

A journal club is an effective tool for assisting librarians in the practice of evidence-based librarianship: a case study

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Abstract

Objective: To establish a journal club for librarians, which aimed to develop appraisal skills and assist in the application of research to practice.

Methods: Fourteen health librarians were invited to attend a journal club. Each month a librarian was responsible for preparing a scenario, choosing a research paper, and selecting a checklist. The paper was appraised by the club, and a critically appraised topic (CAT) prepared. Six months later, a questionnaire was sent to all librarians.

Results: Six out of 14 librarians attended the journal club and five out of six returned the questionnaire. All five agreed that attending the journal club helped them develop appraisal skills, write a CAT and be more critical of research. Four agreed they always identified a research paper first, then formulated a question. One librarian agreed that applying results to their own practice was difficult, one disagreed and three were neutral.

Conclusion: Journal clubs can be effective at developing appraisal skills and writing a CAT, as well as increasing the reading of library research. Librarians still need assistance in identifying and using questions directly from their own practice. The journal club has helped some librarians to apply evidence to practice, but others find the research is not always directly relevant.

Introduction

Evidence-based practice is a model that originated within health care, and it is now being applied to other disciplines, such as education and social work.¹

Evidence-based practice, as defined by Sackett,² involves a number of steps:

- 1 identifying a question;
- 2 finding the best available evidence to answer this question;
- 3 critically appraising the evidence;

- 4 applying the results to a specific population;
- 5 evaluating the outcome.

One of the major elements of evidence-based practice is the ability to apply the results from rigorous research studies to professional practice in order to improve the quality of care or services. One of the tools available to assist in this is critical appraisal, used within the context of a journal club. The journal club originated in medical schools at the end of the 19th century, and was used regularly for continuing medical education.³

A number of information professionals suggest it is possible to adapt the model of evidence-based practice used in health care in order to utilize it for librarianship and information work.⁴ When the steps of evidence-based practice are examined, it is

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evident that they could all be applied to librarianship. Librarians are usually skilled in the first two steps of evidence-based practice as a result of their work supporting their users. However, increasingly, they need to possess the expertise necessary to assess the validity and reliability of research evidence, and must also make decisions about how to apply the evidence to their own practice.

Objective

The process of evidence-based librarianship (EBL) is an exciting concept, but is it practical for librarians in the field? This led to the question—is EBL just an attractive theory, or can practising librarians make it work in real life? To answer this question, a journal club for health librarians and information scientists was established, which aimed to develop critical appraisal skills, increase awareness of library-related research, and assist in the application of research to library practice.

Literature review

In health care, the journal club has been used as a method of teaching critical appraisal skills, and a number of studies looking at the use of journal clubs for appraisal have been published. A systematic review examined whether studies have found journal clubs for physicians in training to be effective for improving patient care, teaching critical appraisal skills, and increasing the use of medical literature in clinical practice.⁵ They found one randomized controlled trial showing an improvement in the use of medical literature in practice, but no improvement in critical appraisal skills, and six less methodologically rigorous studies showing an improvement in critical appraisal skills.

An evaluative study outlined how a journal club can be used successfully to help bridge the gap between research and practice for nursing students.⁶ A study of a programme developed to teach critical appraisal skills to postgraduate trainees found that trainees' reading time improved significantly, along with their knowledge scores, after attendance at a journal club.⁷

Another article describes how to run a journal club, based on a systematic literature search and experience.⁸ Common themes in successful journal clubs

seem to be the fact that they are driven by individuals' own questions, and lead to creation of a written record, such as a critically appraised topic (CAT).

There is a paucity of literature evaluating journal clubs for librarians. It could be that there are not many established journal clubs, or it may be that librarians are developing and attending these meetings, but are not evaluating them or publishing their experiences. A 'Using Research in Practice' column in the *Health Information and Libraries Journal* gives details about the development of two journal clubs for librarians, one in Canada and one in the UK.^{9–11} These journal clubs were established mainly for professional discussion and debate and, although appraisal and applying the evidence are mentioned as part of this, appraisal evaluation tools were not used.

