

## Evidence-Based Nursing Education: A Scoping Review

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### Abstract

**Introduction:** Nursing education are expected to prepare qualified professionals who are capable of identifying individual and collective health needs in the epidemiological transition societies and providing care using the best scientific evidence. Continuous creative teaching strategies after graduation can be the key to combine basic training and professional practice. This scoping review examines different evidence-based approaches nursing education.

**Methods:** The review covers the period of 2007-2013. Searches were done initially by single keywords and using OR/AND, for combining words such as: evidence-based education, teaching methods, evidence-based nursing education, teaching strategies for identify publications from SID, IRANMEDEX, MAGIRAN, OVID, PROQUET, CINAHL, and PubMed databases. A total of 684 publications were found, from which, after excluding duplication and non-related papers, only nine publications were considered relevant to the subject and examined in-depth.

**Results:** Five teaching strategies of the evidence-based approaches were identified. They included: special settings and specific curriculum, collaborative approaches with clinical nurses, virtual teaching, interactive methods in small groups and project-based educational approach.

**Conclusion:** Nursing educational strategies of evidence-based approaches vary with regards to content and implementation strategies. Different teaching techniques have been tried with different degree of success. It is the responsibility of the academic institutions and policy-makers to promote evidence-based teaching to reduce the gap between science production and clinical care.

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### Introduction

Nursing education are expected to prepare qualified professionals who are capable of identifying individual and collective health needs in the epidemiological transition societies and providing care using the best scientific evidence (1). Evidence-based teaching aims at training and decision-making processes as a major component of the courses (2). In this regard, the teaching scenario has moved from the traditional clinical practice to encourage students to always enquire and search for the best evidence for answering health questions, given in this way scientific credibility to the clinical evaluation (3).

In a systematic review Reiber (4) defined the concept of evidence-based teaching in nursing as " the intellectual application of best evidence for making decision ", and emphasized that "for students, this kind of making decision in nursing teaching, included paying attention to teaching concepts, structure and condition, nursing teaching history, literature about special teaching methods and process, students characteristics, condition of learning environment and curriculum (4). Willinsky (5) believed that evidence-based teaching should take into account the changes in demographic characteristics of students, politics, financial and educational procedure, and paying careful attention to teacher's opinions and existing pressure on them. For learning professional skills, nursing students should acquire investigation skills and use research results in their practices

(6). Applying the evidence base teaching for nursing students has a high efficiency (7). In Iran, Madarshahian et al. (8) reported that applying the evidence-based teaching in clinical nursing is as effective as traditional teaching, in addition to improving knowledge, skills, and high quality caring. Evidence-based teaching and active teaching approaches, as well as problem solving approaches are effective in the improvement of creative thinking (9).

Evidence-based approaches are considered the basis and foundation of advancing nursing care, but it is not always applied because of the absence of the required skills (10). Obstacles for this practice have been discussed, including the poor understanding of the concept by nurses, distrust to its efficiency, and lack of knowledge on how to search for answers (11). Mehrdad et al. (2007), referred to obstacles in applying the evidence-based practice such as, limited facilities for applying the research's findings and feeling the lack of authority for applying the changes in caring methods of patients (12). Some nursing courses refer to the introduction of an advanced educational period with the aim of improving creative thinking skills and also concentrate on how to explain the evidence-based procedure gradually (13). Creative teaching strategies in nursing MA courses should integrate training and clinical practices continuously. Some studies describe special strategies for gradual understanding of the principles and procedures evidence-based practices. In fact, teaching – learning



strategies for research and evidence-based practices have been applied as a pilot in small students groups (13). Most of the experiences reported in the literature failed to develop successful teaching strategies, principles and procedures of evidence-based practice (13). Considering the importance of clinical teaching by evidence-based approach, we carried out a scoping review of the methods and strategies used with the aim of disseminating the information and highlighting the need to decrease the gap between research and bedside care.

