Use of research in undergraduate nursing students' theses: A mixed methods study

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ABSTRACT

Background: Health care personnel are expected to be familiar with evidence-based practice (EBP). Asking clinical questions, conducting systematic literature searches and conducting critical appraisal of research findings have been some of the barriers to EBP. To improve undergraduate nurses' research skills, a collaborative library-faculty teaching intervention was established in 2012.
Objectives: The aim of this study was to evaluate how the collaborative library-faculty teaching intervention affected the nursing students' research skills when writing their final theses.
Design and Setting: Both quantitative and qualitative data collection and analysis were used. The study focused on a final year undergraduate nurse training programme in Norway.
Participants: 194 theses submitted between 2013 and 2015 were collected and assessed. The students were exposed to the intervention for respectively one, two and three years during this period.
Methods: Descriptive statistics were used to compare each year's output over the three-year period and to examine the frequency of the use of various databases, types of information and EBP-tools. Qualitative data was used to capture the students' reasoning behind their selection processes in their research.
Results: The research skills with regard to EBP have clearly improved over the three years. There was an increase in employing most EBP-tools and the justifications were connected to important EBP principles. The grades in the upper half of the grading scale increased from 66.7 to 82.1% over the period 2013 to 2015, and a correlation was found between grades and critical appraisal skills.
Conclusions: The collaborative library-faculty teaching intervention employed has been successful in the promotion of nursing student research skills as far as the EBP principles are concerned. Writing a thesis in the undergraduate nursing programme is important to develop and practice these research skills.

1. Introduction

This paper sets out to evaluate the outcomes of a collaborative library-faculty teaching intervention for research application as a part of evidence-based practice (EBP) in an undergraduate nurse training programme in Norway. EBP involves clinical decisions, which are founded on the best scientific evidence and clinical expertise alongside patients' preferences in a specific context (Straus et al., 2011). This implies that health care personnel have to be familiar with asking clinical questions, conducting systematic literature searches and conducting critical appraisal of the research findings, which have been some of the barriers to implementation of EBP (Straus et al., 2011). Research use is an essential aspect of EBP in health care, and therefore these skills need to be acquired in undergraduate health education.

Nursing education in Norway involves a three-year programme,

including writing a thesis in the final term. This provides an opportunity to attain the research skills that are required in future professional practice. The thesis in Norway is afforded 15 ECTS (European Credit Transfer and Accumulation System), which in this specific programme is allotted 10 weeks full-time work and a written documentation of about 9000 words for an individual thesis and about 11,000 words for a joint thesis. The thesis is required to take the form of an extended literature review focusing on a nursing-related theme. It includes: 1) an introduction culminating in a precise research question, 2) a methods section describing the literature search by search terms and relevant databases; at least four peer reviewed journal articles have to be presented and critically appraised, 3) a theory section presenting relevant literature like government documents, guidelines, legislation and the like, 4) a discussion of the research question based on the selected literature, 5) a conclusion and 6) an accurate citation and reference list in

APA style. Additionally, since 2014 the search strategy and a PICO framework is required when submitting the thesis. PICO is a categorisation of search terms into population, intervention, comparison and outcome. Beyond these criteria, EBP is not mentioned.

The requirement for research application in nursing is anchored in the International Ethical Guidelines for nurses and educational frameworks. The ICN Code of Ethics emphasises that nurses must determine and implement research-based standards in their clinical practice and should be "active in developing a core of research-based professional knowledge that supports evidence-based practice" (2012, p. 3). The Norwegian Qualifications Framework in Higher Education is based on the Bologna process, European Higher Education Area. Even this framework specifies expected learning outcomes for candidates with a Bachelor degree, which includes skills in finding, evaluating, referring and applying scholarly information (Ministry of Education and Research, 2012, pp. 7–8).

A number of studies have found that it is challenging to teach research skills to undergraduate nursing students (e.g. Duncan and Holtslander, 2012; Jacobsen and Andenæs, 2011; Ragneskog and Gerdner, 2006), and collaboration between faculty and library staff is essential to succeed (Bønløkke et al., 2015; Cader et al., 2006; Gannon-Leary et al., 2003; Nayda and Rankin, 2008). The library staff has to engage in the domain of nursing to fully understand and accommodate the specific information needs of nursing students (Sundin et al., 2008). The teaching content and the learning goals should be consistent. It is not enough to teach how to search for information; skills such as formulating a research question and critically appraising, analysing and synthesising the literature are also required. This requires boundary crossing and mutual learning between faculty and library staff (Limberg and Folkesson, 2006).