Benefits of running a journal club for librarians were listed as a supportive environment to examine current practice, networking opportunities, a forum to develop critical appraisal skills, keeping up to date with the literature and continued professional development, but it is not clear whether this was based on survey evidence.¹¹

Advantages and disadvantages of Internet discussion journal clubs vs. face-to-face meetings were outlined in an older article,¹² but this also did not appear to have an evaluative aspect. A descriptive article summarized the use of a journal club to produce critically appraised topics in communication, health informatics and technology (CATCH_IT) reports. These provide a platform for discussion around results and methodology.¹³ No research studies involving an evaluation of the use of journal clubs for developing appraisal skills for librarians were found.

Development of appraisal tools for librarians

Research studies in the librarianship and information field are not commonly randomized controlled trials (RCTs) or systematic reviews. The checklists developed for appraising these types of evidence [e.g. JAMA User guides <http://www.usersguides.org/or> Critical Appraisal Skills Programme (CASP) tools for appraisal <http://www.phru.nhs.uk/casp/appraisa.htm>] are therefore of limited use for librarians. The majority of research in librarianship consists of descriptive surveys, observational studies, case studies,

qualitative research or expert opinions.^{14,15} This provides challenges, but should not prohibit the appraisal and use of this research.

In 1999, a series of workshops called Critical Skills Training in Appraisal for Librarians (CriSTAL) were developed to provide librarians with the skills necessary to appraise and apply research.¹⁶ These workshops involved the development and use of two appraisal checklists based on question types commonly asked in the library field—information needs analysis (www.shef.ac.uk/scharr/eblib/needs.htm) and user studies (www.shef.ac.uk/scharr/eblib/use.htm).

Methods

Structure of the journal club

Journal club meetings were held once a month, and 14 health librarians were invited to attend. The health librarians were mainly based in Oxford—some work in medical libraries serving local university and clinical staff, and others are information scientists providing electronic resources and services for NHS staff nationally.

For each of these meetings, a different librarian was responsible for preparing a scenario, choosing a relevant research paper, and selecting the appropriate CriSTAL checklist. Librarians were encouraged to identify questions from their own practice. During the journal club meeting, the paper was critically appraised by the group, using the checklist. If the paper selected was not explicitly an information-needs analysis or a user study, relevant questions on the CriSTAL checklist were still used to assist appraisal. For example, questions regarding the study focus, the selection of participants or data, the presentation and analysis of results, the possible biases and the overall applicability of the study to individual practice, are relevant to all types of question or research design.

The librarian who selected the paper also acted as facilitator to the group. Each meeting lasted between 1 and 1.5 h. Afterwards, a CAT was prepared and disseminated to all group members.

Survey

Six months after the first meeting of the journal club, a questionnaire was sent to the participating

librarians. This survey aimed to discover whether attendance at the journal club had helped the librarian to identify questions, read more library-related literature, improve their critical appraisal skills and apply the appraised evidence to their own practice. Questions 2–8 asked participants to rate statements according to whether they agreed or disagreed and questions 9–13 asked them to comment on their rating (Appendix 1). The final question on this survey asked about the potential barriers to librarians attending journal clubs. This question was also sent to the librarians who had been invited but never attended, in order to discover actual reasons for non-attendance.

Results

Six journal club meetings have been held to date, each appraising one research paper. The papers appraised included studies that aimed to:

- assess the impact of an evidence-based medicine curriculum on students' EBM skills;¹⁷
- determine the extent of use of the Internet for clinical information amongst family practitioners;¹⁸
- determine the awareness and use of methodological search filters by librarians;¹⁹
- assess whether impact factors are a useful measure of the quality of medical journals.²⁰

A total of six librarians have participated in two or more meetings. The six meetings were each facilitated by a different librarian, and all six appraisals have been recorded as a CAT and made available to the group (Appendix 2).

Five out of the six participating librarians returned the survey (83.3% response rate)—two information scientists, two information specialists and one clinical effectiveness librarian. None of these five librarians had ever attended a journal club before.

