

Effects of Educational Training on Quality of Journal Clubs: a Quasi-Experimental Study

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Background: Running standard journal clubs is one of the important goals of postgraduate education. Students should update their knowledge and learn critical appraisal skill. This study aimed to compare quality of journal clubs in Mashhad Dental School in order to improve educational and appraisal structure of journal clubs.

Methods: This quasi-experimental study was conducted on journal clubs of Mashhad dental school. Journal clubs were evaluated and compared using a valid and reliable ($r=0.74$) checklist before and after an educational workshop. Data were analyzed using SPSS: 11.5 by paired T-Test ($CI=95\%$)

Results: There was a significant difference before and after intervention in terms of educational structure, however no critical appraisal was conducted.

Conclusion: As to the results, it is recommended to refresh faculty members and postgraduate students in terms of educational and appraisal structure of journal clubs. It seems teaching critical appraisal is more important.

Keywords: Journal Club, Education, Dentistry

تأثیر دوره‌ی تعلیمی علی کیفیت مؤتمرات المجلات

التمهيد و الهدف: اجراء مؤتمرات المجلات من الاهداف السريه في مجال تعليم طلاب التخصص يجب على الطلاب ان يحصلوا على اضرالظورات و يكتسبوا مبرارة نقد المقالات إن الهدف من هذه الدراره هو مقارنة كيفية اجراء مؤتمر المجله في كليه طب الاسنان في جامعه مشهد في سبيل تحسين الهيكلية التعليمية و نقد المقالات.

الأسلوب: اجريت هذه الدراره النصف تجريبه لتحليل مؤتمرات المجلات في كليه طب الاسنان في جامعه مشهد.

تم التقييم عبر استمارات التي قد تم تأييدها من قبل و تم استخدام برنامج spss 11.5 لتحليل المطيات ($r=74.0$ & $T=95\%$)

النتائج: كان هناك اختلاف ذوقيه احصائية قبل المداخلة التعليمية و بعدها و لكن لم يكن هناك اي تقييم نقاد.

الاستنتاج: بحسب النتائج المشار اليها في هذه الدراره نرى من الضروري لفت نظر الرشيه العليه و طلاب التخصص الي مؤتمرات المجلات و من المرمم تعليم اسلوب تقييم نقد المقالات.

تأثير دوره آموزشی بر کیفیت ژورنال کلاب ها: یک مطالعه نیمه تجربی

زمینه و هدف: برگزاری ژورنال کلاب استاندارد یکی از اهداف مهم در آموزش دانشجویان تخصصی می باشد. دانشجویان باید دانش خود را به روز نموده و مهارت ارزیابی نقادانه مقالات را بیاموزند. هدف از این مطالعه مقایسه کیفیت برگزاری ژورنال کلاب‌ها در دانشکده های دندانپزشکی مشهد در جهت بهبود ساختار آموزشی و نقادانه ژورنال کلاب ها است.

روش: این مطالعه نیمه تجربی بررسی جلسات ژورنال کلاب‌ها دانشکده دندانپزشکی مشهد صورت گرفت. ژورنال کلاب‌ها بر اساس چک لیستی که روایی و پایایی آن تأیید شده بود، ارزیابی شده و قبل و بعد از کارگاه آموزشی مقایسه گردیدند. ($r=0.74$) اطلاعات بدست آمده با استفاده از نرم افزار SPSS:11.5 و تست T زوجی ($CI=95\%$) مورد تجزیه و تحلیل قرار گرفت.

یافته ها: نتایج قبل و بعد از مداخله آموزشی (کارگاه) از نظر ساختار آموزشی اختلاف معناداری داشتند ولی هیچ گونه ارزیابی نقادانه ای صورت نگرفته بود. **نتیجه گیری:** بر اساس نتایج این طرح توصیه می شود که اعضای هیات علمی و دانشجویان تخصصی به ساختار آموزشی و نقادانه ژورنال کلاب‌ها توجه نموده و به نظر می رسد آموزش ارزیابی نقادانه مقالات بسیار حائز اهمیت می باشد.

