

Development of a guided journal club to supplement evidence-based medicine instruction in undergraduate medical education

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Background

Evidence-based medicine (EBM) is a core component of clinical practice. Students must develop the skills to decipher the relevance and importance of articles pertaining to their clinical scenario (1). Understanding the qualities of a journal article supported well by EBM also enhances a student's own writing and research skills (4). Currently, IUSM students are taught EBM during the Foundations of Clinical Practice course in the first two years. This instruction provides a strong base in the core knowledge of EBM, but students could benefit from more skill application.

Journal clubs are often utilized to develop and apply EBM skills during residency (1). Methods of journal clubs include both individual presenters and residents who present as small groups (1). The latter method is more learner-centered and allows for increased engagement in topics (2,3). Having students present as a group also provides an opportunity to divide the presentation based on the skill level (2). A common issue with journal clubs is not having the fundamental knowledge needed to understand an article. This then results in student focusing more on understanding the basic sciences and less on critically appraising the article (1,6).

Finally, journal clubs provide a component of mentorship from colleagues and faculty. Some medical schools have journal clubs as a component of the program in the clinical and preclinical years (5). An added benefit to introducing journal club in preclinical years of medical school is early exposure.

Student learning objectives

- Identify the type of literature being presented and its relative strength of evidence.
- Connect the basic sciences to data in medical literature and be able to search for helpful, reliable supplemental resources. Report how a paper's topic and findings are clinically relevant.
- Analyze the methods of a study for strengths and weaknesses, and critically appraise a paper at large
- Use statistics to analyze applicability of data to a patient population, and explain what those statistics show.
- Extract relevant information from a paper and summarize Summarize methods and data collection process in a clear manner that supports research goals
- Communicate data concisely, clearly, and professionally.
- Correctly cite sources in the Vancouver method

Methods

Development of guidelines

- Guidelines written around student learning objectives and current curriculum standards.
- Separate goals for pre-clinical & clinical students
- Pre-clinical focus on basic science & USMLE prep
- Clinical focus on critical appraisal of the paper

Journal club meetings

- Students provided with guidelines
- One evening per month with food
- Students volunteer to find and present an article and encouraged to work in groups
- Follow-up large-group discussion

Survey

- To assess student perceptions and obtain feedback for improvement
- Six scaled questions and two open-ended questions
- Conducted after three meetings

