

Effectiveness of Journal Clubs as an Intervention to Promote Evidence Based Practice

Prepared by: **Giovanna Boniface, OT (gboniface@caot.ca)**
 Date: **November 2013**
 Review date: **November 2015**

CLINICAL SCENARIO: Professional associations offer many services that may support evidence based practice. One of those services may be in the form of a journal club. Journal clubs can expose health professionals to literature however, they can also contribute to evidence based practice by bridging the gap between research and practice (Goodfellow, 2004). This is a review to determine the effectiveness of journal clubs and help decide whether an occupational therapy professional association should invest resources into the establishment and maintenance of such a service.

FOCUSED CLINICAL QUESTION:

Do journal clubs improve evidence based practice in occupational therapists?

SUMMARY of Search, 'Best' Evidence' Appraised, and Key Findings:

Despite a detailed search, few articles were found that were specific to the use of journal clubs to promote evidence based practice in occupational therapy. Most were descriptive in nature and included survey information only. One qualitative article was found that was specific to this writer's focused clinical question (McQueen et al., 2006).

To broaden the search to find quantitative evidence, the literature search was expanded to include all health professionals.

One randomized control trial was located in the search (Linzer et al., 1988). The key findings of the Linzer study include: a) a journal club can have a positive impact by improving participant reading habits, b) participants gained more knowledge in a journal club compared to a usual education (control seminar series) and c) there was no significant difference in critical appraisal skills between the journal club and control seminar series.

One non-randomized control trial was found (Fu et al., 1999). The key finding of the Fu study was that journal clubs are not an effective way to teach critical appraisal skills to psychiatry residents.

Two systematic reviews were found that were specific to the impact of journal clubs on practice (Harris et al., 2011; Honey and Baker, 2011;).

The key findings of the 2011 Honey and Baker review include: a) there is growing evidence that journal clubs increase practitioner knowledge and confidence and b) a journal club is a cost effective method for health care practitioners to remain aware of new evidence.

The key finding of the 2011 Harris et al. review is that the effectiveness of journal clubs in supporting evidence-based decision making is not clear.

CLINICAL BOTTOM LINE:

Journal clubs are commonly used as a form of interactive education to facilitate the transfer of information from published journals to clinical practice. There is little direct evidence that demonstrates that a journal club is effective in supporting evidence based practice. More research is required in order to understand how journal clubs may support evidence based practice.

Limitation of this CAT: This critically appraised paper (or topic) was prepared for a graduate course assignment and has /has not been peer-reviewed by one other independent person/an instructor.

SEARCH STRATEGY:

Terms used to guide Search Strategy:

- Patient/Client Group: Occupational Therapists
- Intervention (or Assessment): Journal club
- Comparison: None
- Outcome(s): Evidence based practice

Databases and Sites Searched	Search Terms	Limits Used
MEDLINE (OvidSP)	(MeSH) occupational therap\$ AND journal club\$ AND evidence base\$ AND Evaluat\$	English language

MEDLINE (OvidSP)	journal club\$ AND evidence base\$ AND Evaluat\$	English language
CINAHL OT Seeker Google Scholar	journal club AND evidence based practice AND evaluation	English language

INCLUSION and EXCLUSION CRITERIA

- Inclusion:
 - any quantitative study that evaluated the outcome of a journal club
 - systematic reviews
 - post-graduate healthcare workers
 - medical residents

- Exclusion:
 - the use of surveys to report outcomes related to quality of the designs (e.g. bias, sampling, sample size, validity of surveys, and interpretation of surveys) and the strength of the results
 - opinion articles
 - descriptive studies
 - video or internet based journal clubs
 - student journal clubs

RESULTS OF SEARCH

Despite a detailed search, only four relevant studies were located and categorised as shown in Table 1.

Table 1: Summary of Study Designs of Articles Retrieved

Study Design/ Methodology of Articles Retrieved	Level*	Number Located	Author (Year)
---	--------	----------------	---------------

Randomized Control Trial	1	1	Linzer, M., Brown, J.T., Frazier, L.M., DeLong, E.R., & Siegel, W.C (1988)
Non-Randomized Control Trial	3	1	Fu, C.H.Y., Hodges, B., Regehr, G., Goldbloom, D.S., & Garfinkel, P. (1999).
Systematic Review	1	2	Harris, J., Kearley, K., Heneghan, C., Meats, E., Roberts, N., Perera, R., & Kearley-Shiers, K. (2011)
			Honey, C.P., & Baker, J.A. (2011).