The survey showed that none of the librarians strongly disagreed or disagreed with any of the first eight questions (Table 1). All five librarians either strongly agreed or agreed that attending the journal club had helped them to develop critical appraisal skills and write a CAT. Three out of five librarians either strongly agreed or agreed that the journal club had helped them to identify and formulate questions relevant to their own practice, and facilitated them in reading more library-related

research. Three out of five librarians also agreed that they searched library-related databases such as Library and Information Science Abstracts (LISA) as a result of attending.

Two librarians agreed that attending a journal club did help in applying the evidence to their own practice, but three stated the journal club had neither helped nor hindered (neutral).

Questions 9–13 produced more difference of opinion between the librarians (Table 2). For the question about diversity of job roles, two librarians agreed, two disagreed. One of the librarians choosing ‘Agree’, stated:

‘Although I agree with the statement, I don’t think that it is a bad thing—it’s interesting to know what is relevant to other health care librarians/information specialists.’

A librarian who selected ‘Disagree’, wrote:

‘I have learnt something from each session. I may not use it now, but can store it for future use.’

Three librarians strongly disagreed or disagreed that it was difficult to find research relevant to their own practice. Two comments from these librarians stated:

‘I work in an area of librarianship that is developing rapidly and there is always new research in this area.’

‘There are too many!’

The librarian that agreed with this statement, commented:

‘This is because of the nature of our library—being available for both university students/staff and Oxfordshire Radcliffe Hospital Trust (ORHT), which makes us a bit unusual and complicated.’

Four of the librarians either agreed or strongly agreed that they always identified a research paper first, then created a scenario and question

Table 1 Results of the survey returned by five out of six participating librarians—questions 2–8

Attending the journal club has helped me to:	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
identify and formulate questions	1	2	2	0	0
search library-related databases	0	3	2	0	0
read more library-related research	2	1	2	0	0
develop critical appraisal skills	4	1	0	0	0
write a CAT summary	4	1	0	0	0
apply the results to my own practice	0	2	3	0	0
influence the decision-making of colleagues	0	0	5	0	0

Table 2 Results of the survey returned by five out of six participating librarians—questions 9–13

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Diversity of job roles means that research selected is not always relevant to individuals	0	2	1	2	0
It is difficult to find research relevant to my library or information practice	0	1	1	2	1
I always search for and identify a research paper first, then create a scenario and question	2	2	1	0	0
Applying the results of the appraisal to my own practice is difficult	0	1	3	1	0
Attending the journal club has made me more critical when reading research studies	3	2	0	0	0

afterwards. A librarian who strongly agreed with this statement wrote:

‘Before searching I always chose a topic that I’d like to find out more about, then I search and identify an article, then write the scenario—I find this works best for me.’

This suggests that these librarians are not identifying questions directly from their practice, but instead are finding a topical or interesting paper to appraise, and then formulating a question and scenario which could be answered by this paper.

One librarian agreed that applying the results to their own practice was difficult, one disagreed and three were neutral. Comments were:

‘Sometimes there are appraisals where I cannot apply the results to my own work, however, generally I think there is always something (even something small) that I have learnt from a study that I can take back to my own library—even if it more of a concept that I think may be useful, etc . . . ’ (disagree).

‘I am currently focusing on web/content development and literature searching, and I don’t think these have been covered, unless I missed them. However, the general skills I do use (e.g. critical appraisal skills)’ (agree).

All five librarians either strongly agreed or agreed that attending the journal club had made them more critical when reading research studies.

‘I don’t just accept everything I read just because it appears in an academic journal.’

Question 14 asked participants whether they had applied any of the results from the journal club appraisals directly to their own practice.

A librarian answering ‘Yes’, made this comment:

‘Information and findings from several of the appraised studies have been used when writing summary articles/search narratives/content development strategies.’

A comment from a librarian answering ‘No’:

‘Haven’t really had time (fire-fighting right now!), but I look forward to applying results in the future—am keeping the CATs all together in a CPD/ideas file.’

Lack of time and staff shortages in the workplace were considered by both the attending and non-attending librarians to be the greatest barriers to participating in a journal club. One non-attending librarian said they had no interest in participating, but no-one gave the reason that a journal club would not be relevant to their practice (Table 3).

