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The effect of a multifaceted evidence-based practice programme for nurses on knowledge, skills, attitudes, and perceived barriers: A cohort study

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ABSTRACT

Background: The Dutch professional nursing standard of 2012 stipulates that Dutch nursing practices are to be evidence-based. Not all practicing nurses can satisfy these requirements, therefore, an educational programme about Evidence-Based Practice (EBP) was developed for a Dutch teaching hospital.

Objective: The aim of this study was to measure the effects of a six month in-house EBP programme on knowledge, skills, attitudes, and perceived barriers of nurses (four European Credits equals two US Credit Hours).

Methods: A multiple-cohort study was conducted with a pre-post-test design. In the period of 2011–2015, a total of 58 nurses (9 cohorts) followed the programme. Baseline and follow-up assessments consisted of three questionnaires each: the Dutch Modified Fresno, the two subscales of the McColl questionnaire, and the BARRIER scale to assess knowledge and skills, attitudes, and perceived barriers, respectively.

Results: Fifty nurses completed both assessments. The results demonstrated that actual knowledge and skills significantly increased by approximately 40%. Self-perceived knowledge increased significantly, while attitudes towards EBP remained (moderately) positive. Perceived barriers did not notably change except for the Research subscale which received many “no opinion” responses prior to the programme but fewer afterwards.

Conclusions: Our multifaceted in-house EBP programme led to a significant improvement of approximately 40% in EBP knowledge and skills of participating nurses. Most nurses who followed the EBP programme are currently applying their knowledge and skills in practice. Managerial support and allocated time for EBP are important facilitators for its implementation. Furthermore, to maintain and expand nurses' EBP knowledge and skills and translate them into practice, follow-up interventions, such as journal clubs, may well be beneficial. Based on the positive results of our programme, we will implement it throughout the hospital with an emphasis on training more groups of nurses.

1. Introduction

Evidence-based practice (EBP) facilitates clinical decision-making by integrating clinical expertise, patient preferences, and current scientific evidence (Fineout-Overholt et al., 2005). Implementation of EBP is associated with positive patient and healthcare outcomes, however, nursing practice often remains driven by non-scientific traditions (Makic et al., 2011; Hanrahan et al., 2015). To counter these traditions and to advocate for EBP nursing, a Dutch Professional Nursing Standard was released in the Netherlands in 2012 (Schuurmans). This standard has been an incentive for hospitals to develop and implement educational programmes to (re)train and improve nurses' skills and knowledge about EBP in practice. Moreover, recently Melnyk et al. (2014) developed a set of EBP-competencies to further implement and sustain EBP in nursing practice.

Several studies indicated various barriers and facilitators in the adoption of EBP in practice. Facilitators are, for example, mentorship (Brown et al., 2009; Koehn and Lehman, 2008; Wallen et al., 2010), organizational and managerial support, opportunities for learning or professional development, and time to review and implement research

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findings (Brown et al., 2009; Melnyk et al., 2010; Wallen et al., 2010). Reported barriers can be related to organizational factors such as workload, limited managerial support, and lack of nursing autonomy to change practices (Brown et al., 2009; Koehn and Lehman, 2008; Melnyk et al., 2012; Williams et al., 2015) or individual factors such as limited knowledge and skills of EBP (Koehn and Lehman, 2008; Melnyk et al., 2012; Saunders and Vehviläinen-Julkunen, 2016). Despite these barriers, nurses often tend to have a moderate to positive attitude towards EBP (Knops et al., 2009; Maaskant et al., 2013; Stokke et al., 2014; Squires et al., 2011).

Taking into account the above mentioned need for nursing practice to be evidence-based, its facilitators, and associated barriers, the Martini Hospital (Groningen, the Netherlands) commissioned the development of an educational programme referred to as 'evidence-based practice for nurses' (EBP Programme). The aim of this study was to measure effects of this programme on knowledge, skills, attitudes, and perceived barriers of nurses. Does the programme lead to increased EBP knowledge and skills, and to what extent do nurses' attitudes and perceived barriers change by the programme?

2. Methods

2.1. Study Design and Setting

From 2011 until 2015, a multiple-cohort study with a pre-post-test design was performed at the Martini Hospital. This is a large teaching hospital that houses 642 beds and employs 3065 health care professionals of which 950 are nurses (reference date 2013). The EBP programme was developed by the Educational Institute of the Martini Hospital in collaboration with lecturers/researchers of the School of Health Care Studies and the School of Nursing from the Hanze University of Applied Sciences Groningen (the Netherlands).