*Levels of evidence are based on the 2011 Oxford Levels of Evidence (Howick et al., 2011)

BEST EVIDENCE

The study of Linzer et al. (1988) was identified as the 'best' evidence and selected for critical appraisal. Reasons for selecting this study were:

- The study was a randomized control trial (RCT)
- RCT is the best evidence for answering a question about the effectiveness of an intervention (journal club)
- Testers were blinded to the intervention group
- The study was identified as the closest to address the PICO question

SUMMARY OF BEST EVIDENCE

Table 2: Description and appraisal of *Impact of a medical journal club on house-staff reading habits, knowledge, and critical appraisal skills. A randomized control trial* by Linzer, M., Brown, J.T., Frazier, L.M., DeLong, E.R., & Siegel, W.C (1988).

Aim/Objective of the Study/Systematic Review:

The purpose of this study was to determine if a journal club improves reading habits, knowledge, and critical appraisal skills in medical interns.

Study Design:

The study was a randomized control trial. Participants were assigned to one of two groups, the treatment group (general medicine journal club) or the control group (control seminar series). It is unclear if the assignment of the participants to either treatment group or the control group was blinded, however, the graders of the pre-tests and post-tests were blinded to intervention group.

Setting:

Intervention and testing took place at the Department of Internal Medicine at Duke University, North Carolina. Intervention took place during outpatient clinic rotations.

Participants:

N=44 medical interns entering the Department of Internal Medicine at Duke University, North Carolina, were randomly assigned to either a general medicine journal club or a standard conference in topics in ambulatory medicine. Participants signed a consent form to participate in the study. 22 participants were randomized to the journal club (intervention) and 22 to the control group. One control subject declined the pre-test, one subject was inappropriately entered into the control group and one control group subject left the training program. The final number in the control group was 19 subjects. No demographic information was reported in the study (e.g. age or gender). Baseline characteristics measured included research background, critical appraisal teaching and reading habits and were reported to be comparable with one exception. There were more subjects in the journal club who had received critical appraisal training (82% in the journal club group compared to 53% in the control group).

Intervention/Phenomenon Investigated

A mean of 5 educational sessions are reported per participant. The control intervention was described as a "*standard conference series on ambulatory medicine*" (Linzer et al., 1988, p. 2538). Critical appraisal of medical evidence was not emphasized. The journal club intervention was described to include an introduction of a journal article, background of the literature, critique of methodology, results and conclusions followed by a discussion of the clinical utility of the article under review. Not enough details were provided for either group to reproduce the study without contacting the authors (e.g. session leaders, frequency, duration, selection of articles to review etc.).

Outcome Measures/Qualitative Methods

An evaluation instrument developed by the Delphi method was administered before and after the interventions (following a mean of 5 sessions). One instrument was used to evaluate the outcome of the study. The evaluation instrument consisted of four parts: 1)critical appraisal teaching, 2)reading habits, 3)knowledge and 4)critical appraisal skills. The average time between pre-test and post-test was 9.5 months. A training session was held for test graders to standardize grading. Test graders were blinded to intervention group and to whether the test was a pre-test or a post-test. Interobserver variability was measured by having graders score several questionnaires more than once.

No specific information about the graders is provided.

Main Findings:

- 1) No change in critical appraisal skills noted following intervention.
- 2) Some improvement in knowledge is noted following intervention.
- 3) A trend suggesting that the more journal club sessions a subject attended, the more knowledge was gained.
- 4) By self-report, 86% of the intervention group reported improvements in reading habits while 0% of the control group reported a change in reading behaviour.