Discussion

This case study showed that attendance at a journal club helped librarians to develop their critical appraisal skills, create a written record in the form of a CAT and, to a lesser extent, read more library-related research and identify relevant

Table 3 Which barriers prevent librarians from attending a journal club? (question 15)

Barrier	No. of times chosen (attending) <i>n</i> = 5	No. of times chosen (non-attending) <i>n</i> = 7
No time	5	5
Staff-shortages	4	3
Availability of journal clubs	3	0
No management support	3	1
Lack of knowledge about journal clubs	3	0
Applying evidence too difficult	1	0
No interest	0	1
No appropriate facilities	0	0
Not relevant to practice	0	0

questions. However, it was noticeable that most librarians did not always follow the steps of evidence-based practice in order—that is, they tended to find research that interested them first, then created a scenario and question to fit this, rather than identifying a relevant question from their practice initially and going on to obtain appropriate research to answer this.

There was no consensus as to whether librarians thought their different job roles would affect the relevance of the papers selected. Although, interestingly, the librarians who agreed that papers were not always relevant commented that this was a good thing as it was a useful way of keeping up with research in other areas, and those who disagreed stated that even if the research was not relevant to them immediately it could be stored for future use. Overall it is evident that participating in this journal club made the librarians more aware of the research available, and encouraged them to search in more depth.

The most difficult stage in EBL can often be applying the appraised evidence to practice. However, two librarians stated they had already applied the results from a journal club appraisal directly to their own practice, which was a positive example of EBL working in real-life.

The most frequently chosen barriers to attending a journal club were lack of time and staff-shortages at the workplace—this was reinforced by the librarians who did not attend any of the meetings. Lack of time is often given as a reason for not consulting research evidence²¹ or not evaluating current practice. Brice and Booth state that

‘the alternative (to service evaluation) is to run the risk of wasting valuable time by persevering with some intervention that the evidence might demonstrate to be ineffective’.^{4 p.9}

Librarians must be reassured that participation in aspects of EBL such as journal clubs is an effective use of their time. Having management support and staff cover available to take time away from front-line library duties is also extremely important.

Limitations of this study include the small survey sample of health librarians and information scientists in the Oxford area, and the fact that the

participants self-assessed their skills (i.e. there was no actual evaluation or test of their critical appraisal skills). In order for us to have more of an evidence base in this area, we need more journal clubs for librarians to be evaluated and published.

Lessons learned

This case study demonstrated that a journal club can be effective at developing the skills of appraisal and CAT production, as well as increasing the reading of library-related research and the identification of research questions. The results also showed that librarians find it difficult to identify and use questions directly from their own practice. Librarians need training to enable them to formulate good EBL questions (as suggested by Eldredge²²), before the next steps of searching and appraising are undertaken. Participants at future meetings will be encouraged to formulate a question first, before searching for an article that can be appraised in the journal club.

A way of helping librarians to identify and remember questions is to encourage them to record questions as they arise, which can be answered at a later stage. For example, the Centre for Evidence-Based Medicine (www.cebm.net) have created a paper logbook for health professionals to record all their questions and answers.

It would be useful to disseminate the CATs produced by this journal club and other established clubs more widely, perhaps on a website, but this would require funding to develop. Having access to a collection of appraised research articles would prove a useful asset to librarians wishing to be evidence based, and could encourage others to contribute their own appraised articles; it would also prevent duplication of effort.

Conclusions

The development of a journal club as a tool for assisting in the practice of EBL was an effective method for health librarians and information scientists based in the Oxford area. There is still some way to go before evidence-based practice becomes as well integrated into the library profession as it is in health care, but attending a journal club is a step in the right direction.

Key Messages

Implications for Policy

- The development of critical appraisal skills and the application of research to practice must be seen by management as of benefit to the library or information service as a whole.
- Librarians need training and support to enable them to formulate answerable EBL questions.

Implications for Practice

- An individual librarian should be allowed the time and management support to attend a journal club, and encouraged to apply relevant results to their own practice.
- Librarians should be encouraged to formulate and record questions from their practice as they arise, which can be answered at a later stage from the research literature.
- Having access to a collection of appraised research articles would prove a useful asset to librarians wishing to be evidence based.