جرنل کلب پر تعلیم کا اثر۔ ایک نیم تجربی مطالعہ

بیک گراؤنڈ: اسٹینڈرڈ جرنل کلب قائم کرنا مہارتی تعلیم میں ایک اہم هدف شمار ہوتا ہے۔ طلباء کے لئے ضروری ہوتا ہے کہ وہ اپنی تعلیم کو اپڈیٹ کرتے ہوئے علمی و سائنسی مقالات پر تنقیدی نظر دینے کی صلاحیت پیدا کریں۔ اس تحقیق کا مقصد مشہد یونیورسٹی آف میڈیکل سائنسس کے ڈینٹل فیکلٹی میں جرنل کلب کے معیارات کا جائزہ لینا ہے تا کہ یہ دیکھا جاسکے کہ کیا تعلیمی، تنقیدی لحاظ سے یہ قابل اعتنا ہیں۔

روش: یہ تحقیق جرنل کلب کے جلسات کے بارے میں مشہد ڈینٹل کالج میں انجام دی گئی۔ جرنل کلبوں کا علمی لحاظ سے معتبر چیک لسٹوں کے ذریعے تجزیہ کیا گیا۔

نتیجے: نتائج میں ورک شاپ سے پہلے اور بعد میں کافی اختلاف تھا لیکن ان پر کسی طرح کی تنقیدی نظر نہیں ڈالی گئی تھی۔

سفرارہ: اس تحقیق سے پتہ چلتا ہے کہ یونیورسٹیوں کی اکیڈمک کونسلوں اور پوسٹ گریجویٹ نیز ڈاکٹریٹ کے طلباء کو چاہیے کہ وہ جرنل کلب کی تعلیمی اور تنقیدی خصوصیات پر توجہ کریں کیونکہ علمی اور سائنسی مقالات پر تنقیدی نظر پیش کرنے کی تعلیم نہایت اہمیت کی حامل ہے۔

کلیدی الفاظ: تنقیدی نظر، جرنل کلب، مہارتی تعلیم۔

INTRODUCTION

Journal club rooted in history of medical education for over century. (1) Traditionally, journal club was regular meeting of a group to discuss papers and critique its clinical properties in medical journals. (1, 2, and 3) Journal clubs improve reading habit, teach critical appraisal and apply articles in clinical setting. (4, 5, and 6)

The first journal club was introduced by Sir William Osler in 1875 (4, 1). At first journal clubs were face to face meeting for reading and discussing new papers (5, 7). They were selected based on presenter's or moderator's interest and poorly facilitated or disseminated. Journal clubs familiarized individuals with latest medical literature. In a review by Glaasious et al, journal clubs were considered well if topics were selected based on current problems of patients and to be interested in by group (5).

In recent years, new generation of journal clubs such as evidence-based journal club has grown in which it would be possible that research to be applied to clinical practice and help the clinician to up-date with current literature/evidence (8).

The practice of evidence-based medicine (EBM) has been considered as an important competency for clinicians both for undergraduate and post graduate. Helping learners to acquire key appraisal skills during their residency training requires thoughtful curriculum development for applying the findings into clinical practice (9).

In Mashhad dental school, journal clubs have been applied as a teaching method for many years, however, it seems most journal clubs have traditionally selected article in which literature driven is based on the interest of presenter or moderator. Obviously in this process, meetings were managed based on passive teacher-centered approaches and no paper was critically appraised. Residents updated just their knowledge by attending in this session and learned nothing on appraised skills. Therefore, authors decided to improve journal clubs by running a one year educational course to develop both educational and critical aspects of them. The present study aimed to report the effect of course on developing educational and critical appraisal structure of journal clubs in Mashhad dental school.

METHODS

This quasi-experimental study was conducted on journal clubs of Mashhad dental school. Journal clubs were observed in two steps, before and after educational course. In the first step, journal clubs were observed and evaluated by a checklist. Validity and reliability of this checklist were confirmed in pilot study conducted in oral medicine department. The content validity was confirmed by educationists and reliability by test-retest ($r=0.74$).

As all eleven departments of Mashhad dental school had postgraduate education, they were included in this study. However, data of eight department were analyzed, department of oral medicine was excluded because the study was pilot in this department; two other departments were also excluded, because they did not participate in training course.

