A systematic review of the effectiveness of Evidence Based Practice (EBP) programs for allied health professionals

SYSTEMATIC REVIEW PROTOCOL

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A systematic review of the effectiveness of Evidence Based Practice (EBP) educational programs for allied health professionals

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Review questions/objective

Review Objectives
The objective of this review is to find, assess and synthesize the evidence on EBP programs in enhancing the EBP knowledge, skills and attitudes of allied health practitioners.

Review questions
• What is the effectiveness of using EBP programs for allied health practitioners in improving the EBP knowledge, skills and attitudes?

Background
The use of research evidence in clinical practice known as evidence based practice (EBP) has been one of the areas of interest in the medical and allied health professions recently around the world 1,2,3,4,5. Evidence-based practice has been defined as the “conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients” 6. The call for dedication to EBP has become very active among health care professions. This drive aims to use evidence to guide practice and build the body of knowledge that will support effectiveness of that practice for managing patients 4.

The concept of the use of evidence in the medical profession began in the 1970s from the works of Archibald Cochrane and the McMaster University in Canada. Cochrane in his book published in 1972
entitled “Effectiveness and Efficiency: Random Reflections on Health Services” highlighted the importance of using randomized controlled trials as a reliable source of information in medical practice. It was officially recognized in the early 1990s in the Journal of American Medical Association and the term “evidence-based medicine” was first introduced in the medical literature by Guyatt in 1991. Evidence-based medicine or EBM has been defined as “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.” This refers to the integration of the best available clinical evidence from research with clinical expertise.

From the context of evidence-based medicine stemmed the term “evidence-based practice.” Allied health professionals have recognized the fact that there were some treatment interventions which do not seem to “work” at all. Principles of evidence-based medicine were adapted and an evidence-based approach to practice and learning was employed. This and other information is evident in the Sicily statement on evidence-based practice as published in the literature in 2005. It presented a clear definition of evidence-based practice, a set of criteria to define the minimum requirements to be able to practice in an evidence-based way and the minimum requirements of a standard educational training program for the use of EBP. Dawes et al. (2005) also identified and described the EBP domains which are: knowledge, skills, attitudes, and behaviour. These domains have been the basis for assessment of EBP outcomes.

EBP programs have been identified in the literature to teach the concepts of evidence-based practice, described their components and evaluated them in terms of the EBP domains. Most of the literature however focused on the medical field and very few were on Allied Health. A review by Taylor et al. (2000) reported some evidence that teaching critical appraisal skills can improve knowledge and skills among clinicians. However, the findings were interpreted with caution due to poor methodological quality of the included studies and unavailability of standardized outcomes to measure changes in the EBP domains.

Standalone teaching programs were compared with clinical-based programs (integrated EBM teaching) among postgraduate students in medicine in a review by Coomarasamy and Khan (2004). Outcomes of interest were knowledge, critical appraisal skills, attitudes, and behaviour. Both types of teaching improved knowledge but clinical practice-based programs also improved skills, attitudes, and behaviour. The authors have recommended that EBP teaching should always be conducted as part of a clinical practice program. Another systematic review by Flores-Mateo and Argimon (2007) among medical schools looking at EBP programs found that improvements are noted in all EBP domains and very few studies used valid measures.

The use of standardized instruments to measure changes in EBP domains were also of interest in the literature. A systematic review by Shaneyfelt et al. (2006) described and analyzed the different instruments used to measure changes in EBP teaching and learning. One hundred four (104) instruments were identified in the review and 53% of the instruments reported on at least one validity measure. Most of the instruments reported were used in the field of medicine, very few were for Allied Health and other clinicians. No standard instrument was found to be psychometrically robust and practical in measuring EBP domains of knowledge, skills, attitudes, and behaviour.

In the field of Allied Health, the volume of the literature on evidence-based practice has focused on perception, attitudes and behaviour to EBP and barriers to uptake of EBP. It has been reported in the literature that Allied Health practitioners recognize the importance of the use of research evidence in practice and have positive attitudes to EBP. The main barriers were lack of time, access to the literature and organizational matters such as hospital procedures.

