

# **EVALUATION OF THE IMPACT OF A TRAINING INTERVENTION IN THE PROMOTION OF EVIDENCE-BASED PRACTICE**

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**Abstract:** Goal: The provision of evidence-based health care is an imperative of contemporary societies in a context of more complex clinical conditions, demanding high quality and safety responses, in a context of high resource constraints, implying higher levels of effectiveness, efficiency and effectiveness of interventions. In this context, it is pertinent to assess the impact of promoting evidence-based practice through the promotion of a short-term intensive educational/training intervention. Methods: A quasi-experimental study in which the impact of an educational intervention was evaluated on 264 subjects, which corresponds to 63.8% of the total number of participants in the training sessions (N = 414). For data analysis, descriptive statistics and inferential statistics were used, specifically the *t test* for independent samples. A p-value < 0.05 was considered statistically significant. The following instruments were used to monitor and evaluate the impact: BRUS – *Barriers to Research Utilization Scale*; QABPBE-26 – *Questionnaire of Attitudes and Barriers to Evidence-Based Practice* and the QECPBE-20 – *Questionnaire of Clinical Efficacy and Evidence-Based Practice*. All instruments had psychometric properties indicative of their validity for use in the present study. Results: There are statistically significant differences at the level of the “Practice” subscale of the QECPBE-20 and the four subscales that make up the BRUS scale. Regarding the “Practices” dimension of the QECPBE-20, lower mean values of evidence-based practice perception were registered after the intervention was carried out. Regarding the perception of barriers in relation to EBP, in the four dimensions higher average values are observed. Final considerations: A short-term training program is an intervention that can be used by organizational leaders in order to provide

nurses with greater skills, involving them in the dynamics of EBP, and therefore, albeit in a limited way, relevant.

**Keywords:** Evidence-based practice; Educational and training intervention; Knowledge translation; Nursing; leaderships

## INTRODUCTORY NOTE

The set of professional and organizational responsibilities that we assume in our socio-professional path, mainly through the exercise of teaching functions in the context of pre- and post-graduate nursing education, were the starting point for the present study. In this context, the framework promoted by Fineout-Overholt and Johnston (2006) when reflecting on the teaching of EBP as a challenge for educators in the 21st century to a model in which curricula are based on the integration of evidence-based practice (EBP). The following transcript, although a little extensive, is a model with regard to this transition:

*“The traditional paradigm for teaching research typically emphasized generating research, with particular focus on research methods and extensive critique. This paradigm is no longer adequate for preparing practitioners for the level of practice expected of them. Educators must begin to provide foundational education, beginning in basic programs (...) and continuing education in evidence-based practice that will prepare nurses to give care that is based on the best available evidence. Practitioners are expected to bring the best and latest evidence to bear on their decision making with patients. (...) Educators must be able to challenge learners to incorporate valid scientific evidence; their own expertise; and their patients’ choices, concerns, and values when making clinical decisions.”* (FINEOUT-OVERHOLT; JOHNSTON, 2006, p. 37)

Such a challenge, guided by such scope, requires a significant commitment on the part of all those who, to different degrees and with different statutes (teachers, mentors, tutors,

clinical supervisors and leaders) intervene in the educational and training processes in nursing in a particular way. and more broadly in the field of health sciences.

In Portugal, the production at this level is residual, and to prepare this chapter the author relied on the main results obtained in an empirical study that integrates the set of works carried out within the scope of the doctoral program in Nursing Sciences carried out at the Instituto of Biomedical Sciences Abel Salazar from the University of Porto – Portugal (PEREIRA, 2016).

## **SCOPE AND FRAMEWORK OF THE STUDY**

The implementation of an EBP is complex and multifaceted, contemplating the construction of evidence, the context in which it occurs and even the facilitators of the process (KITSON, et al., 2008). Talking about context at this level implies considering the organizational culture, the assessment of leadership and even the scrutiny and systematic evaluation of the results. The facilitators understand personal characteristics, the roles played and also the idiosyncrasies regarding the professional practice.