Results

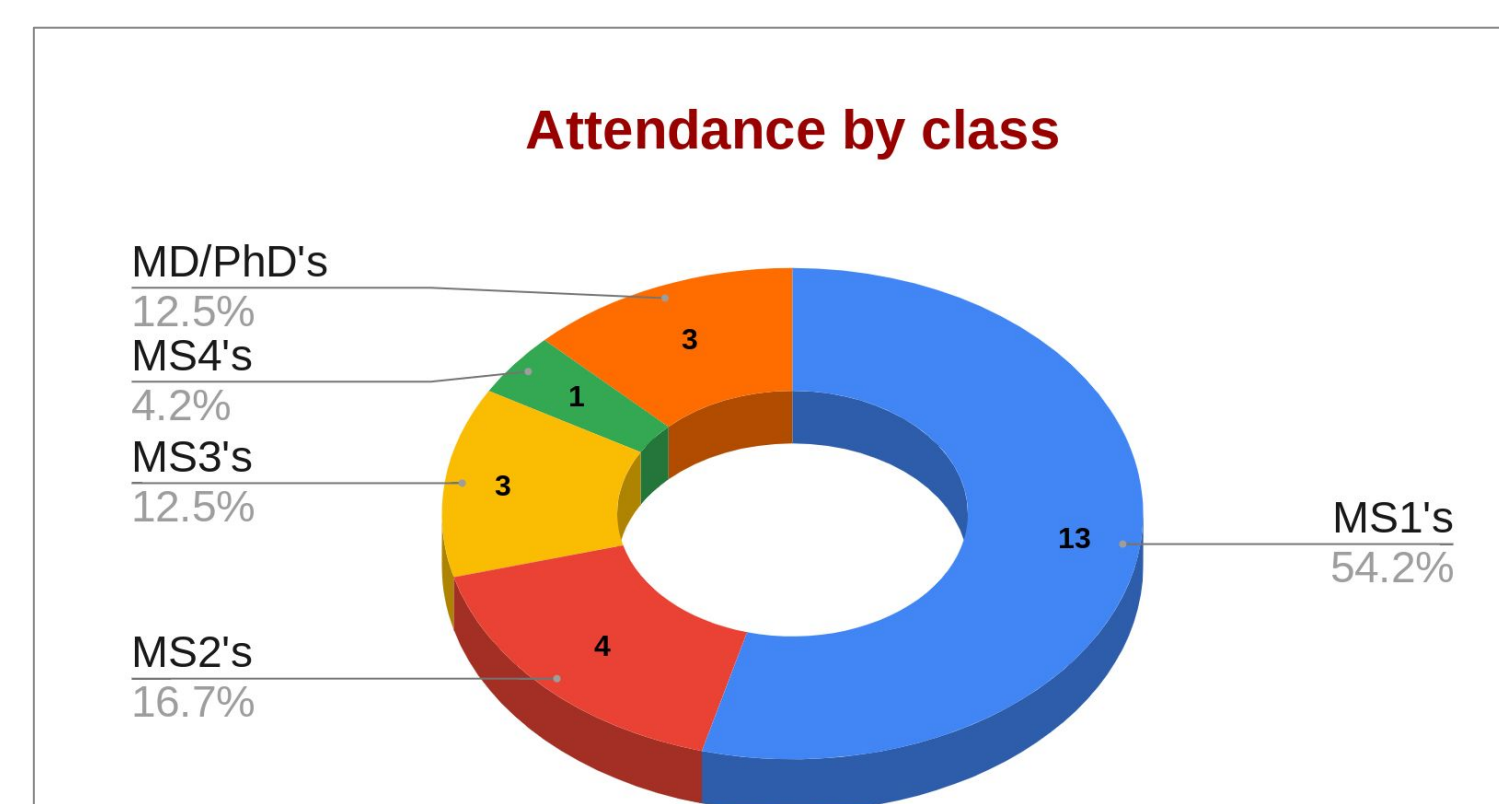


Figure 1: Total journal club attendees, separated by class. MS1 = Medical student year 1. MS2 = Medical student year 2. MS3 = Medical student year 3. MS4 = Medical student year 4. MD/PhD students have completed the MS1 and MS2 years and are currently completing their theses.