References

- 1 Trinder, L. Introduction. The rise of evidence-based practice. In: Trinder, L. & Reynolds, S. (eds). *Evidence-Based Practice: A Critical Appraisal*. Oxford: Blackwell Science, 2000.
- 2 Sackett, D., Straus, S. & Richardson, S. *Evidence-Based Medicine. How to Practice and Teach EBM*. London: Churchill Livingstone, 2000.
- 3 Linzer, M. The journal club and medical education: over one hundred years of unrecorded history. *Postgraduate Medical Journal* 1987, **63**, 475–8.
- 4 Brice, A. & Booth, A. *Evidence-Based Practice for Information Professionals: A Handbook*. London: Facet Publishing, 2004.
- 5 Ebbert, J. O., Montori, V. M. & Schultz, H. J. The journal club in postgraduate medical education: a systematic review. *Medical Teacher* 2001, **23**, 455–61.
- 6 Goodfellow, L. M. Can a journal club bridge the gap between research and practice? *Nurse Educator* 2004, **29**, 107–10.
- 7 Khan, K. S., Dwarakanath, L. S., Pakkal, M., Brace, V. & Awonuga, A. Postgraduate journal club as a means of promoting evidence-based obstetrics and gynaecology. *Journal of Obstetrics and Gynaecology* 1999, **19**, 231–4.
- 8 Phillips, R. S. & Glasziou, P. What makes evidence-based journal clubs succeed? *Evidence-Based Medicine* 2004, **9**, 36–7.
- 9 Grant, M. J. Journal clubs for continued professional development. *Health Information and Libraries Journal* 2003, **20**(Suppl. 1), 72–3.
- 10 Koufogiannakis, D. & Crumley, E. Facilitating evidence-based librarianship: a Canadian experience. *Health Information and Libraries Journal* 2003, **20**(Suppl. 1), 73–5.
- 11 Doney, L. & Stanton, W. Facilitating evidence-based librarianship: a UK experience. *Health Information and Libraries Journal* 2003, **20**(Suppl. 1), 76–8.
- 12 Tomlin, A. From dowdy to dandy: spiffing up the journal club. *One-Person Library* 1996, **12**, 1–3.
- 13 Cameron, N. & Grant, M. J. Introduction to CATCH-IT reports: critically appraised topics in communication, health informatics and technology. *Journal of Medical Internet Research* 2004, **6**, e49.
- 14 Eldredge, J. How good is the evidence base? In: Brice, A. & Booth, A. (eds). *Evidence-Based Practice for Information Professionals: A Handbook*. London: Facet publishing, 2004.
- 15 Crumley, E. & Koufogiannakis, D. Developing evidence-based librarianship: practical steps for implementation. *Health Information and Libraries Journal* 2002, **19**, 61–70.
- 16 Booth, A. & Brice, A. Clear-cut?: facilitating health librarians to use information research in practice. *Health Information and Libraries Journal* 2003, **20**(Suppl. 1), 45–52.
- 17 Dorsch, J. L., Aiyer, M. K. & Meyer, L. E. Impact of an evidence-based medicine curriculum on medical students' attitudes and skills. *Journal of the Medical Library Association* 2004, **92**, 397–406.
- 18 Cullen, R. J. In search of evidence: family practitioners' use of the Internet for clinical information. *Journal of the Medical Library Association* 2002, **90**, 370–9.
- 19 Jenkins, M. & Johnson, F. Awareness, use and opinions of methodological search filters used for the retrieval of evidence-based medical literature: a questionnaire survey. *Health Information and Libraries Journal* 2004, **21**, 33–43.
- 20 Saha, S., Saint, S. & Christakis, D. A. Impact factor: a valid measure of journal quality? *Journal of the Medical Library Association* 2003, **91**, 42–6.
- 21 Turner, K. Do information professionals use research published in LIS journals? *68th IFLA Council and General Conference, August 18–24 2002*. 2002. Available from: <http://www.ifla.org/IV/ifla68/papers/009-118e.pdf> (accessed 17 June 2005).
- 22 Eldredge, J. Evidence-based librarianship: formulating EBL questions. *Bibliotheca Medica Canadiana* 2000, **22**, 74–7.