To underline the inherent complexity of the implementation processes, several conceptual frameworks were prepared in this regard, among which the cycle «From knowledge to practice» (GRAHAM et al., 2006), the PARIHS ( *Promoting Action on Research Implementation in Health Services* ) originally presented by RYCROFT-MALONE (2004), the ARCC ( *Advancing Research and Clinical practice through close Collaboration* ), built in 2010 (MELNYK; FINEOUT-OVERHOLT) and the ACE Star Model of Knowledge Transformation from the Academic Center for Evidence -Based Practice (STEVENS; PUGA; LOW, 2012).

When reading and systematized research previously carried out, a vast set of references emerged to the importance of education and training of professionals as a strategy to promote EBP and as a way to encourage the incorporation of evidence in professional practice (THOMPSON; ESTABROOKS; SCOTT-FINDLAY ; MOORE; WALLIN, 2007; HART, et al., 2008; CHEATER et al., 2009; SOARES et al., 2013; YOST; CILISKA; DOBBINS, 2014; YOUNG et al., 2014). In 2007, THOMPSON and colleagues performed a systematic review to evaluate interventions aimed at increasing the use of nursing research. In this and only considering randomized randomized studies and control studies before and after the intervention, it was found that little is known about the most effective strategies at this level, and the evidence is inconclusive in view of this reality.

To obviate this situation, the authors suggest some possibilities of which they stand out:

- a) Use theoretically supported interventions to enhance the use of research;
- b) Longitudinal research using regular assessments applying valid instruments in terms of psychometric properties;
- c) Evaluate the results and relevant gains of the interventions with the people cared for;
- d) Develop more robust and methodologically sound studies to assess the quality of interventions.

Cheather et al. (2009) in a Cochrane review consider that the impact of different strategies to implement changes in practices among health professionals may vary depending on contexts and time, and this is because, given these two dimensions, the barriers to this implementation also are configured differently. However, the evidence resulting from the review carried out is not conclusive in determining that

the most effective strategies are those that address and adapt to specific situations, and it is necessary to deepen the investigation regarding the identification of barriers and remediation strategies. However, there seems to be a consensus regarding the improvement of care, implying health gains on the part of patients if specific interventions are used and prospectively addressed to the evaluated barriers.

Young et al. (2014) in a review of 16 systematic reviews that included a total of 81 primary studies, of which 25 were randomized randomized studies, sought to assess the effects of evidence-based health care teaching, concluding with propriety that these educational interventions must focus on multifaceted implementation strategies, integrating clinical approaches and their evaluation.

In view of the above, recovering the cycle «From knowledge to practice» and at the level of possible intervention strategies, those of an educational nature are described as appropriate, and can be embodied in active and passive interventions. These include, for example, educational interventions such as the one we carried out.

Still on the path of exploratory readings to support and frame this study, we were confronted with a model that advocates the core role of dissemination in the life cycle of the research process (figure 1).

According to the model, taken up by Rimer (2004), training for the adoption of evidence-based interventions (EBIs) and education among «key actors» in relation to EBP are highlighted as ways of applying and promoting the incorporation of evidence in a sustained way in professional practice contexts.

