facilitate EBP. Stone et al. (12) involved undergraduate students in finding the appropriate evidence for nurses in clinical practice, which led to changes in policy and nursing practice. They concluded that student research projects were one way to increase the students' awareness of current research findings while minimizing the time commitment of staff nurses. Moch et al. (13) partnered nursing students with nurses in discussion groups to find, appraise, and integrate new research evidence into practice and found that these groups promoted EBP changes in different practice areas. Pennington et al. (14) teamed nursing students with staff nurses working on EBP projects and found that students were able to learn how evidence was utilized in practice setting, while staff nurses were able to give assistance in the gathering of evidence for the projects. Similar results have been reported by Holst et al. (15) who found that partnerships between the nursing staff and nursing students on evidence-based project on pressure ulcer, gave that no patients developed pressure ulcer while on ward. The students experienced that by working evidence-based safety and quality of care improved for patients with pressure ulcer. These studies emphasize the benefits of partnerships between nursing students and nursing staff, whereas the nursing students' own experiences in implementing EBP in a clinical setting have not been evaluated.

The implementation of EBP is more likely to succeed if it is embedded at both the individual and organization levels (10). At the individual level, the nurses who most directly implement EBP must be motivated, educated, and prepared for changes. In order to succeed with implementation nurses need to apply EBP bedside in their everyday practice with nursing students. No research have been found suggesting such an approach. However, the research demonstrate that nurses

are increasingly recognizing the role research has to play in their daily practice, but despite this recognition, the actual application of research findings is still poor (8,16,17).

The EBP literature emphasizes on the organizational level that infrastructural interventions, the identification of barriers, increased competence among staff, flexibility, a positive culture for change, and leaders' vision and goals are all required for the successful implementation of EBP in the ward (10).

The processes of learning and applying new knowledge are associated with the steps of EBP: formulating a research question, searching for evidence, critically appraising the evidence, and applying the evidence (6). Important learning occurs in the last steps, when students appraise the evidence and link the evidence to their practice. This learning arises from reflection. Lave and Wengers' (18) theory of "situated learning" maintains that learning is related to participation and action within a social context, and that opinions and the development of identity occur as reciprocal social processes. Learning by participation in a community of practice is based on the relationship between the student and the clinical staff in the ward; a relationship that focuses on the development of knowledge and skills.

Method

A focus group method, as described by Krueger and Casey (19), was selected. The concept behind the focus group method is that the group process helps the participants to explore and clarify their views in ways that would be less easily accessible in a one-to-one interview (19). The implementation of EBP is dependent on situated interactions between students and nurses in clinical practice and a focus group method is likely to foster the relationships and experiences that occur during these interactions (19).

Sample

The sample comprised 14 female undergraduate nursing students in their second year of a three-year Bachelor of Nursing programme at a university college in Norway. The students were recruited from the wards in which they had undertaken their clinical practice. Three of nine wards were randomly selected for inclusion. The students were invited both verbally and by email. Four of the 18 students who were invited could not participate due to night shift and day off. The students' age range was 22–35 years (mean, 24 years). None of the students had any previous competence in EBP, except from their course in EBP at the school. To identify the different factors and consequences influencing the students' experiences and the group process during their EBP training, the students were divided into three focus groups. Each group included four or five students.

Intervention process

EBP course

During their second year of nursing education, students undergo supervised practical training in both medical and surgical wards (eight and 12 weeks, respectively). The students take a nine-credit-point course in EBP between the first and second practical training. The 12 day course trains the students in the four steps of evidence-based practice (6): 1. formulating a question (see table 1); 2. searching for evidence; 3. critically appraising the evidence; and 4. applying the evidence. To apply the EBP steps in clinical practice, a collaboration was established between the faculty and all levels of practice before the course started. The collaboration had the following focus: students and staff/leaders identified clinical issues that were relevant to the ward in which the students received their clinical training; the students searched for and critically appraised the evidence, and implemented it if possible; the staff was also encouraged to challenge the students on evidence-based issues during their clinical training.

Data collection

The discussion topics for the focus groups followed an interview guide that included a series of opening, introductory, transitional, key, and ending questions (19), as described in Table 2.

Table 1:

Some examples of scenarios the students worked with during the EBP course. Through these they learned how to formulate a question using the PICO framework to search for evidence in various databases

Scenario 1;

Per is 13 years old with diabetes I. His mother is very concerned whether this will affect his quality of life in a negative direction, as he is about to enter the challenging period of teen aging. As a nurse you are not sure of the answers and decide to find best available knowledge.

Scenario 2;

Pressure ulcers are a problem for patients who are unable to change position regularly. Pressure relief using mattresses are widely used to prevent pressure sores. The question is whether there is research that shows what is the best way to prevent pressure ulcer?

