Do journal clubs support evidence based practice in health care?

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Objectives of the review

- To determine the effectiveness of the journal club as an educational intervention in supporting evidence-based practice in terms of
  - Learner reaction
  - Change in knowledge
  - Change in skills
  - Change in attitudes
  - Change in behaviour
  - Change in outcomes
Underlying assumptions for the review question

- There is a relationship between
  - attitudes toward learning
  - acquisition of knowledge, and
  - development of skills
- Leading to
  - a change in clinical behaviour, and
  - improved patient outcomes

A causal model or causal pathway
### Inclusion and exclusion criteria

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
<td></td>
</tr>
<tr>
<td>Health care professionals</td>
<td>Librarians</td>
</tr>
<tr>
<td><strong>Intervention</strong></td>
<td></td>
</tr>
<tr>
<td>Regular meetings</td>
<td>One-off interventions</td>
</tr>
<tr>
<td>Interactive discussion</td>
<td>Video/internet meetings</td>
</tr>
<tr>
<td>Aims to consider clinical applicability</td>
<td>Passive presentation with no discussion</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>No focus on clinical applicability</td>
</tr>
<tr>
<td>Learner reaction, change in knowledge, skills,</td>
<td></td>
</tr>
<tr>
<td>attitudes, behaviour or patient outcomes</td>
<td>No assessment of these outcomes</td>
</tr>
<tr>
<td><strong>Study type</strong></td>
<td></td>
</tr>
<tr>
<td>Quan/qual evaluation studies, all languages</td>
<td>Surveys describing prevalence; opinion papers</td>
</tr>
</tbody>
</table>
What did we actually find?

You can’t get there from here…
Different definitions of the intervention. 

*A journal club is...*

'A group of individuals who meet regularly to discuss critically the clinical applicability of articles in the current [medical] journals.'

Linzer 1987
No common terminology for educational variables

- Learner reaction
- Knowledge
- Skills
- Attitudes
- Behaviour
- Outcomes
## Operationalising variables: Definitions for learner reaction

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition (referenced papers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner reaction</td>
<td>Satisfaction(^3,12,18); interest(^7); clinical interest(^{18}); academic interest(^{18}); enjoyment(^{14,18}); collegiality(^7); social forum(^{17}); discussion of issues(^7); perceived value of teaching appraisal(^3,13) preparation value(^{13}); perceived clinical value(^{13}); perceived impact on work(^6); appropriate timing(^{13}); effectiveness of teaching modality(^{16,17}); mentor system(^{17}); teaching objectives met(^{16}); attendance(^{18})</td>
</tr>
</tbody>
</table>
Validity of learner reaction

- Most learner reaction variables were defined by the researchers, so do they reflect what participants thing is really important?
- Descriptive (Qualitative?) research lacked empirical data
Missing variables?

“What makes a journal club successful?”

- Interest among residents
- Selection of articles
- Interest among faculty
- Discussion of complex/controversial issues
- Research experience of the leader and the participants

Social and professional context
Relevance
Mentoring support
Promoting expression of uncertainty
Quality and level of participation
### Operationalising variables: Definitions for knowledge and skills

<table>
<thead>
<tr>
<th>Change in knowledge</th>
<th>Change in skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical epidemiology and biostatistics (offered prior to or integrated with club)⁴,⁹,¹⁰,¹⁷; principles of EBM; knowledge of research methodology⁹; keeping up with current literature¹; expansion of knowledge base⁵; development of an area of expertise¹⁵.</td>
<td>Access literature⁵; understand literature⁵; formulate questions⁵; Critical appraisal skills⁶,⁸,¹⁰,¹¹,¹²,¹⁶,¹⁷; self assessment of critical reading skills¹⁰; apply reading to a clinical case scenario⁶; ability to determine clinical usefulness of a study¹⁵; analytic skills¹⁵; Presentation skills¹⁵</td>
</tr>
</tbody>
</table>
## Operationalising variables: Definitions for attitude, behaviour and outcomes

<table>
<thead>
<tr>
<th>Change in attitude</th>
<th>Attitudes toward medical literature; workload; confidence to critically evaluate papers;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in behaviour</td>
<td>Change in reading habits: Enhancement in reading habits; Number of assigned articles that were read; Time spent reading; number of journals read; different journals read; journals most frequently read; number read vs skimmed; time taken to review an article; use of literature in clinical practice;</td>
</tr>
<tr>
<td>Change in outcomes</td>
<td>No patient outcomes measured</td>
</tr>
</tbody>
</table>
## Operationalising variables: Level of measurement