<u>Characteristic</u>	<u>Journal Club (n=22)</u>	<u>Control Group (n=19)</u>	<u>P</u>
Mean Knowledge Score			
Baseline	9.3	10	-
Post intervention	+1.5	+0.3	0.04
Mean Critical Appraisal Score			
Baseline	5.9	4.3	-
Post intervention	+0.5	+1.7	0.09
Reading Habit-Articles/month			
Baseline	13.4	9.3	0.10
Post intervention	-2.3	-2.0	0.59
Reading Habit-Journal subscriptions			
Baseline	3.0	2.2	0.16
Post intervention	0.5	0.6	0.89

Original Authors' Conclusions

"A journal club can have a powerful impact on self-reported house-staff critical reading behaviour" (Linzer et al., 1988, p. 2540).

Journal club participation can lead to increased knowledge of the subject matter studied.

Future studies focusing on journal club formats are recommended to determine the impact on critical appraisal skills.

Critical Appraisal:

Study purpose:

The study purpose was stated clearly.

Literature:

Relevant background literature was included. A gap in knowledge was identified, as no rigorous evaluation of a journal club was found in the literature; hence, the study was justified.

Design:

The study design, RCT, was the most appropriate design type for this type of intervention study.

Informed consent was obtained from all participants, however, ethical procedures were not included.

Validity

Biases:

Measurement Bias

Only one outcome measure was used for this study and it is a tool created by the study authors. The use of another measure with established reliability and validity would have lent more credibility to the study.

It is unclear whether the allocation of participants was masked to the authors. There could be potential influence from the authors as a result.

It is unclear what the role of the authors was in the research study—were they involved as intervention or control group session leaders? Were they involved in the grading of the pre and/or post-test scores? This lack of clarity leads to doubt of the influence of the authors on the study results.

Self-report as part of the outcome measure—the authors report a possible "*social desirability bias*" which could have encouraged journal club participants to report more of a change in reading behaviour (Linzer et al., 1988, p. 2541).

Intervention Bias

The study does not include details of who, where or how the intervention was provided. There could be bias if different people were in the roles of the journal club or control group session leaders.

Sample:

N=44 to start with 22 participants randomized to the journal club and 22 participants randomized to the control group. Details of how sampling took place are not provided. Inclusion and exclusion criteria are not articulated.

3 participants left the control group with N=19 as the final size of the control group. An analysis as to how this N was calculated was not provided. It is more likely that this sample size is of convenience (e.g. medical intern class size) and the authors acknowledge that the sample size is small.

Blinding of the pre-test and post-test graders, to both intervention group and to pre or post-test, added quality and rigour of this study.

Interpretation of Results

This is the only randomized control trial to measure the impact of a medical journal club on participant reading behaviour, knowledge and critical appraisal skills. The methodological approach appears sound, however, the following weaknesses are identified: a) small sample size, b) sample was specific to medical interns and c) the use of one outcome measure.

Study results appear reflective of the data and suggest that participation in a journal club may contribute to evidence based practice by improving the reading habits and knowledge levels of participants. As this study was specific to medical interns, this would diminish the transferability of the results to other populations (e.g. occupational therapists).

Summary/Conclusion:

The effectiveness of journal clubs in supporting evidence based practice is unclear. Although the journal club may be a good method to expose health practitioners to current literature, there is still a gap between research and application to clinical practice (McQueen et al., 2006).

Further research is needed to determine if occupational therapists should utilize the journal club as a method to improve evidence based practice.

IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH

A journal club is a service that may be supported by a professional association. Although there is little quantitative research to support the efficacy of journal club participation as a way to promote the uptake of research into practice, they are still used by occupational therapists and other health care professionals.

In times of economic difficulty, professional associations are faced with shrinking financial budgets and must make decisions on the types of services offered to members. The pressure is high on professional associations to provide cost-effective, valuable, member-driven activities. In Canada, the mission of the national occupational therapy association (Canadian Association of Occupational Therapists) is to "*advance excellence in occupational therapy*" (CAOT, 2013). A way to promote excellence in occupational therapy is to support evidence based practice. If journal clubs are an effective intervention to promote the development of reading habits, knowledge and critical appraisal skills, then resources to support the establishment and maintenance of journal clubs are warranted.

As the current research on the impact of journal clubs on evidence based practice is not clear, more rigorous research is recommended. In particular, a study on the impact of journal club participation on evidence based practice in occupational therapy would be valuable to professional associations and clinicians. This study found mixed results for the effect of journal clubs on certain outcomes, but the relationship between these outcomes and evidence based practice is unknown.