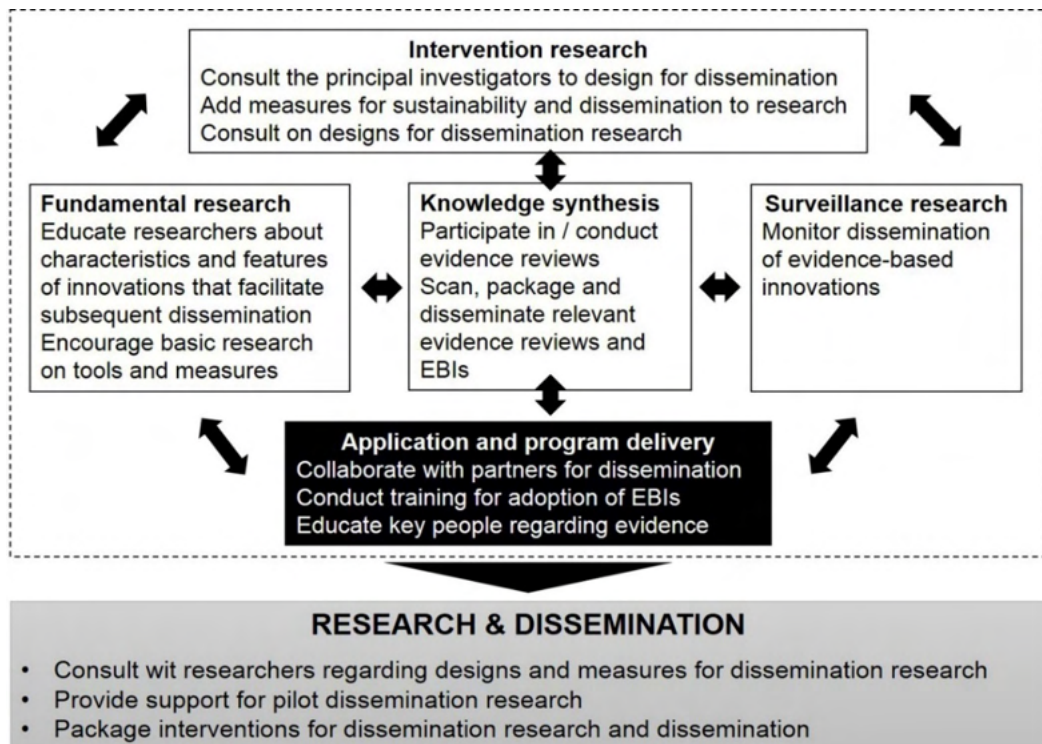


Figure 1 – Centrality of dissemination in the investigation cycle, adapted from RIMER, 2004.

Since the data collection for the main study took place in the context prior to an educational intervention, we considered, after carrying out the same, the possibility of evaluating the possible impact that this could have had on the population of nurses covered by the training (N = 414), thus outlining a cross-sectional, quasi-experimental study with pre- and post-intervention assessment in independent samples without a control group. Thus, with this study we sought to assess the impact of a short-term training program based on an intensive educational intervention.

## **MATERIAL, METHODS AND PROCEDURES**

The organization of the short-term training intervention was systematized in order to explore a sensitive and highlighted form of intervention to fill gaps already identified in the scope of training in the area of EBP and this according to a previously structured planning. In terms of synthesis, with regard to the syllabus covered, the following basic structure was considered for the streamlined training:

- I. Concept, importance and relevance to the profession of EBP;
- II. Institutional recommendations and barriers to EBP;
- III. Evidence-based practice steps:
  - a) Define the question (PICOT Model);
  - b) Plan and carry out the literature review;
  - c) Critically evaluate the literature;
  - d) Integrate evidence into care delivery;
  - e) Evaluate the process;
- IV. How to look for/systematize clinically valid evidence:
  - f) Periodic scientific literature focused on evidence;
  - g) Systematic literature reviews;
  - h) Evidence-based nursing centers;

- i) Good practice guides;

## **V. Evidence and qualitative research.**

The organization and selection of the contents addressed sought to fit into what we could call an “Introduction to Evidence-Based Nursing Practice”, following the established consensus on central aspects inherent to the methodology (CRAIG; SMYTH, 2004; FINEOUT-OVERHOLT; JOHNSTON, 2006; MANTZOUKAS, 2007; CULLUM et al. 2010). Regarding the dynamic sessions, we sought to cover all regions of northern Portugal, allowing a greater number of participants to access the training in a proximity geodemographic context.

