Student 4 Best Evidence as digital Problem-Based Learning method to improve Evidence-Based Practice competencies in physiotherapy students: an observational study

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Background: Evidence-based practice (EBP) is an essential element in delivering high-quality care, and healthcare professionals should make clinical decisions based on the best available evidence. The aim of this study is to evaluate the effectiveness of an EBP laboratory, using Students 4 Best Evidence (S4BE), an online community of students from all around the world who are interested in learning more about EBP, as an educational tool, to teach EBP competences to undergraduate first year physiotherapy students.

Methods: We run an observational pretest-posttest study. The sample included 121 students (20.7 ± 2.7 years, M:F 73:47) attending a bachelor's degree in Physiotherapy at an Italian University. The intervention consisted of the use of S4BE as digital technology of digital problem-based learning (DPBL) method to teach EBP competences. The evidence-based practice questionnaire (EBPQ[2]), a validated tool for the evaluation of EBP competences in the domains of *Relevance*, *Terminology*, *Confidence*, *Practice* and *Sympathy*, was used to evaluate EBP attitude, knowledge, skills, and practice at the beginning of laboratory and after 24 training hours and 2 months of clinical practice training. A within-group analysis has been conducted.

Results: 103 students completed the training (drop-out rate: 15%) and were assessed using the EPBQ[2]. The students showed a significant improvement in all domains ($p<0.001$), except in the sympathy domain, where the percentage score decreased from 71% to 60%. The best improvements were reached in terminology (54% to 65%) and in practice (41% to 55%) domains.

Discussion: The use of S4BE as digital tool of DPBL led to statistically significant improvements in four of the five domains addressed by the EPBQ[2], showing its possible effectiveness in a undergraduate students context. Since the best improvement was found in the practice domain, it is likely that the clinical training performed simultaneously might have influenced the learning of these specific EBP competencies as well.

Conclusion: This study proposed an effective educational protocol, based on DPBL approach, using S4BE as new digital technology tool. Further research is needed to test the effectiveness of this educational protocol compared with traditional learning in physiotherapy students.

Keywords: Evidence-based practice; Students 4 Best Evidence; Digital Problem-Based Learning