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Evaluating the effectiveness of an innovative midwifery education method based on the use of a multimedia application allowing for the construction and verification of the nursing process

Abstract

Introduction: Civilisation progress involves the necessity of change in medical education, especially in the range of methods and didactic tools. One essential area in educating future midwives is the ability to fill in the nursing process, which for years has been an established method in teaching clinical thinking and decision-making in midwifery. Unfortunately, students find it difficult to understand the nursing process, which is why they are reluctant to complete it. The application based on the Virtual Patient programme prototype and designed to teach the nursing process can help to solve this problem.

Aim: The purpose of the dissertation is examining the problems students have while completing the nursing process, designing the prototype of Virtual Patient programme and subsequently comparing the effectiveness of teaching the nursing process through the programme and with traditional methods. Additionally, the author has analysed students' preferences regarding modern didactic tools.

Focus groups characteristics: Four stages of the research were conducted in the group of 684 midwifery students. 286 first-year bachelor students accounted for the most numerous group. The study also included 170 third-year students and 90 second-year students of bachelor's programme. Master's students constituted the smallest group with 78 and 60 students of the first year and of the second year, respectively.

Research tools: The research involved 7 tools: 4 original surveys exploring students' opinions, 1 nursing process assessment questionnaire, 1 pre- and post-training competency test and 1 self-efficacy scale.

Results: The most effective didactic tool according to students was a multimedia presentation, and the greatest difference in opinion between master's and bachelor's students concerned

the scientific publications ($t=-3,595$, $p=0,000$, $d_{\text{Cohen}} = 0,39$). All students considered nursing diagnosis to be the most difficult stage of the nursing process. In the competency test average results in both groups were significantly statistically higher after the training than they were before. What is more, in the computer group the difference in average results pre- and post-training was significantly statistically smaller than in the traditional group (1,76 vs 3,37; $F = 12,154$, $p = 0,001$, $\eta^2 = 0,106$ [0,020; 0,225]). Average skill self-assessment differed significantly statistically between the computer and the traditional group after the training. Students from the computer group had a significantly statistically higher score than those from the traditional group ($M: 3,78$ vs $3,41$; $t = 2,922$, $p = 0,004$, $d = 0,57$ [0,17; 0,97]). After the training, the concentration levels were significantly statistically lower in the computer than in the traditional group. After the training no significant statistical difference was recorded between the two groups in average results regarding the nursing process completion.

Conclusions: The preferred types of didactic tools change as more vocational competences are acquired. Students notice problems within the nursing process. There is a need for continuous training in nursing process in under- and postgraduate education of midwives. The traditional method brings about a greater increase in knowledge than education with the use of Virtual Patient. Simultaneously, no differences in the results of competency test were noted between the study groups. Both methods proved to be equally effective as far as completing nursing process is concerned. Further research is required to establish how the combination of both methods would affect the students' knowledge and skills. Students using the Virtual Patient gave a higher assessment to their nursing process skills and training satisfaction than the students from the traditional group, which may translate into a higher motivation. Using the Virtual Patient application requires a lot of involvement on the part of the students, which affects the levels of concentration and energy. Online classes will not be able to replace the traditional method of educating future midwives, but a skillful use of both methods simultaneously may improve the quality of education.