Ten departments of dental school were observed. Researchers planned their educational course based on these observations. No feedback was given to departments. After first observation a 5-hours workshop was planned to teach "How to run a journal club?"

Eight department out of 10 were attended. Head of department, head of postgraduate education, and two selected faculty members attended from these departments. 32 faculty members participated in the workshop. They were thought what journal club is, and what the objectives of journal club are Educational structure of journal club in terms of consistency with curriculum and its syllabi and principles of critique. A two week interval was given to them to get ready for post-intervention observation. After two weeks, the second observation was conducted. In these sessions researchers gave feedback and assist them to correct their mistakes. Data were analyzed by SPSS using paired T-Test. (CI=95%)

Ethical considerations were followed; EDC and dental school authorities as well as participants were informed of conducting the research and explained the aim and methodology of study in educational setting.

RESULTS

This quasi-experimental study was conducted on 109 faculty members of eleven Departments of Mashhad dental school, as 9 faculty member from oral medicine Department participated in pilot study, they were discarded, and so, analysis was conducted on 100 faculty member (56 males and 44 females) from 10 Departments. Mean age of participants was 43.03 years with range of 28-63.

Study tool was a 22-item valid and reliable checklist. The score was between 0-22. The maximum acquired score before intervention was 9 and the minimum was 7 with the mean score of 8.6 out of 22. After intervention (workshop), journal clubs of different Departments were observed and checklist was completed. After intervention, the maximum score was increased significantly to 17 out of 22 with mean score of 16.2. ($P<0.05$)

Before intervention, focused items were paper selection based on curriculum, good presentation, using proper audiovisual media, time management, physical environment and facilities; however, group discussion was performed just in terms of content and based on clinical experiment of faculty members. Just all faculty members of five Departments participated in journal clubs regularly and in other Departments most of them participated. After intervention, Departments had regular plan for running journal club, however, participation of related faculty members and resident evaluation as well as critical appraisal of papers were ignored.

DISCUSSION

Journal clubs have been well-established as a means for academics and students to talk about study and their topics of interest. The structure of journal clubs varies from institution to institution, and profession to profession. However, most tend to meet regularly to update themselves with new topics and discuss research articles and improve

their understanding of research design, statistics and critical appraisal methods. Some overlapping goals include developing critical analysis skills, promoting design, statistics and critical appraisal methods. Some overlapping goals include developing critical analysis skills, promoting the value of research and scholarship, and net working with peers (10). Fortunately, journal clubs are well-covered in the health sciences professional literature (11, 12, 13, and 3) and were newly the attention of two systematic reviews that observe journal clubs and their effectiveness as tools for continuing education (10,11). The papers described many processes of effective journal clubs. Over 80% papers reported that journal club intervention was effective in improving knowledge and critical appraisal skills. Few papers reported on the psychometric properties of their outcome instruments. No paper reported on the translation of evidence from journal club into clinical practice. (10,11) Journal club is an educational meeting that planned to educate students about critical appraisal, the importance of keeping new with literature and the practicality of applying study results to patients.

As to the findings, there was a significant difference between journal clubs before and after educational intervention ($p < 0.05$) in terms of educational structure and selecting proper papers, however, no critical appraisal was occurred in journal club sessions.

Crank-patton et al surveyed the program directors of general surgery regarding journal club. Although 65% of the surveyed directors had a journal club and most indicated that their journal club was important, few programs performed any systematic or formal evaluation of their journal club(14).

But in Sadeghi research the difference between evidence based and traditional journal clubs regarding the levels of evidence was dramatic.(41.6% of the evidence based journal clubs were level 1 and 83.3% of traditional journal clubs were in the 4th level of evidence) .This is most likely due to predilection of the journal club members to narrative review articles before introduction of EBM in to our sessions (15). In the present study, use of proper papers based on higher level of evidence in related area was significantly improved.

Garrison showed that the learning benefits for the students are not inherent in the technology, but depend upon collaborative activities between themselves and with their teachers (16). The results highlight two main challenges to the successful incorporation of online discussion boards in

dental education. These are curriculum design and teacher development. Contemporary teaching approaches in dental education should focus more on developing critical thinking and reflective learning skills amongst students. This in turn requires that the learning environment should be designed in a way that learning is situated within the context of the curriculum and there should be planned pre-learning activities. In the present study, active participation of residents was significantly improved in the area of educational structure. They had to read paper and participate in group discussion because it was closely related with their evaluation.