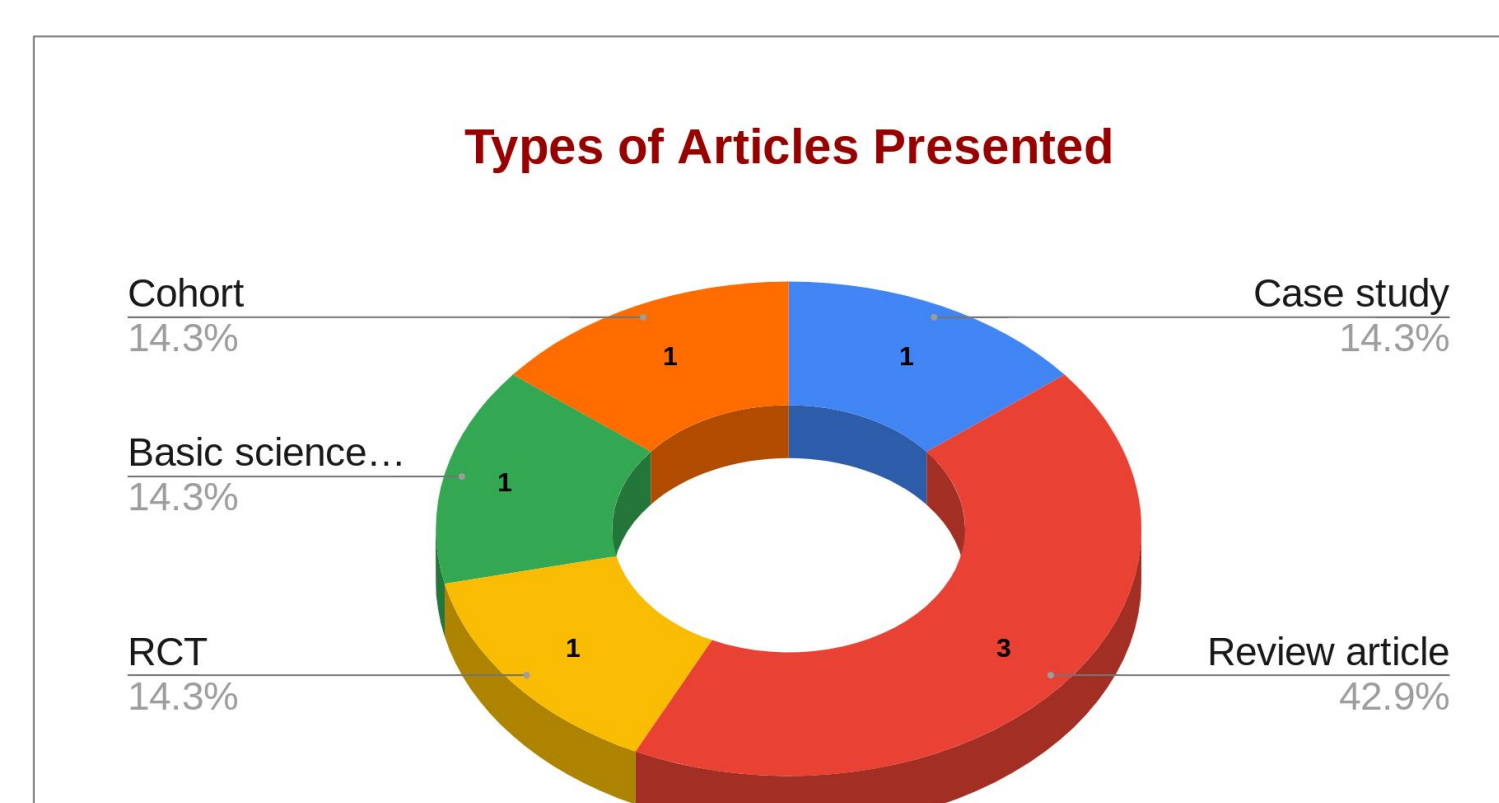


Figure 2: Articles presented in journal club, separated by article type.