Scenario 3;

You shall teach children and adolescents who are suffering from cancer. Children might have difficulties in understanding and remembering information they receive from adults about their diagnosis. You therefore want to look into communication methods which will help children to better understand both the disease and what they have to go through as a consequence of the disease. You decide to search for evidence based interventions which can improve communication with children and adolescents with cancer.

Table 2: The focus group interview guide

<i>Question series</i>	<i>Discussion topics</i>
Opening	Introduction of the moderator and co-moderator The purpose of the study and the focus group Tape recording and the rules for the interview
Introduction	The students' clinical practice and experience
Transitional	The students' experiences with the health professionals concerned and their interest in EBP
Key	1. Enough knowledge of EBP to apply evidence-based procedures during clinical practice 2. Learning and perceived benefits from working evidence-based 3. Factors influencing the integration of EBP into clinical practice
End	Students' opinions of whether EBP was useful in their clinical practice

All focus group sessions took place at the end of the students' clinical practice in May 2008, during their working day in an undisturbed conference room in the hospital. Each group session lasted from 1–1½ hours and was led by a moderator, who is the first author of this article. The co-moderator (the third author) tape-recorded the interviews and took written notes during the sessions. The moderator transcribed three of the focus groups and the co-moderator transcribed one.

Reliability and validity

The topics were selected based on research and discussions with people familiar with the area and experienced in the field. To enhance the reliability

lity of the results, the co-moderator asked additional questions and gave a short summary during the interview of the key points of the discussion. Each group then had an opportunity to clarify and expand on the discussion and to correct any misconceptions contained in the summary. To enhance the validity of the results, the moderator, the co-moderator, and the fourth author separately read the transcripts and cross-checked the categories. When differences arose, consensus was reached by revisiting the original interviews to check that the interpretations were consistent with the students' statements. Consensus was then reached among all interpretations. This triangulation of interpretations increased the validity of the analysis and the interpretation of the data (19). Both the moderator and co-moderator give lectures in EBP and were very aware of their own perceptions of EBP during the interview – and analytical process.

Data analysis

A typological coding approach was used. The data sets were coded into categories following the major topics in the guideline questions (19). The steps in the analysis were: transcription, coding, categorization, making an overview grid, comparisons, condensation, and summarizing the essence (19). The interviews were transcribed and were read as a whole to obtain a first impression of the data. In the categorization process, factors as facilitators and hindrances influencing EBP implementation and whether EBP was useful during their placements were treated as the main categories. Comments were assigned to the appropriate categories. An overview grid was constructed with the categories on one axis and the focus groups on the other. A descriptive summary of each group's responses to the categories was written. The main impression was that there were no essential differences between the groups. Finally, the essence of the data was condensed by both moderators.

Ethical considerations

The Dean of Nursing Education, the leaders of the wards hosting the students at the university hospital, and the Norwegian Social Science Data Services approved the study. Written informed consent was obtained from the students for their participation in the focus groups. The anonymity and confidentiality of the data collected were assured. The data were kept in accordance with Norwegian recommendations, with tapes and transcripts locked separately from the students' names.

Results

Analysis suggested many factors to be related to the use and implementation of EBP in a clinical setting. The main categories are structured around facilitators, hindrances and usefulness of EBP during clinical practice, with some subcategories for the two first categories. Facilitators were related to these subcategories; students' skills in EBP, leaders' commitment and fellow students, while hindrances were related to practical use of EBP and role of the staff nurse.

Facilitators

Students' skills in EBP

There was agreement among the students that they had a good theoretical knowledge of EBP, and all the students managed to fulfil the goals of the syllabus. The students also talked about the different steps in EBP and discussed the relevance to quality improvement.

"We were interested to find out whether preoperative bathing or showering with skin antiseptics would prevent surgical site infection, because it was not a common procedure among the different wards at the hospital. We used the EBP steps, found a systematic review, and presented the evidence to the ward staff."

Application of EBP made the students more critical and more reflective, and it was easier for them to question the sources the nurses used to support?

"We often see nurses doing the same procedures differently and I feel more able to question their approach, because I can argue from different sources."

Scientific knowledge also made the students more conscious that not only do discrepancies exist between current clinical practice and scientific evidence,

"Nurses often said that patients with heart failure are not at nutritional risk because the patient is overweight, but the patient can have oedema, which can hide that the patient is at risk of malnutrition. According to the research, malnutrition is a common problem among these patients. It is important to screen all heart failure patients for nutritional risk and use research evidence that can describe this relationship then you have something to base your judgment on."

but also that research evidence can support existing clinical practice.

"I saw that what we do in practice in terms of nutrition is similar to what the articles concluded."