A recent Cochrane systematic review by Baker et al. (2010) looked into the evidence of tailored intervention programs to overcome barriers to EBP. The participants in the review were mostly
physicians, some were nurses and others were multi-professional teams. The main findings of the review were: tailored interventions which were designed to address barriers were most likely to improve professional performance and patient outcomes and methods to tailor interventions were not assessed in the studies that were included. Still, there was no information found on EBP programs focusing on allied health and their effectiveness in improving EBP domains of knowledge, skills, attitudes and behaviour.

There is limited evidence on effectiveness of EBP programs in allied health. This lack of information leads to the objectives of this study which is to find, assess and synthesize the evidence of EBP training program in enhancing the knowledge, skills and attitudes of allied health practitioners. Finding the evidence for EBP interventions will help provide information and lead to better and most likely, to tailored programs addressing the barriers reported in the literature, which may result to better outcomes in EBP domains

**Definitions used for this review**

**Evidence-based practice programs (10,20)**
- these are programs designed to teach EBP knowledge, skills and attitudes. They maybe presented in different ways such as lecture, workshops and using actual clinical cases.

**Allied health: (21)**
- is a large cluster of health-related personnel who fulfil necessary roles in the healthcare system, including assisting, facilitating, and complementing the work of physicians and other healthcare specialists

**EBP knowledge (10)**
- knowledge about the context and skills about evidence based practice

**EBP skills (10)**
- this is the application of the knowledge about EBP and the specific skills are:
  1. Asking the clinical question
  2. Acquiring the best source of evidence
  3. Appraising the evidence for its validity
  4. Applying the evidence in clinical decision making

**EBP attitudes (2,10)**
- this refers to attitudes towards the importance, need and use of EBP in practice

**EBP behaviour(10)**
- this refers to actual performance of EBP in practice such as identifying the clinical questions, obtaining the answers from the best evidence and applying the evidence in actual patient activities
Inclusion criteria

Types of participants
This review will include as participants allied health practitioners (physiotherapists, occupational therapists etc) who participated in any EBP educational program or part of an EBP program (formulating clinical questions, searching the literature, critical appraisal skills program etc).

Types of interventions
The intervention of interest in this review is any EBP training program defined as any formal program facilitating the search and use of evidence in practice. The contents (lectures only or lectures with actual demonstrations and practice), length (hours, days, weeks) and manner of delivery (face to face, face to face with supplementary materials etc) of the program may vary in each of the studies to be included as there is no standard EBP training program.

Types of Outcome
The main outcomes measured are the EBP domains of knowledge, skills, attitudes and behaviour as a result of participating in the EBP program or a component of it. Specific measures may include but not limited to the use of the adapted Fresno questionnaire (22) to assess knowledge, skills and attitudes to EBP. The adapted Fresno question has good psychometric properties and is especially fitting novice rehabilitation professionals undergoing EBP training.

Types of studies
This review will include randomised controlled trials (RCTs) to answer the effectiveness question. In the absence of RCTs, other experimental studies will be considered. No other types of studies will be considered.

Search strategy
Both published and unpublished English language studies from the last ten years (2000-2010) will be sought. Assessment for inclusion of foreign language publications will be based on the English language extract, and if considered appropriate, an English translation of the study will be sought.

The following keywords will be used to search for studies to be included in this review

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Participants</th>
<th>Outcomes of interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence based practice programs</td>
<td>Allied health practitioners</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Journal clubs</td>
<td>Physiotherapist$</td>
<td>Skills</td>
</tr>
<tr>
<td>Critical appraisal</td>
<td>Occupational therapists</td>
<td>Attitudes</td>
</tr>
<tr>
<td>Systematic reviews</td>
<td>Nurses</td>
<td>Behaviour</td>
</tr>
</tbody>
</table>

Studies identified during the database searches will be assessed for relevance from a review of the title, abstract and descriptors of the study. A full text report will be obtained for all studies deemed to be relevant. The databases that will be searched include:

- Clinical Evidence
- Cochrane library
- Current contents connect
- Current controlled trials
- Database of Abstracts of Reviews of Effectiveness
- EMBASE
- ERIC (Educational Resources Information Center)
In order to minimise publication bias, unpublished studies will also be identified using the following databases:

- Dissertations Abstracts International
- Conference Proceedings
- Mednar

The reference lists of all identified publications (both included and excluded), will be searched for additional studies. Hand searching of relevant conference proceedings will also be included.