Evidence based journal clubs can be very useful in improving the quality of presented articles in the journal clubs and are invaluable for teaching EBM. These journal clubs should be set up after teaching the principal of EBM to the member of journal club to ensure the most influence on medical practice (16)

Our research revealed that education of journal clubs improved but residents and staffs were not able to critique these articles. So practice-based learning and improvement is one of the more difficult and challenging competencies.

The limitation of this study was improvement structure of journal clubs not critical appraisal skills as it was conducted in pilot study. Evidence-based medicine needs critical appraisal, as well. It includes asking a clinical question, finding the best evidence, and applying the evidence in clinical setting. Therefore, further research is necessary following training course on critical appraisal skills as conducted in pilot study in order to evaluate journal clubs much better.

The dental residents at MUMS are generally unfamiliar with educational journal club, find EB skills difficult to master, and have identified a lack of quality evidence in dentistry. The literature is rich on achievement of EB changes in the workplace and educational interventions that are effective. Change implementation is possible with careful planning and preparation. We described an educational model that improved resident satisfaction and perceived educational value. While future studies should be done examining more defined outcomes, the current data suggests critical appraise and EBM- journal clubs could be used effectively in other programs to improve journal clubs.

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REFERENCES

1. Linzer M. The journal club and medical education: over one hundred years of unrecorded history. *Postgraduate medical journal* 1987; 63:475-8
2. Dwarakanath LS, Khan KS. Modernizing the journal club. *Hosp Med*, 2000; 16:425-7
3. Sidorov J. How are internal medicine residency journal clubs organized, and what makes them successful? *Arch intern med*.1995; 155:1193-97
4. Kleinpell RN. Rediscovering the value of the journal club. *American journal of critical care*.2002; 11(5):412-14
5. Misra UK, Kalita J, Nair PP. traditional journal club: A continuing problem. *J Assoc Physicians India*. 2007; 55:343-6.
6. Stange KC, Miller WL, McLellan LA, Gotler RS, Phillips WR, Acbeson LS, Grabtree BF et al. *Annals journal club: it's time to get radical*. *Ann Fam Med*. 2006; 4:196-7
7. Jacobs JL, Thomas S. The feature of journal club. *Medinfo*, 2004; 1663-4
8. Mukherjee RAS, Owen K, Hollins S. Evaluating qualitative papers in a multidisciplinary evidence-based journal club: A pilot study. *Education and training, psychiatric Bulletin*, 2006; 30:31-34
9. Hatala R, Keitz SA, Wilson MC, Guyatt

- G. Beyond journal clubs: moving toward an integrated Evidence-based medicine curriculum. *J Gen Intern Med*, 2006; 21:538-41
10. Deenadayalan, Y., Grimmer-Somers K, Prior M, Kuma S. "How to Run an Effective Journal Club: A Systematic Review." *Journal of evaluation in clinical practice* 2008; 14(5): 898-911.
11. Ebbert, J. O., V. M. Montori, and H. J. Schultz. "The Journal Club in Postgraduate Medical Education: A Systematic Review." *Medical teacher* 2001; 23(5): 455-61.
12. Goodfellow, L. M. "Can a Journal Club Bridge the Gap between Research and Practice?" *Nurse educator* 2004; 29(3): 107-10.
13. Melchior, J. A, Meals RA. "The Journal Club and its Role in Hand Surgery Education." *The Journal of hand surgery* 1998; 23(6): 972-6.
14. Crank-Patton A, Fisher JB, Toedter LJ. The role of the journal club in surgical residency programs: a survey of APDS program directors. *Curr Surg.* 2001; 58(1):101-104.
15. Sadeghi R, Dabbaghkakhki VR. Effect of Evidence Based Medicine Training in the Quality of Journal Clubs: A Road to Evidence Based Journal Clubs. *Iran J Nucl Med* 2010; 18(2):38-44
16. Garrison DR, Anderson T, Archer W. Critical thinking, cognitive presence, and computer conferencing in distance education. *Am J Distance Educ* 2001; 15: 7-23.