With regard to the evaluation of the impact of this training, an attempt was made in methodological terms to compare the results recorded before and after the intervention. For this purpose, we used an online form created for this purpose through the MedQuest platform provided by the Center for Research in Health Services and Technologies (CINTESIS) of the Faculty of Medicine of the University of Porto. This form was composed of the following instruments, previously validated and culturally and linguistically adapted for the Portuguese population, whose psychometric assessment attested to its suitability for our study: BRUS – *Barriers to Research Utilization Scale* (VILELAS; BASTO, 2011); QECPBE-20 – *Questionnaire of Clinical Efficacy and Evidence-Based Practice* (PEREIRA et al., 2015a) and the QABPBE-26 – *Questionnaire of Attitudes and Barriers to Evidence-Based Practice* (PEREIRA et al., 2015b), complemented by a summary geodemographic assessment.

According to several authors (HART, et al., 2008; SOARES, et al., 2013; YOST; CILISKA; DOBBINS, 2014; YOUNG; ROHWER; VOLMINK; CLARKE, 2014) there is a significant temporal variability in the elapsed period. between the initial

assessment (before the intervention) and the post-educational/training intervention assessment, with a consensus regarding the minimum interval elapsed after the initial training intervention. Accordingly, in this case, we adopted a time frame of at least two months after the intervention. In the total number of respondents, 264 valid responses were obtained, which corresponds to 63.8% of the total number of participants in the training sessions (N = 414) (PEREIRA, 2021). For a better visualization of the study design, pay attention to the diagram presented in the following figure 2.

The study was approved by the Ethics and Research Committee of the Instituto de Ciências Biomédicas Abel Salazar of the University of Porto (Research Project No. -no after reading and signing the “Informed, Free and Informed Consent for Participation

in Research Projects”. The subjects were guaranteed anonymity and confidentiality of the data collected, as well as their exclusive use within the scope of this research and the voluntary nature of their participation.

For data analysis, the IBM® SPSS® Statistics version 20.0 program was used again. Descriptive statistics were used, namely measures of central tendency and dispersion, and inferential statistics, specifically the *t test* for independent samples. A p-value < 0.05 was considered statistically significant. The choice for this type of test was conditioned by the impossibility of pairing the samples. Aware that this would be the methodological option of choice, this did not appear to be possible given that, as already assumed, the realization of this study was considered a posteriori in relation to the educational intervention and we do not have any reliable and feasible

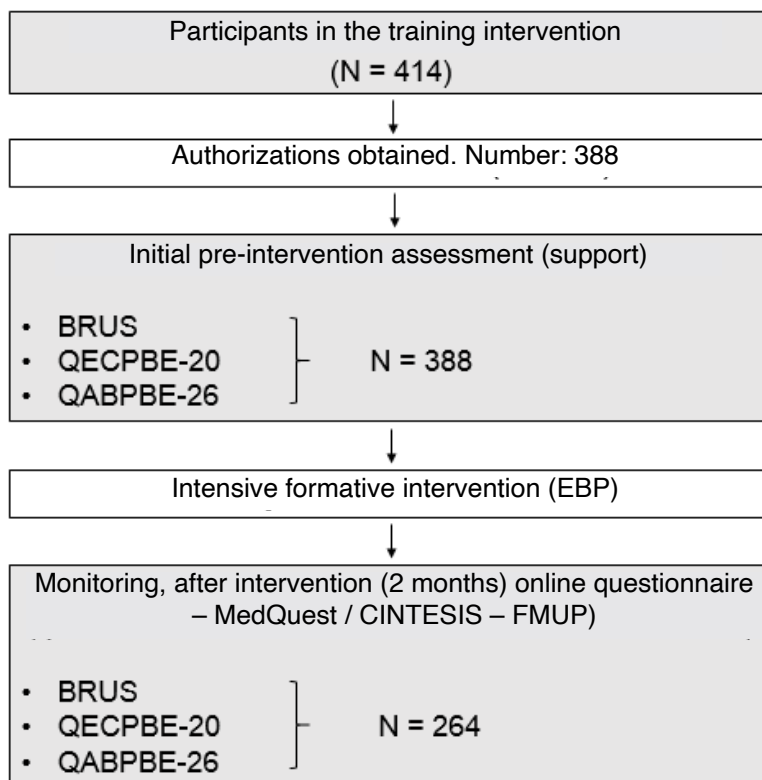


Figure 2 - Schematic representation of the flow of participants in the study.

mechanism to carry out this pairing. As an alternative, we used the *t test* for independent samples applicable to scalar variables, allowing us to assess “whether the difference in means is due to chance (...) or whether it is due to differences that actually exist in the population where the two were recruited”. groups that are being compared” (MARTINS, 2011, p. 135), in this case, the pre-intervention group and the post-intervention group.