Leaders' commitment

The leaders' commitment to evidence-based issues was essential for the students' motivation. Leaders who were engaged and requested results from the students were considered to be an important resource, and created a stronger involvement and interest in EBP among the students and nurses.

"The ward leader was very engaged in our EBP work. She suggested different relevant focuses and was very interested in the results. Her engagement has been important for our results and our motivation to work with EBP."

Fellow students' commitment

Collaboration with fellow students was reported to be an important factor for success in both understanding and working with EBP. To be alone in the process was perceived as too difficult and challenging.

"If you are supposed to work evidence-based all by yourself, you would probably have given it all up because of all the obstacles, such as searching, reading, and critically appraising the articles all by yourself. But when you are part of a group, you don't have to face it all alone, which makes it easier to complete the tasks."

However, the students also asked for greater participation by the lecturers and staff when articles required critical appraisal.

"We do not have enough experience to decide whether this article is relevant or not, especially if the results in the articles are contradictory."

Hindrances

Practical use of EBP

Applying EBP principles in clinical practice was described as far more difficult than applying them at college.

"There is a very big difference doing EBP at school compared with in practice. In practice, you do not have the same time and are interrupted by other tasks, which have a higher priority than spending time on searching for articles."

Searching for research papers was perceived as the most difficult part of working in an evidence-based way in practice. This was considered to result from a lack of experience, the time required to learn how to use PICO (population, intervention, comparison intervention and outcome), and the difficulty involved in reading and understanding articles written in English.

"We've certainly received a lot of knowledge about EBP at school, but I lack training in searching, which is why I struggle. In the ward, there is much I would really like to research, but it is too time consuming."

"If there was more research written in Norwegian, I think that would make it all easier."

Role of the staff nurses

All the students reported that the majority of nurses did not actively participate in the students' EBP work. The students reported that most nurses accepted the importance of EBP, but believed that it was unfortunate that the students spent time researching and reading scientific articles, time that should have been used to learn the foundations of nursing.

"They think we should focus on the patients and the clinical part of nursing instead of spending our time in research and reading scientific articles, because we have limited clinical training during our bachelor education."

Suggestion that there also is an attitude issue related to the nurses perceptions of the relevance of EBP. It was also a common opinion among the students that many of the nurses and leaders lacked sufficient knowledge of EBP. None of the students were challenged on evidence-based issues during their clinical training.

"Nurses have problems mentoring us in EBP because they have insufficient knowledge and skills in EBP. They explain this by saying they have limited time for evidence-based work."

Students also expressed that leaders who lacked commitment to EBP made the students feel that they were alone in the process

"Our leader showed very little interest in our EBP work. We felt very alone in the process"

Usefulness of EBP during clinical practice

However, despite the reported benefits of EBP, there was a mixed attitude among the students regarding the need for EBP during clinical training. For some students, it was very obvious that EBP was essential to increase patient safety. They had experienced situations in practice in which they saw the importance of using different sources to find the best evidence.

"We have some patients with cancer metastases who didn't receive sufficient pain relief. It was therefore important for me to try to find articles that could give me evidence about the optimal pain relief for this patient group."

Other students took the opposite view, and found that EBP was less important than other tasks during their practical training.

"EBP comes on top of everything we had to learn during clinical practice. Others can do the evidence-based work, we can implement it."

Discussion

Overall, our findings indicate that the students were able to implement EBP according to the goals of the syllabus, but encountered hindrances in the clinical settings that were not sufficiently prepared, either structurally or in term of knowledge, to support and use EBP when mentoring the students. In essence, the findings indicate a culture clash between the students' learning goals of EBP at the faculty and the application of EBP in practice.

Students' skills and learning outcomes in EBP

The students in this study reported that they had sufficient knowledge of EBP to implement the EBP steps in clinical practice, but they did not feel confident when searching for and reading articles in English. However, despite a process that was challenging and time-consuming, the students reported several learning outcomes when using an evidence-based approach. As an example, the students in the surgical ward initiated to search for evidence related to clinical judgement on the effect of preoperative bathing or showering with skin antiseptic. The students experienced that the practice did not apply the current recommendations to prevent surgical site infection. This use of EBP skills allowed them to integrate research knowledge with their clinical judgements and made them more secure in and conscious when underpinning their judgement. The students found that searching for and appraising research information widened their perspectives, and recognized that multiple sources of knowledge are necessary to increase patient safety (1, 5). It is important that students maintain the skills and knowledge they acquire, because basing their clinical decisions on information from various sources will increase their confidence in their professional performance (1,11). The nursing profession requires practitioners with intellectual skills that can be applied to clinical judgements and discussions, skills that are necessary in policy, implementation, leadership, research, change management and bedside nursing. The reinforcement of these skills must be embedded in a professional environment that provides space to apply EBP (1,7,11,20).