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type of measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner reaction</td>
<td>Self-reported (10)</td>
</tr>
<tr>
<td></td>
<td>3, 6, 7, 10, 12, 13, 14, 16, 17, 18</td>
</tr>
<tr>
<td></td>
<td>Observed attendance (2)</td>
</tr>
<tr>
<td></td>
<td>3, 18</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Self-reported (4)</td>
</tr>
<tr>
<td></td>
<td>1, 5, 15, 17</td>
</tr>
<tr>
<td></td>
<td>Objective tests (3)</td>
</tr>
<tr>
<td></td>
<td>BUT</td>
</tr>
<tr>
<td></td>
<td>Not validated</td>
</tr>
<tr>
<td>Skills</td>
<td>Self-reported (7)</td>
</tr>
<tr>
<td></td>
<td>5, 8, 10, 11, 12, 14, 15</td>
</tr>
<tr>
<td></td>
<td>Critical appraisal tests (4)</td>
</tr>
<tr>
<td></td>
<td>2, 6, 8, 12</td>
</tr>
<tr>
<td></td>
<td>Case scenario test (1)</td>
</tr>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Attitudes</td>
<td>Self-reported (5)</td>
</tr>
<tr>
<td></td>
<td>1, 3, 7, 8, 14</td>
</tr>
<tr>
<td>Behaviour</td>
<td>Self-reported (9)</td>
</tr>
<tr>
<td></td>
<td>1, 2, 3, 6, 10, 11, 12, 15, 16</td>
</tr>
</tbody>
</table>
Was the ability of journal clubs to support clinical applicability evaluated?

- Clinical applicability includes
  - the process of discussing whether journal information is applicable to a clinical situation (Appraise)
  - the ability to apply literature to clinical practice (Apply)
- 10 studies included clinical applicability as an aim of the journal club
- 12 studies included it in the evaluation
● Appraise: applicability evaluated **during critical appraisal**
  - The attending coordinator and other faculty summarize the lessons to be learned both in terms of study design and clinical practice 3
  - Appraise and assimilate evidence leading to improvement in patient care 10
  - Ability to determine clinical usefulness of an article 4, 7, 15
  - Evidence sufficient enough to influence practice 8, 9

● Apply: **self reported** changes in practice
  - Improved ability to apply reading to patient care 5, 11
  - Taught ‘analysis of clinical practice’ 3
  - ‘It provided me with information that I have been able to apply in my clinical practice’ 13
  - Self-reported change in utilising literature in practice 11
  - Self-reported alteration in clinical practice: ‘It had an impact on my work’ 6, 17
Levels of educational effectiveness: time for a new approach

1. Reaction or satisfaction
2. Participation and/or completion
3. Learning or knowledge
4. Health professionals’ behaviour or performance
5. Healthcare outcomes

Belfield et al 2001 Adapted version of Fitzpatrick’s hierarchy
Recommendations for better research on journal clubs

- Provide a justification for the effectiveness measures
- Explicitly describe the effectiveness measures
- Match the research question to the aim of the intervention, to the effectiveness measure, and to the level of effect
- Relate the study design, findings and discussion to pedagogical models and theory
- Clarify the relationship between learning and performance
- In quasi-experimental studies, discuss the threats to internal validity
- In qualitative studies, support conclusions with data
References

URL: http://dx.doi.org/10.1080/0142150020031084


1. Akhund S, Kadir M. (20000) Do community medicine residency trainees learn through journal club? An experience from a developing country. BMC Medical Education reference


A different focus for evaluation of getting evidence into practice

- What works for whom in what circumstances? (Pawson & Tilley)
  - The impact of educational interventions will vary depending on the conditions where they are introduced
  - How and under what circumstances will an educational intervention have an impact?
  - What are the right conditions for introducing a journal club?
How might a journal club support learning and evidence based decision making?

- Two part question
  - 1. Supporting learning
    - Context
    - Mechanism
    - Outcome
  - 2. Learning that supports evidence based decision making
    - Context
    - Mechanism
    - Outcome

- Assumed causal pathway