## RESULTS

The main results obtained are presented, seeking to emphasize the statistically significant findings, framing them in the discussion that will be carried out later. For this purpose, the following table 1 was prepared.

In descriptive terms, there are statistically significant differences at the level of the “Practices” subscale of the QECPE-20 and the four subscales that make up the BRUS scale. Regarding the “Practices” dimension of the QECPE-20, lower mean values of evidence-based practice perception were registered after the intervention was carried out. At the same time, there is also a decrease in the estimated percentage of daily practice that is considered to be evidence-based,

which decreases slightly from 63.86% to 60%. Regarding the perception of barriers in relation to EBP, in all four dimensions higher mean values are observed.

Regarding the discussion of the study of the impact of the dynamic training intervention, in relation to the QECPE-20, subscale “Practices”, it appears that there is a more realistic perspective on the adoption in the last year of the methodology inherent to an EBP, although the literature reports that more experienced nurses tend to overestimate the perception of an effective EBP (CHIEN, 2010; DALHEIM, 2012). As for the barriers to the use of research, the training made it possible to perceive greater difficulties in all dimensions of the BRUS scale in the work context. These results contradict an overly optimistic reading that could lead us to linearly believe that nurses, after completing training, would prove to be more capable and predisposed to an EBP, immediately revealing better performance indicators at this level and presenting the “false positive” effect.” of the expected/desired response (FORTIN, 2009). We emphasize that the data must be read taking into account the sociodemographic characterization of the sample studied, that is, with increased professional maturity, long

Scale / (Subscale)	Before $\bar{X}$ (PD)	post $\bar{X}$ (PD)	t (p)
QECPE-20 (“Practices”)	4.43 (1.38)	4.05 (1.48)	3.33 (p = 0.001)
BRUS (“Organization”)	3.04 (0.63)	3.15 (0.51)	2.63 (p = 0.009)
BRUS (“Communication”)	3.03 (0.55)	3.24 (0.52)	4.86 (p = 0.0001)
BRUS (“Nurse”)	3.08 (0.67)	3.20 (0.58)	2.37 (p = 0.018)
BRUS (“Investigation”)	2.94 (0.69)	3.08 (0.67)	2.58 (p = 0.01)

Table 1 - Summary of the main results.

professional careers, holders for the most part of differentiated and specialized training and exercising, in many cases, positions of high responsibility within of their organisations.

That is why the analysis of these results allowed us to perceive that in this reassessment there is a clear objectivity and pragmatism of the assessments made, denoting greater realism in the answers which allowed us to verify that, although very positive and favorable attitudes to EBE are maintained, namely to the incorporation of evidence as a fundamental support to support best practices, gaps and gaps remain in terms of knowledge and skills to identify, select and apply evidence from the knowledge generated. In this context, the conclusions obtained by Gonzales-Torrente et al. (2012) are relevant when they advocate a reflection by organizations on the lack of skills of “senior nurses” in relation to EBP, even considering the greater professional experience and this recognizing the role leadership in the transferability of knowledge to practice.