## Methods

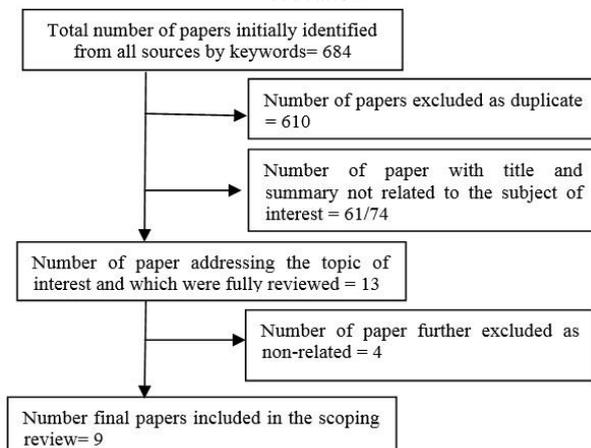
A literature scoping review (14) was conducted looking for answers to the question “what are the evidence-based teaching approaches in nursing”. Inclusion criteria included: original papers, reviews and published thesis in the field of evidence-based nursing education in English and Persian, during 2007 to 2013. Unidentified reports, from gray literature, book chapters, personal views, letter to editor, historical papers, and nonscientific papers were excluded. In this study, extensive searching in SID, IRANMEDEX, MAGIRAN, OVID, PROQUET, CINAHL and PubMed databases Searches were done initially by single keywords and then using OR/AND, for combining words such as evidence-based practice in education, teaching methods evidence-based nursing education, teaching strategies, etc. A total of 684 papers were initially identified, and after several levels of exclusion, only 9 papers addressed specifically the theme of interest and were reviewed in-depth (Fig 1).

For selecting the relevant papers, a quality screening tool was applied. For collecting and summarizing relevant information the papers were read by one of the authors, and the most important points were summarized. Information was recorded in a standard format and then organized in a narrative and summary narrative. The records were later reviewed by three other members of the team to ensure readability and data quality.

## Results

Table 1 presents summary data of the 9 publications addressing different strategies for evidence-based teaching

**Figure 1.** Screening the literature for evidence-based nursing education.



in nursing. The following parameters were reviewed: strategies, setting, executing curriculum, participating, virtual training and collaboration.

Project-based strategies included applying the STAR model (discovering and producing the knowledge, summarizing the evidence, translating to scientific suggestions, combining it with operation and evaluation) in the standard training (15). According to this strategy, student groups are allocated to research wards, and evaluate the supporting evidence of routine and ongoing research caring practices. Discussions are based on class presentations, preparation of a poster on the effect and power of supporting evidence of changing practice.

Collaborative strategies between researchers and practitioners were applied in the documentation, reading material, records and in the summary clinical care instructions for clinical ward nurses (16, 17). This strategy can be used in teaching MA students for recognizing the priorities of clinical ward problems and using Iowa evidence-based clinical modes for solving problem, following by a poster or teaching paper. This teaching strategy usually requires at least two teaching periods within 1 year (18).

Virtual strategy described involves three computer-based learning modules prepared by 4 nurses with expertise in evidence-based teaching. The modules address the way of producing and developing clinical questions, reviewing papers, criticizing and evaluating papers and examples of executing the daily evidence-based practices. Each module requires one month in virtual settings (19).

Interactive strategies organized 4-5 persons groups of students for a 3 phases teaching (hard recognition, producing evidence and planning for executing the evidence). Students participate in all stages of teaching through cooperation and group work for learning and solving the problems (20). The training can be implemented through continuous teaching workshops including knowledge translation of bedside examples. It will include explaining and solving, making question, searching and evaluating evidences, pattern base of seniors, group discussions about selected articles, and planning for implementing evidence according to the service (21).

Exercise-based curriculum is one of the teaching strategies (22, 23). The papers reported a 5 steps process: 1. making and creating research question; 2. evaluating and criticizing the related evidence; 3. recovering the most related research evidence; 4. combining the evidence with clinical proficiency and patient's worth and priorities for operational deciding and 5. Evaluating the change or resultant in educational units of MA). According to one of the studies (23), each one of the 3-year curriculum for MA nursing students should have its specific goals and educational evaluations.