Moreover, it is recommended that teaching research skills should be systematically integrated into the nursing curriculum and closely related to course assignments (Barnard et al., 2005; Duncan and Holtslander, 2012; Klem and Weiss, 2005). Several empirical research studies have explored a written thesis as a potential strategy for improving these skills (Friberg and Dahlborg-Lyckhage, 2013; Kapborg and Berterö, 2002; Lundgren and Halvarsson, 2009; Lundgren et al., 2008; Lundgren and Robertsson, 2013; Mattila et al., 2005). However, these strategies have mainly been evaluated by questionnaires concerning the students' experiences, satisfaction and self-evaluation of skills, and not the process and product of the student thesis as a work assignment.

The aim of this study is to evaluate how a collaborative library-faculty teaching intervention affects the nursing students' research skills when writing their theses.

The research question focused upon is: How do the research skills of undergraduate nursing students evolve as a result of a collaborative library-faculty teaching intervention? This is assessed by examining theses submitted over the three-year implementation period, 2013–2015.

2. Methods

This study uses mixed research methods. A quantitative data collection and analysis is supported by qualitative data to acquire a broader and deeper understanding of the outcomes of the teaching intervention applied (Johnson et al., 2007).

2.1. Teaching Intervention

A new library-faculty teaching intervention was implemented to improve nursing students' research skills related to EBP in 2012, more thoroughly described in Nordsteien et al. (2013). The teaching intervention included the first four steps of the main EBP model: 1) cultivate a spirit of inquiry, 2) ask clinical questions in a PICO format, 3) search for the best evidence and 4) critically appraise the evidence (Melnyk et al., 2010). Additionally, the S-Pyramid was promoted, which is organising information sources into six levels to facilitate easy access to high quality research (Dicenso et al., 2009). A number of different small seminar groups were used for teaching, focusing, for example, on demonstrations of databases and practical exercises on computers; always linked directly to study assignments with relevant clinical application. A close collaboration between librarians and nurse educators was established to be able to teach the EBP-model effectively throughout all three years of the study programme. Representatives from both professions were involved in planning the course content together, attending the same classes and workshops, and sometimes, alternating teaching and giving feedback to the students. The librarians taught mainly steps 2 and 3 of the EBP-model, while the nurse educators focused on the other steps. However, there were no strict boundaries, since both members of teaching staff participated in each other's sessions. The students who graduated in 2013, were exposed to the new teaching intervention only during their final year, while the students who graduated in 2014 and 2015 were respectively exposed to the intervention for two and three years of their programme.

2.2. Sample

In total 194 electronic versions of Bachelor's theses were collected and assessed. 42 of these were from students who graduated in 2013, 74 from students who graduated in 2014 and 78 from students who graduated in 2015. This accounted for 76%, 94% and 98% of the total number of theses submitted of each respective year. Some of the students in each year chose not to participate. The increased number of participants between 2013 and 2014 may be due to increased knowledge among the students about the teaching intervention and this evaluation. Moreover, the regular teaching and a tighter relation between the 2014 and 2015 students and the librarians may have motivated more students to participate. The number of individual submitted theses increased from 64% in 2013 to 76 in 2014 and 77% in 2015.

2.3. Quantitative Method

The main intention of the study was to measure the effect of the teaching intervention by examining possible changes in the use of information sources, types of literature and EBP-tools across the three years. A coding scheme was developed following an initial cursory reading of a number of theses to get an understanding of what kinds of resources were being used. All databases, EBP-tools and information types, such as reviews, guidelines, point-of-care tools and legislation, were listed as variables. These variables were given the values 1 for yes and 0 for no. Additionally, variables regarding grading, the total number of databases employed and research articles were included in the scoring. Descriptions were made in the code scheme to guide coding.

The theses were divided between the two first authors of this paper for coding. Each author coded half of the theses submitted in each of the three years. The theses were given a reference number together with the graduation year. The theses were coded based on a read through of the methods sections, reference lists, PICO and search strategies. Values were assigned for each variable on a separate sheet for every thesis. The search function in Word was also used to double-check that everything was included. In cases of uncertainty, follow-up questions were noted on the thesis sheet. After coding, the authors exchanged every tenth thesis, in total 19 theses, to check for intercoder reliability, which proved to be 0.84. Three cases of disagreement related to categorisation of articles were resolved, and all the 194 code sheets were readjusted according to these agreements to improve the consistency of coding. The coding sheets were entered into SPSS version 24.0 and double-checked for possible errors.