The hindrances within the culture of the practice to promote EBP

If EBP is to be used in practice, clinical staff have a crucial responsibility to challenge students to become EBP practitioners. Although this was a significant goal with the intervention that the staff nurse

should collaborate with the students in implementation of EBP in the clinical setting, the results showed that none of the students in this study encountered nurses who actively challenged them on clinical questions, or encouraged them to look for answers in the literature, or to base their judgments on different sources. Instead, the students found that the nurses stressed that they should focus on practical nursing, rather than spending time on research and reading English articles. Therefore, it might be difficult for students to apply and benefit from an evidence-based approach to professional upskilling, when there is a limited demand for that skill in practice. In general, students are more focused on learning specific procedures and basic nursing skills early in their clinical training (21). However, when only the traditional approach is emphasized during mentoring, it is natural for students to consider EBP time-consuming and extraneous to everything else they must learn during their clinical training. Although traditional mentoring is important, sole reliance on textbook information and nurses' experience and knowledge does not promote the critical thinking needed in current clinical settings (1, 5, 20).

Becoming skilled in EBP is a continuous learning process that requires interaction and collaboration between students and nurses in an authentic clinical setting. Nurses who are perceived as nurturing, supportive, and helpful in this process will enable students to develop a sense of confidence and autonomy, which can influence the students' learning-orientated behaviour in a positive way (22). Without an environment that invites the student to reflect on patient situations and to acquire different types of knowledge to support his/her judgement, the process of linking research evidence with knowledge derived from experience might be difficult for the student (20, 22). Our findings confirm this as the students experienced that they were not challenged on evidence-based issues, and felt a lack of experienced partners with whom to discuss how to apply and evaluate the knowledge they had found in order to implement or use it in the practical setting. In contrast, their closest discussion partners were their fellow students, and the ones reported to be important during the process of learning. The students clearly expressed that having to tackle the process of EBP alone would be an obstacle to its implementation in practice. This suggests that only the most interested students will see the benefits of spending time and effort to become an EBP user after they graduate. Even nurses who are competent and interested in EBP did not use an evidence-based approach when mentoring the students. There seems to be no structure within the wards for mentoring students on evidence-based issues. According to the students, the nurses expressed the opinion that mentoring should focus on basic nursing skills, and not on looking for and reading scientific information, because the opportunity for clinical training before graduation is limited, suggestion that there might still be an attitude issue related to the nurses perception of the relevance of EBP. This is supported by the findings of Markussen, K. (2007)

Conclusions and implications

The students in this study demonstrated that EBP is feasible in practice. The students were able to implement EBP during clinical training, but highlighted factors that hindered its implementation. It is well established that if an organization lacks a system for implementing EBP, no changes will occur (10, 20). However, current implementation strategies focus on identifying the obstacles to the implementation of EBP, increasing the competence of nurses, allocating resources to infrastructure, etc. (10,20), but there is little focus on the collaboration between individuals and their relationships, particularly those between nurses and students. It is nurses and students who will apply scientific evidence in a practical setting, and as mentors, nurses have tremendous power in influencing the students' practical training, a relationship that needs to be utilized more systematically for the implementation of EBP in clinical settings. Hence; leaders should organize their staff by providing clear guidelines to nurses on how to take an evidence-based approach when mentoring students, but also give them time, resources and support. In this way, both nurses and students would be empowered to drive practice, and the students

would be afforded an opportunity to interact in meaningful and systematic ways with the nurses in the ward (11). However, in this study, the students perceived that there was a general lack of interest among the leaders and nurses in spending time and effort to have an EBP approach to the students. However, they reported that the leaders who did ask them for evidence-based work were perceived as more motivating and engaging than leaders who showed little interest. The students in this study had acquired competence in EBP, which practice could be used to its advantage to promote the potential which lay in this knowledge and skills. Clearly, the more that EBP is embedded in the clinical context, both attitudinally and logistically, the easier it will be for nurses to practice EBP (11, 20). A key factor in this success will be to encourage nurses to adopt an EBP approach when mentoring students. Future interventions will require such an approach.

Methodological considerations

The focus group method was effective in collecting the relevant data. The open-ended nature of the questions made them useful for exploring attitudes, opinions, and perceptions in a way that is more difficult in normal surveys (19). A potential problem with focus groups is the risk of respondents exerting too much influence on one another. Another factor that can influence the interview process is the moderator's role. In this study, both moderators were familiar with the EBP literature and were involved in the students' educational programme, which could have increased the risk of influencing the interview. However, we found that the students were engaged and able to express their individual experiences of evidence-based work.

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