REFERENCES

Canadian Association of Occupational Therapists. (2013). Mission statement. Retrieved from <http://www.caot.ca/default.asp?pageid=2>

Fu, C.H.Y., Hodges, B., Regehr, G., Goldbloom, D.S., & Garfinkel, P. (1999). Is

- a journal club effective for teaching critical appraisal skills? A controlled trial with residents in psychiatry. *Academic Psychiatry*, 23(4), 205-209.
- Goodfellow, L. (2004). Can a journal club bridge the gap between research and practice? *Nurse Education*, 29 (Suppl 3), 107-110.
- Harris, J., Kearley, K., Heneghan, C., Meats, E., Roberts, N., Perera, R., & Kearley-Shiers, K. (2011). Are journal clubs effective in supporting evidence-based decision making? A systematic review. BEME Guide No. 16. *Medical Teacher*, 33(1), 9-23.
- Honey, C.P., & Baker, J.A. (2011). Exploring the impact of journal clubs: A systematic review. *Nurse Education Today*, 31(8), 825-831.
- Linzer, M., Brown, J.T., Frazier, L.M., DeLong, E.R., & Siegel, W.C. (1988). Impact of a medical journal club on house-staff reading habits, knowledge, and critical appraisal skills. A randomized control trial. *Journal of the American Medical Association*, 260(17), 2537-2541.
- McQueen, J., Miller, C., Nivison, C., & Husband, V. (2006). An investigation into the use of a journal club for evidence-based practice. *International Journal of Therapy and Rehabilitation*, 13(7), 311-317.
- OCEBM Levels of Evidence Working Group*. "The Oxford Levels of Evidence 2". Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=5653>
- * OCEBM Levels of Evidence Working Group = Jeremy Howick, Iain Chalmers (James Lind Library), Paul Glasziou, Trish Greenhalgh, Carl Heneghan, Alessandro Liberati, Ivan Moschetti, Bob Phillips, Hazel Thornton, Olive Goddard and Mary Hodgkinson

Addendum

In this literature search, I found little quality quantitative evidence on the use of journal clubs in occupational therapy (OT) practice. My decision to look for only Level 1 or Level 2 evidence resulted in zero studies found specific to the use of journal clubs in OT practice. The number of quantitative articles specific to OT would have increased if I had included those that utilized surveys for the data collection. I chose not to include these studies as I was concerned with the overall quality of the designs (e.g. bias, sampling, sample size, validity of surveys, and interpretation of surveys) and the strength of the results.

I could have expanded the search for literature by including qualitative studies. I chose not to do this as the focused clinical question was about the effectiveness of an intervention, and the best way to determine this is through a controlled study design. Had my focused clinical question been about the occupational

therapist experience participating in a journal club, then the inclusion of qualitative evidence would have been appropriate.

Instead, I chose to expand the search for quantitative literature by broadening the "P" in the PICO to all health professionals.

Another limitation to the search strategy could have been the effectiveness of the keywords used in the search. Although I was interested specifically in the effectiveness of the journal club, in a future literature search, I would include keywords such as *education, teaching, critical appraisal, critical thinking* and *effectiveness* in order to expand the results of literature. I would also include an additional database, ERIC (Education Resources Information Center), as this is a specific resource for educational literature.

Another possible limitation to the search strategy was the exclusion of student journal clubs. I likely would have found more quantitative studies had I included this group, however, I was specifically interested in the use of journal clubs in clinical practice, hence the decision to exclude them.

It is also possible that limiting the search to English language studies may have contributed to the low number of studies found.

This review has identified that it is unclear if and how participation in a journal club promotes evidence-based practice. As I am interested in determining whether or not a professional association should invest resources into providing a journal club as a member benefit, at this time I would not support this due to the uncertainty of the information.

Further quantitative research is required to determine the effectiveness of the journal club as an intervention to promote evidence based practice in OT. I would suggest that a randomized control trial specifically using occupational therapists as participants is required. In addition, a specific aspect of evidence based practice should be identified for measure (e.g. knowledge, skill, attitude or behaviour) in the study, and finally, an objective and valid instrument should be used to measure the outcome of the study.