## Discussion

The review presented a brief picture of creative strategies for evidence-based nursing education. These strategies differ in relation to the environment, techniques and curriculum. In a systematic review, Moch et al. (2009) reported similar diverse approaches (13).

**Table1.** Characteristic of published papers in the field of evidence-based teaching methods in nursing during the 2007-2013

	Author/ year	Title	Goal and subjects	Country	Design	Conclusion
1	Cordor et al. 2007 (15)	Evidence-based teaching: application of star model in curriculum of nursing teaching	Determining the effect of star model in teaching curriculum, last year's nursing students	USA	Semi experimental	Evaluation marks of students using evidence was increased
2	Scuenfelder 2007 (16)	Teaching elder nursing in method of evidence-based approach	Describing teaching strategies (reading and summarizing instructions of adult clinical care in elder hand and present to clinical personnel), MA students	USA	Descriptive	Most of the students agreed that the material was readable and comprehensive, as related to teaching instruction of elder nursing
3	Steven, Hay 2008 (17)	Using new references for teaching evidence-based practice	Describing a creative strategy (evidence-based teaching in pattern of executing students project) MA nursing student	USA	Descriptive	Student projects and the institution evaluation are starting points of quality evidence-based practice
4	Krozoski et al. 2009 (18)	Evaluation of participating strategy for teaching evidence-based operation in increased level-2 programs	Explaining the project of using participation model in teaching evidence-based practice, nursing students	USA	Semi experimental	High level of satisfaction and knowledge of clinical center's students, instructors, personnel.
5	Patrisha 2008 (19)	The effect of computer base teaching program (virtual) on the level of awareness, attitude, and skill of evidence-based operation	Determining the effect of virtual teaching on evidence-based operation and doing study via 3 modules of learning on awareness, attitude and skill of nurse's evidence-based operation, 744 nurses	USA	Semi-experimental (pre- post-test)	Significant differences in pre and post-test marks in relation to knowledge, attitude, performance and institutional organization
6	Kim et al. 2009 (20)	Collaborative teaching strategies, focus on evidence-based practice	Determining the effect of collaborative strategies on awareness, attitude and operation. 208 MA students in 2 nursing school	USA	Semi experimental (pre- post-test)	Case group get post- test marks in the point of applying and awareness of evidence
7	Novak, M Sintier 2010 (21)	Evaluating the effect of teaching by supporting of work environment on awareness and executing of evidence-based practice	Determining the effect of continuous teaching workshop by supporting of work environment (supervision, reward and encouragement, allocating references, facilities and forming working group) on the awareness and evidence-based behaviors, 88 health personnel	Australia	Semi experimental	Knowledge increased immediately after teaching period by using awareness questionnaire. Behavior of using witness was increased.
8	Jalali et al. 2011 (22)	Evaluating of evidence-based teaching on nursing students awareness and attitude	Determining and comparing the effect of two evidence-based teaching approaches (5 steps) and traditional approaches on students' awareness and attitude, 44 MA nursing students	Iran	Semi experimental	Significant increase in students' attitude marks.
9	Fineout et al. 2013 (23)	Producing and developing a teaching curriculum model for improving evidence-based practice in nursing students	Describing students understanding of executing 3years workshop of evidence-based teaching, 300 nursing students	Italy	Descriptive	The skill of 3years pilot period was recognized effective for professional development.

Customized curricula were described effective for improving evidence-based practices in nursing students and

for developing the required professional skills (21, 23). Kessinich et al. (1998) analyzing the expectations of

students reported that, in the first year of a four-year curriculum, students acquire the way of making clinical questions and searching in databases. In the second year, they learn critical evaluations of different studies, in the third year acquired critic evaluation of clinical instruction, and in the last year the acquired changing practice in a clinical ward according to the evidence (24).