Content experts will be contacted in order to obtain additional references, unpublished trials and ongoing trials.

**Assessment of methodological quality**

Two independent reviewers will critically appraise each study. A third reviewer will be consulted if there is disagreement between reviewers. The standardised critical appraisal tool from the JBI-MAStARI (Joanna Briggs Institute-Meta Analysis of Statistics Assessment and Review Instrument will be used to critically appraise each study (Appendix I). The JBI tool consists of ten items, each requiring a yes/no response or unclear. With a yes response we'll allocate one point, and a no/unclear response allocate zero points. Studies scoring six or above on the JBI critical appraisal tool will be categorized as good quality and included in the review.

**Data collection**

Data will be extracted independently by two reviewers using the standardised data extraction tool from the JBI-MAStARI (Appendix II). A third reviewer will be asked to adjudicate if the initial reviewers disagree. Data to be collected will include type of design; details of randomisation (if used), study population, intervention, control, outcomes, and quality and result of study analysis. When necessary, we will attempt to contact the researchers of a study to obtain missing information.

**Data synthesis**

Data will be summarised statistically if they are sufficiently similar and if they are of adequate quality. If two or more studies are comparable data will be pooled in meta-analysis using the JBI-MAStARI. Weighted mean differences and 95% confidence intervals (CI) will be calculated for continuous data to analyse the size of the effects of the interventions. For dichotomous data, the effect sizes will be expressed in terms of relative risks and 95% CI.

Statistical heterogeneity between trials will be assessed using chi-square analysis. In the presence of significant heterogeneity a random effects meta-analysis will be used. If the statistical pooling of results is inappropriate, the findings will be summarised in narrative form.

For tracking purposes, all articles obtained for the review will be recorded on a data storage form (Appendix III), which will provide details about the article’s authors, title and source, which database the article was retrieved from, and the location where the article is being stored.

**Conflicts of interest**

None declared
References


APPENDIX I Appraisal instruments

JBI Critical Appraisal Checklist for Experimental
# JBI Critical Appraisal Checklist for Experimental Studies

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<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
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<tbody>
<tr>
<td>1. Was the assignment to treatment groups truly random?</td>
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<td>2. Were participants blinded to treatment allocation?</td>
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<td>3. Was allocation to treatment groups concealed from the allocator?</td>
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<td>4. Were the outcomes of people who withdrew described and included in the analysis?</td>
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<td>5. Were those assessing outcomes blind to the treatment allocation?</td>
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<td>6. Were the control and treatment groups comparable at entry?</td>
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<td>7. Were groups treated identically other than for the named interventions?</td>
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<td>8. Were outcomes measured in the same way for all groups?</td>
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<td>9. Were outcomes measured in a reliable way?</td>
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<td>10. Was appropriate statistical analysis used?</td>
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**Overall appraisal:**
- Include [ ]
- Exclude [ ]
- Seek further info. [ ]

**Comments (Including reasons for exclusion):**

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10
APPENDIX II

JBI Data Extraction Form for Experimental/Observational Studies

Reviewer ___________________________ Date ____________
Author ______________________________ Year ____________
Journal ______________________________ Record Number ____

Study Method

RCT ☐ Quasi-RCT ☐ Longitudinal ☐
Retrospective ☐ Observational ☐ Other ________

Participants
Setting ________________________________
Population ______________________________
Sample size ____________________________
Intervention 1 _______ Intervention 2 _______ Intervention 3 _______

Interventions
Intervention 1 ________________________________

Intervention 2 ________________________________

Intervention 3 ________________________________

Clinical outcome measures

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### Study results

#### Dichotomous data

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#### Continuous data

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### Authors Conclusions

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### Comments

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# APPENDIX III

## Data Storage Form

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