2.2. Educational Programme

The programme's content was based on the five EBP steps (Fineout-Overholt et al., 2005; Sackett et al., 2000): (1) ask a clinical question, (2) search for the best evidence, (3) appraise the evidence critically, (4) address the sufficiency of the evidence, and (5) evaluate the outcome and/or implementation in practice. The programme had a duration of approximately six months and contained seven educational sessions of 4 h each (28 h in total), seven structured self-study sessions of 4 h each (28 h in total) with a lecturer available on request, and individual self-study. The team of lecturers consisted of nurse practitioners, nurse/health scientists, an information specialist, an educational/nurse advisor, clinical researchers, and epidemiologists. The EBP programme had a study load of four European Credits (EC), which equals two US Credit Hours, and was accredited by the Dutch professional nursing association (V&VN; registration code 136822).

During the programme, participants acquired EBP knowledge and skills while simultaneously working on formulating and answering a question from their own practice utilizing the PICO format (Patient/problem, Intervention, Comparison, Outcome). This approach allowed participants to immediately integrate theory into practice. To facilitate implementation in practice, participants as well as lecturers were in regular contact with their manager and head nurse. Each programme concluded with a symposium (approximately 60 attendants per session) during which participants presented their EBP case results to colleagues. Subsequently, a written version of the case results (factsheet) was published on the hospital's intranet.

2.3. Participants and Procedure

All nurses at the hospital were invited to participate in the programme. Participation was contingent upon professional motivation and approval by their head. Over a period of five years (2011–2015), a total number of 58 nurses in nine cohorts (four to eight participants per cohort) followed the programme. After registration into the programme, nurses were informed about the study by e-mail. This information was reiterated by RK prior to the first educational session. Subsequently, participants received and filled out the printed questionnaires (baseline assessment). All filled out the three questionnaires (baseline assessment). Basic demographic information (sex, age, work experience, educational level) was aggregated at baseline. At the end of the programme, participants were once again asked to fill out the same three questionnaires (follow-up assessment). The assessments were supervised and participants had a maximum of 60 min to complete all questionnaires. After that, the first educational session started.

2.4. Ethical Considerations

The programme was commissioned by the Martini Hospital. The study was approved by the board of directors of the hospital and the hospital ethical committee. The study was designed by researchers who were involved in the development and teaching of the programme. During recruitment and prior to the first session, each and every participant was informed about the research design and goal. All participants gave their consent to join the research study. Participants could withdraw their participation at any time. Participation was voluntary whereby completing the questionnaires was neither rewarded nor a requirement for entering the programme. All questionnaires were anonymised by an independent co-worker. Participants did not receive feedback on their individual scores.

2.5. Questionnaires

2.5.1. Knowledge and Skills

Knowledge and skills in EBP were measured with the Dutch Modified Fresno (DMF; Spek et al., 2012; Cronbach's alpha = 0.83), a translated and validated version of the Fresno test (Ramos et al., 2003). The DMF, constructed to test knowledge and skills of speech therapists, was modified for nurses, i.e., a change in phraseology and case description, however, the test in itself was not modified. The DMF contains open answer, yes/no, and multiple-choice questions and must be completed within 40 min. Participants need to formulate PICO questions, describe search strategies, describe aspects and critically appraise articles, and calculate and define diagnostic and therapeutic outcome measures. The DMF employs a standardized rating system with a maximum score of 220 points.

2.5.2. Self-perceived Knowledge and Attitudes

Attitudes of nurses towards EBP were measured by the two subscales of the validated Dutch version of the McColl questionnaire (Knops et al., 2009; McColl et al., 1998): 'general attitudes' (seven questions on a 0–100 scale) and 'self-perceived knowledge' (ten closed questions with four options including two dummy variables, i.e., 'absolute treatment increase' and 'dosage change', to indicate possible social desirable answering).

2.5.3. Barriers

Perceived barriers were measured by the Dutch version of the BARRIER scale (Funk et al., 1991; Knops et al., 2009). Twenty-nine items assessed EBP implementation barriers on a five point scale ranging from 1 (*to no extent*) to 4 (*to a great extent*) and 5 (*no opinion*). One question rates the three largest perceived barriers. In accordance with Funk et al. (1991), four subscales (six to eight items each) were calculated: Nurse subscale (nurse's research values, skills, and awareness); Setting subscale (setting barriers and limitations); Research subscale (qualities of the research); and the Presentation subscale (presentation and accessibility of the research).