As several countries have approved policies for implementing evidence-based practices, medical teaching should be adapted to this purpose (25). Different studies emphasized that evidence-based teaching strategies should be taught in more than one period to change the paradigm of traditional teaching (24,25). Comparing to traditional teaching approach, evidence-based education is likely to increase the critical thinking skills of students (26). This was confirmed in Iranian studies reporting better learning by strengthening problem-solving skills, active participating of students in the process, working on real condition and also using documentary and comprehensive references (27).

Participatory strategies are associated with successful teaching experiences. Stone and rowels (2007) showed that MA students' engagement with the nurse wards increased of nursing personal awareness and optimized the time needed to provide care (28).

Virtual teaching through electronic technology addresses the issue of geographical dispersion and access of participants. Lender et al. (2005) has shown that the new IT teaching strategies lead to increased performance of students, allowing worldwide use of internet for assessing and evaluating evidence (29).

Interactive strategy through small groups debate in continuous teaching workshops or class was recognized as a successful teaching strategy (20,21). In most cases, the important requirement is the organizational support providing enough opportunity for students for accessing research and making connection with references (30).

Finally, conducting research projects as a teaching strategy has been mentioned as the starting point of evidence-based operations. Radjenovic and Chally (1998) referred to the application of research projects in the last year of nursing students, which are presented for comments and corrections (31). Ravert (2004) emphasized the recommendation of enrolling MA nursing students as research assistants for at least once during the education (32).

It is necessary to mention that the teaching strategies reported in this review are relatively new and more time is required for assessing the real effect of these methods on the level of awareness, attitude and on the uptake of research results into policy and practice. One of the limitations of this review was the focus on a short period of time, justified by the recent introduction of evidence-based nursing education. It is hoped that this review can contribute to a wider use of evidence-based teaching.

## Conclusion

Given the fast scientific development and new knowledge produced through research, students and professional nurses are expected to be able to identify, implement and evaluate best evidence for patients care. Educational strategies can

provide the required training by using and applying creative approaches. It is the responsibility of the academic institutions and policy-makers to promote evidence-based teaching to reduce the gap between science production and clinical care using the best evidence produced at national levels or abroad.

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## References

1. Habibi S, RezaeiHachesoo P, Tabaghi R. Enhancing Information Literacy as a Base of Developing Evidence-Based Nursing. *Health Information Management*.2010; 7(3): 371-8.2.
2. Stevens KR, Cassidy VR. Evidence based teaching: Current research in nursing education. New York: National League for Nursing, 1999.
3. Ilic D. Teaching evidence-based practice: Perspectives from the undergraduate and post-graduate viewpoint. *Ann Acad Med Singapore*. 2009;38:559-63.
4. Reiber K. Evidence-based Nursing Education- a Systematic Review of Empirical Research. *GMS Z MedAusbild*. 2011; 28(2): Doc27.
5. Willinsky J. Extending the Prospects of Evidence-Based Education. *InSight*. 2001; 1(1): 23-41.
6. Balakas K, Sparks L. Teaching research and evidence-based practice using a service-learning approach. *J Nurs Educ*. 2010;49(12):691-5.
7. Oh EG, Kim S, Kim SS, Kim S, Cho EY, Yoo JS, et al. Integrating evidence-based practice into RN-to-BSN clinical nursing education. *J Nurs Educ*. 2010;49(7):387-92.
8. Madarshahian F, Hassanabadi M, Khazayi S. Effect of evidence-based method clinical education on patients care quality and their satisfaction. *Iranian Quarterly of Education Strategies*. 2012; 4(4):189-193.
9. Ozturk C, Muslu GK, Dicle A. A comparison of problembased and traditional education on nursing students' critical thinking dispositions. *Nurse Educ Today*. 2008;28(5):627-32.
10. Dawley K, Bloch JR, Suplee PD, McKeever A, Scherzer G. Using a pedagogical approach to integrate evidence-based teaching in an undergraduate women's health course. *Worldviews Evid Based Nurs*. 2010;8(2):116-23.
11. American Medical Informatics Association. Guideposts to the Future-An Agenda for Nursing Informatics. *Journal of the American Medical Informatics Association*. 2006;14 (1): 19-24.
12. Mehrdad N, Salsali M, Kazemnejad A. The spectrum of barriers to and facilitators of research utilization in Iranian Nursing. *J Clin Nurs*. 2007; 17(16): 2194-2202.
13. Moch SD, Crunje RJ, Branson J. Undergraduate nursing evidence-based practiceeducation: envisioning the role of students. *Journal of Professional Nursing*. 2010; 26 (1): 5-13.
14. Khan K, Kunz R, Kleijnen J, Antes G. Systematic reviews to support evidence-based medicine: how to review and apply findings of healthcare research. 2nd ed. London: The Royal Society of Medicine Press Limited, 2011.
15. Corder SJ. Teaching evidence base practice:application of the ACE star model in an undergraduate nursing curriculum. proceeding of six annual summer institue evidence base practice.2007;23(cited 2011 Apr 25).
16. Schoenfelder, DP. Simply the best: Teaching gerontological nursing students to teach evidence-based practice. *Journal of Gerontological Nursing*. 2007 ; 33: 6-11.
17. Heye ML, Stevens KR. Using new resources to teach evidence-