Likewise, barriers to SBP generally remain, regardless of their different etiologies. Underlining the high degree of differentiation of these nurses, namely in terms of specialization in nursing and postgraduate training, there was a significant perception of EBP in daily practice, despite the fact that its quantification was revised slightly down during the reassessment. In the study by Yip et al. (2013), nurses holding higher hierarchical positions, namely at the management level or who attended specific training at the PBE level, present a more favorable attitude to PBE, however 75% assumed the lack of knowledge and skills needed to use this methodology. In this sense and due to its particular relevance, we present, for the purposes of comparison, a synthesis of the main results obtained in a study carried out at national level and recently published in the United States, also aimed

at organizational leaders and managers in the field of nursing (MELNYK, et al. 2014). Despite being one of the countries that invests most in the promotion, dissemination and implementation of EBP, it was found that: a) Those responsible believe that EBP will result in better quality health care, increasing safety and promoting the best patient outcomes, however a very small percentage of budgets is allocated to PBE; b) As the beliefs of those responsible regarding the value of EBP are high, its level of implementation is relatively low; c) More than 50% of those responsible believe that the level of EBP in their organization oscillates between “nothing” and “a little”; d) The number of EBP mentors in organizations that promote EBP among professionals providing care and the sustained construction of EBP-friendly environments is inadequate; e) Despite the fact that those in charge report the areas of quality and safety as a priority, PBE is classified as “low priority”.

## **IMPLICATIONS FOR PRACTICE AND CONCLUSION**

In summary and as the main conclusions of this study, nurses in a clinical context need to be able to use the findings from research and this way, incorporate the best available evidence into their practice, thus promoting health gains among people. While bearing in mind the inherent complexity of translational sciences and their status in filling the gap between research and practice, we share the conclusions of Hart and colleagues. (2008) when they fight for the existence of organizational support structures as an essential factor to promote EBE and the use of research results in clinical practice contexts. To achieve this goal, it is necessary to consider the use of different and effective methods and strategies to involve and commit nurses to an EBP, in a context marked by so many and such significant obstacles.



In a global assessment, the findings of this study have implications for nursing practice at different levels: education and continuous training, *accountability* and/or *awareness* of professionals and the need for greater organizational support. In this context, a short-term training program constitutes an intervention that can be used by the leaders of health care organizations in order to provide nurses with greater skills, involving them in the dynamics of EBP and, therefore, still that in a conditional, relevant way. However, according to several authors and studies, multimethod approaches have proved to be the most successful (THOMPSON, et al., 2007; 2008; CHEATER et al., 2009; YOST; CILISKA; DOBBINS, 2014; YOUNG; ROHWER; VOLMINK; CLARKE, 2014). Accordingly and considering different and specific contexts, interventions adapted and individualized to each reality are recommended, and these must be considered as a priority.

At this level, it is justified to underline what the International Council of Nurses advocates and systematizes. For the CIE (2012, p.20) there is a diversified set of strategies according to which EBP can be promoted and implemented, namely and in a concrete way through:

- Building partnerships (bringing individuals, groups and teams together to develop a shared vision and common purpose);
- Use and mobilization of change agents (identifying and recruiting key people who promote change based on their credibility and respectability among the peers that are intended to be mobilized);
- Sharing and dissemination of information (using the appropriate media, production of audiovisual resources and also using the multiple platforms existing in social networks);

- Application of training and educational interventions (continuous training, decision-making support systems, individual training and guidance, *e-learning* and even using simulated practice);
- Promotion of standardized practices (using shared care guidelines, clinical audits, practice variation reports and *checklists / Guidelines*).

We also found authors who advocate the development of pilot projects that promote the implementation of evidence. The proposal by Fineout-Overholt and Johnston (2006) seems to meet operational, continuity and involvement requirements that may be useful in future projects. In this, a set of eight steps take place along a sequenced temporal schedule that step by step allow structuring a process that, as a whole, will be complex. Additionally, it will lead participants to focus on the essential aspects to achieve the objectives in each of the stages and this within a feasible and well-defined time horizon, totaling a period of about eight months.

We concluded the analysis and discussion of this study indicating full agreement with what Grol and Grimshaw (2003) list. For these two renowned experts in the field of EBP, when preparing and sustaining changes we must assess barriers and facilitators, taking into account that the evidence generally points to the fact that no approach to the transferability and incorporation of knowledge in practice is superior to the others, even considering different situations and/or contexts. Consequently, it is assumed that in this framework, changes are likely to occur, however, and in general, they imply a systemic look at different levels.

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