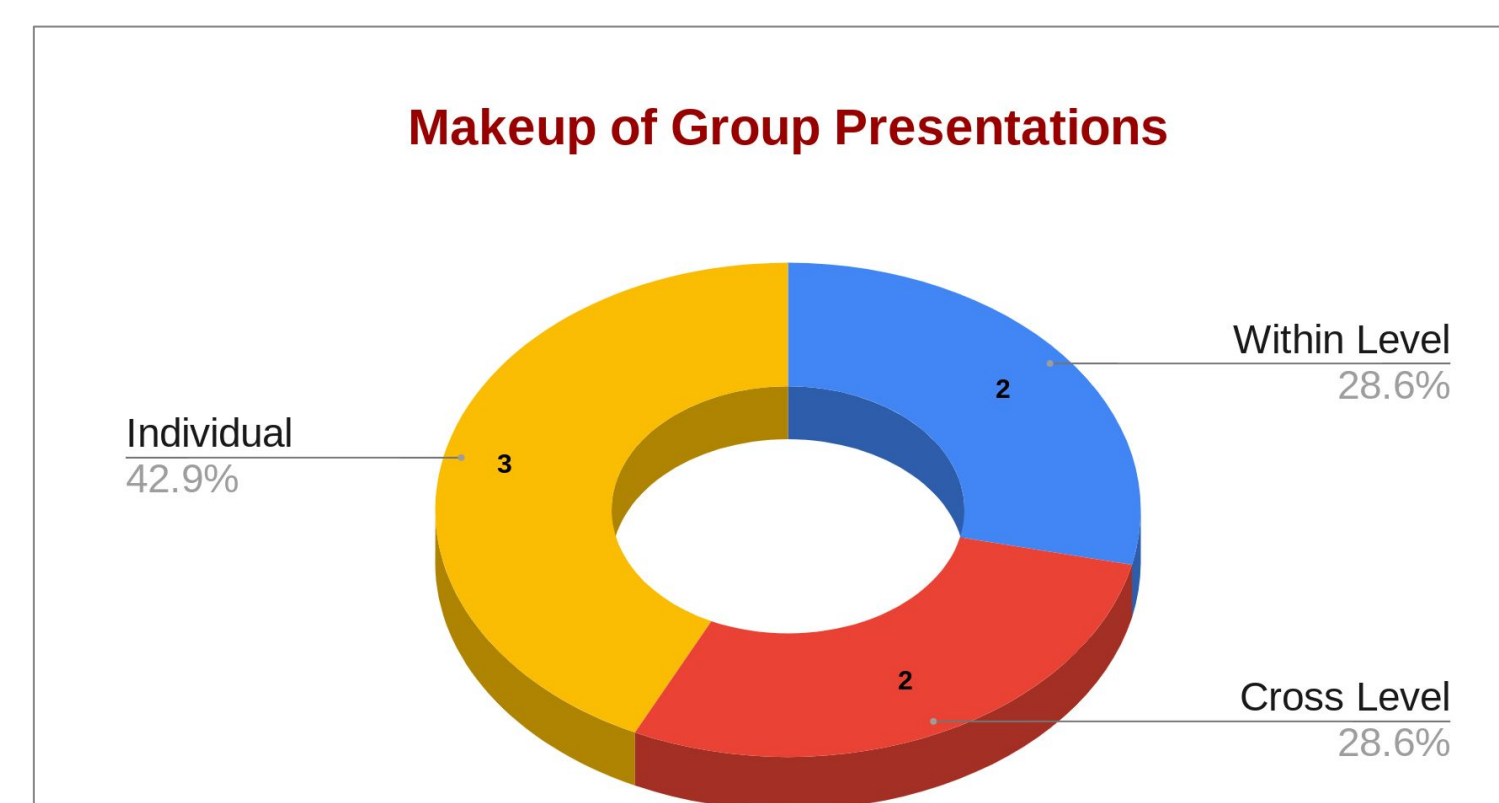


Figure 3: Presentations of articles in journal club, separated by presentation format. Cross level presentations included pre-clinical (MS1, MS2) and clinical (MS3, MS4) students working together. Within level groups were made up of just pre-clinical or just clinical students.