- based practice. *J Nurs Educ.* 2008;47(8):359-70.
18. Kruszewski A, Brough E, Killeen MB. Collaborative Strategies for Teaching Evidence-Based Practice in Accelerated Second-Degree Programs. *Journal of Nursing Education.* 2009; 48(6):340-2.
19. Patricia H. Effectiveness of a Computer-Based Educational Program on Nurses' Knowledge, Attitude, and Skill Level Related to Evidence-Based Practice. *Worldviews on Evidence-Based Nursing.* 2008; 5(2):75–84.
20. Kim SC, et al. Evidence-based practice-focused interactive teaching strategy: A controlled study *Advanced Nursing.* 2009; 65(6):1218–1227.
21. Novak I, Mcintyre S. The effect of education with workplace support on practitioners evidence base practice knowledge and implementation behaviours. *Australian Occupational Therapy Journal.* 2010 ; 57: 386–393 .
22. Jalali-Nia SF, et al. Effect of evidence-based education on Iranian nursing students' knowledge and attitude. *Nursing & Health Sciences.* 2011;13(2):222-227.
23. Finott s& "etal". Teaching evidence-based practice: Developing a curriculum model to foster evidence-based practice in undergraduate student nurses. *Nurse Education in Practice.* 2013; 13:459-465.
24. Kessnich CR, Guyatt G H & DiCenso A. Teaching nursing students evidence-based nursing. *Nurse Educator.* 1997; 22: 25–29.
25. Fineout-Overholt E, Johnston L. Teaching EBP: A challenge for educators in the 21st century. *Worldviews on Evidence-Based Nursing.* 2005; 3: 37–39.
26. Mayer DA. Four year required course in Evidence Based Medicine (EBM) global standards in medical education for better health care world conference. *Copenhagen.* 2003;10:15-9.
27. Abedini Z, Ahmari Tehran H, Khorami Rad A, Heidarpour A. Nursing Students' Experiences on Evidence-Based Learning in Clinical Setting: A Qualitative Study. *Iranian Journal of Medical Education.* 2012; 11 (8): 864- 872. [Persian]
28. Stone C, Rowles C J. Nursing students can help support evidence-based practice on clinical nursing units. *Journal of Nursing Management.* 2007;15: 367–370.
29. Lander JA. Editorial: Finding, evaluating, and using research for best practice. *Clinical Nursing Research.* 2005;14: 299–302.
30. Madarshahian F, Hassanabadi M, Khazayi S. Effect of evidence-based nursing education program on student performance. *Journal of Medical Education Development.* 2012; 4 (7): 61-67.
31. Radjenovic D & Chally PS .Research utilization by undergraduate students. *Nurse Educator.* 1998 ;23: 26–29.
32. Ravert P, Boyer B, Harmon K & Scoffield H. Learning nursing research through faculty-mentored projects. *Nurse Educator.* 2004;29: 170–174.