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Appendix 1: Journal club survey

Job title:

1. Have you ever attended a journal club prior to this one? Yes No

Please rate these statements according to the scale below:

Attending the journal club has helped me to:

2. identify and formulate answerable questions from my own information practice

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

3. search library-related databases such as LISA for research papers relevant to library and information science

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

4. read more library and information science-related research papers

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

5. develop my critical appraisal skills

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

6. write a summary of the appraisal in the form of a Critically Appraised Topic (CAT)

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

7. apply the results from the appraisal to my own practice

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

8. influence the decision-making of colleagues within my library or information service

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

Please rate these statements according to the same scale, and also comment on your answer:

9. The diversity of job roles reflected by attending librarians, means that the research papers selected are not always relevant to individuals

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

Please comment on your answer:

10. It is difficult to find research studies relevant to my library or information practice

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

Please comment on your answer:

11. I always search for and identify a research paper first, then create a scenario and question around this

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

Please comment on your answer:

12. Applying the results of the appraisal to my own practice is difficult

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

Please comment on your answer:

13. Attending the journal club has made me more critical when reading research studies

Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

Please comment on your answer:

14. Have you applied any of the results from the journal club appraisals directly to your own practice? Yes No

Please comment on your answer:

Please tick all those that apply below.

15. In your opinion, which of these barriers prevent librarians attending a journal club?

No time	<input type="checkbox"/>	No management support	<input type="checkbox"/>
Staff-shortages	<input type="checkbox"/>	No appropriate facilities (meeting rooms)	<input type="checkbox"/>
No interest	<input type="checkbox"/>	Lack of knowledge about journal clubs	<input type="checkbox"/>
Availability of journal clubs	<input type="checkbox"/>	Applying evidence too difficult	<input type="checkbox"/>
Not relevant to practice	<input type="checkbox"/>		

Appendix 2: example of a Critically Appraised Topic (CAT)

There is a strong correlation between impact factors and physicians ratings of journal quality

Bottom Line: For the 9 medical journals selected, a strong correlation was found between impact factor and physicians ratings of journal quality, which was significant ($p < 0.001$).

Focused Question:

Are impact factors useful as a measure of the quality of medical journals?

Citation:

Saha S, Saint S, Christakis D. *Impact factor: a valid measure of journal quality?* Journal of the Medical Library Association 2003, 91(1) pp42-46

Summary of the aim and methods of the study

- Authors sought to examine whether impact factor is valid measure of journal quality, as rated by practitioners and researchers.
- Sample was 416 internal medicine physicians in USA—208 randomly selected (not clear how) practitioners from American Medical Association's master list, and 208 researchers from alumni directory, randomly selected.
- Participants were sent questionnaire—no information given about the data collection instrument, except that respondents were asked to rate the overall quality of 9 medical journals, and they asked respondents to report whether they subscribed to or read the 9 journals.

Main Results

- Response rate good—66% overall, 58% from practitioner group and 74% from research group. 135 people did not respond—no explanation or breakdown of group was given.
- No significant differences between respondents and non-respondents in terms of age, graduation year or subspecialty training.
- Strong correlation between impact factor and physicians ratings of journal quality, which was significant $p < 0.001$.
- Physicians' ratings of journal quality correlated more closely with impact factor than with subscription rates or with readership rates.

Comments:

- Good rationale and justification for conducting study—clearly a need for information on value of impact factors.
- Good response rate.
- No sample size calculation—not sure how figure of 416 physicians was chosen.
- Little information about the total population of physicians—difficult to know if selected population was significantly different from other physicians—probably not different enough to make study unusable.
- Not clear why random number generator was used for researchers, but not for physicians.
- No information given about questionnaire—copy of questionnaire needed in order to replicate study.
- A limitation of study discussed by authors—not all physicians had read journals they were rating, so opinions might have been based on perceptions. Physicians may rate journal as good because it is prestigious, or low quality because they haven't heard of it before.