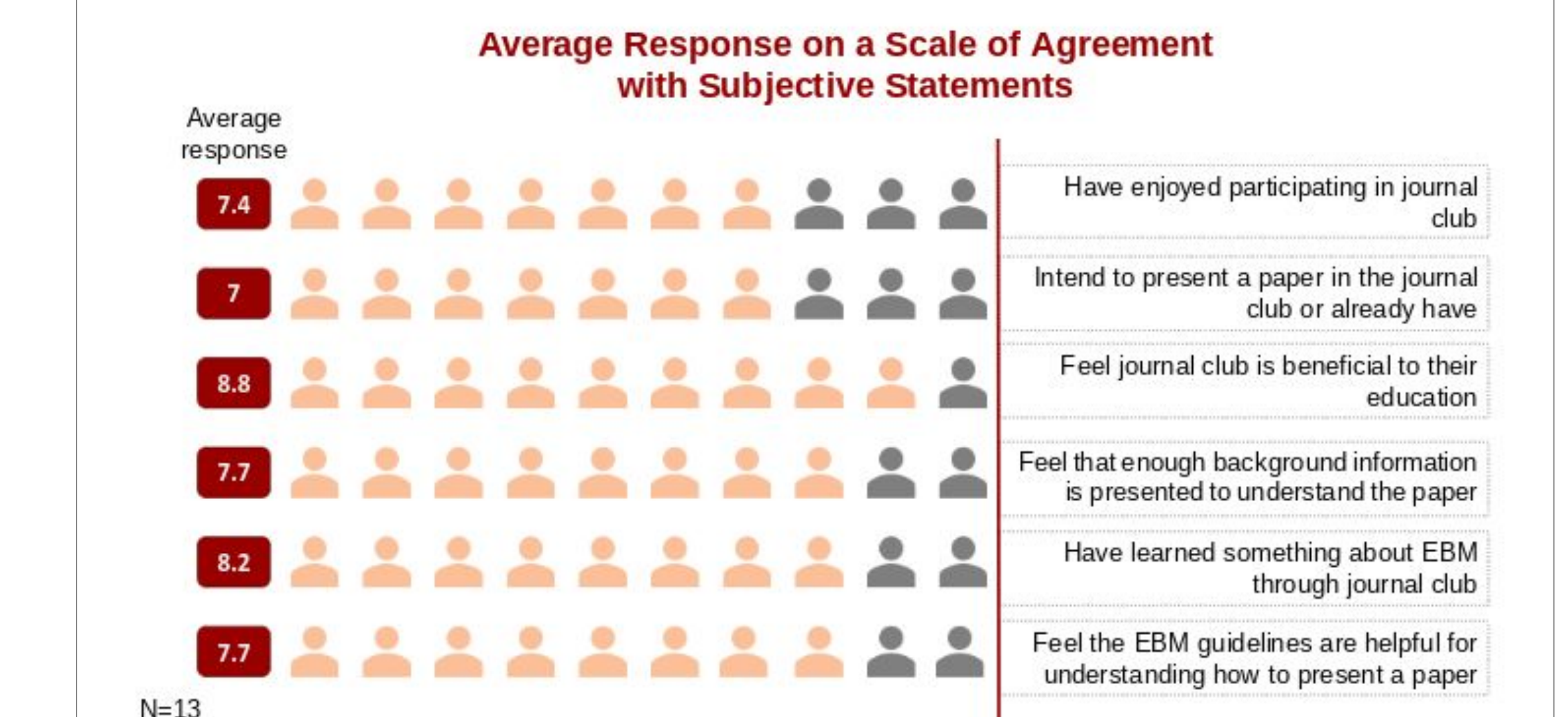


Figure 4: The average response on a scaled survey questions rating agreement with subjective statement on a scale from 1 to 10, where 1 is 'Completely disagree' and 10 is 'Completely agree' This survey was conducted at the end of the third journal club meeting.

Question: What do you like about journal club?

- Interesting reading/topics (4)
- Taking apart the weak points in articles to develop my sense of critical analysis. (3)
- Seeing clinical applications of what we're learning in class (2)
- I think it's fun to learn about exciting new research and hear about the way it's interpreted. (1)
- I like getting exposed to more papers as an MS1 (1)
- Casual conversation and questions about the articles (1)
- Free food (1)

Table 1: A selection of responses to the survey question 'What do you like about journal club?' when proposed to students participating in journal club. Number in parentheses reflects the total number of similar responses

Question: What do you dislike about journal club or how could it be improved?

- More structure or guidance to presenters (1)
- Scheduling to non-test weeks (1)
- More background information in some presentations (1)
- More case studies (1)
- Nothing (3)

Table 2: All responses to the survey question 'What do you dislike about journal club or how could it be improved?' when proposed to students participating in journal club. Number in parentheses reflects the total number of similar responses

Discussion

This journal club has been popular so far with continued student involvement, especially by MS1 students. It has provided students with the opportunity to interact with faculty and members of other classes. Students have been exposed to several types of medical literature and how they can be utilized. Participants have had the opportunity to read and synthesize medical literature then articulate their ideas in a low-stakes setting.

Despite encouragement to work in inter-level groups that combine pre-clinical and clinical student knowledge, most students have elected to present individually or in groups consisting of students within the same level. Participating in inter-level groups will help ensure that both the basic science and EBM portion of presentations are covered. Contributing to this may be the low attendance numbers by MS3 and MS4 students.

43% of articles have been review articles, and these presentations were largely focused on the basic sciences with little critical appraisal. A shift to articles of a higher level of evidence will help students begin practicing EBM skills.

Survey results show that students have overall enjoyed the journal club and subjectively feel that it has been of benefit to their understanding of EBM. Participant-identified areas for improvement included more guidance for presentations, changes to scheduling, and a change to the types of articles presented.

Future steps

- Have an in-person presentation of the guidelines and develop a powerpoint template to help students improve their presentations
- Encourage students to collaborate in inter-level groups on paper presentations. Start an online sign-up sheet for forming groups.
- Conduct an event that utilizes real-time literature search and EBM tactics based on clinical vignette
- Encourage students to select higher-level articles
- Compare the improvement in performance of MS1 students who do versus do not participate in journal club on an objective measure of EBM skills performed at the beginning and end of the year
- Use the first journal club meeting of the year to establish baseline knowledge of statistics, EBM terminology and skills. Include example presentation.

References

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