**Journal clubs**

Journal clubs allow participants meet regularly to critique research articles, to improve their understanding of research design, statistics and critical appraisal (Deenadayalan et al., 2008). A major goal for most journals clubs is to teach critical appraisal skills (Alguire PC 1998).

Characteristics of successful journal clubs included regular and anticipated meetings, mandatory attendance, clear long- and short-term purpose, appropriate meeting timing and incentives, a trained journal club leader to choose papers and lead discussion, circulating papers prior to the meeting, using the internet for wider dissemination and data storage, using established critical appraisal processes and summarizing journal club findings (Deenadayalan et al., 2008).

A journal club is one means for those in similar professions or practices to read, discuss, and keep up with professional literature with colleagues (Bhattacharya S 2017). Journal clubs will continue to play an increasingly important role in medical education, interdisciplinary interaction, and multi-institutional collaboration (Chetlen et al., 2017). A journal club serves three purposes: teach and develop critical appraisal skills, increase exposure to rapidly evolving medical literature and help in informed clinical practice i.e. linking research and clinical practice (Bhattacharya S 2017; Aronson J. K 2017). Journal clubs also improve educational outcomes especially in various settings (STEM curricula, Undergrduate, residency training in clinical medicine and pharmacy) and enhance lifelong learning (Eusuf D, Shelton C 2022; Li Y, St Jean A. 2021; Jones et al., 2021). Moreover, Journal clubs offer a unique opportunity to promote interest in research, facilitate greater knowledge and improved reading habits, while learning from experts about knowledge gaps and future research questions (Cook S 2011; Macdonald H 2011). In line with that, some institutions use journal clubs to foster a culture of continuing professional development for junior researchers and professionals across fields well behind medicine and healthcare (Turner et al., 2020).

Journal clubs can be face to face (traditional), virtual (online) or hybrid (Bhattacharya S 2017). With COVID19 pandemic, virtual journal clubs have been more popular (Ozkara, B. B., Karabacak, M., & Alpaydin, D. D. 2022; Mark, I., Sonbol, M., & Abbasian, C 2021; Lemieux et al., 2021). Format may vary. Some suggest a 10-slide presentation in 15 minutes using a recently published research paper (within the last six months). Slides are allocated as followed: Slide 1 (title and authors), slide 2 (research question and study aims), slide 3-6 (methods with study type, study design, intervention, statistical analysis), Slide 7-9 (Key results) and slide 10 (Take home message). Then, the audience will comment on the strengths and limitations of the paper. Others suggest a 5-minute summary of the paper (the research question, the methods, the results) before the discussion is open3. Others recommend to split the time 50/50 between presentation and discussion and presentation should cover why this paper, the study aims, methods, results, interpretation, implications for practice, state the strengths and weaknesses and further research if applicable. The format should suitable for adult learning (individual reading-Presentation-Discussion) (Eusuf D, Shelton C 2022).

To start a face-to-face journal club at an institution, you are advice to follow these steps (Bhattacharya S 2017; Aronson J. K. 2017; Alam, S. N., & Jawaid, M. 2009):

1. Identify the short and long term goals of the journal clubs;
2. Post and distribute (or email) copies (keep spare copies for walk-in participants) of the selected research article (interesting, relevant and recent) at least 48 hours beforehand;
3. Encourage pre-reading for all participants. Alternatively, designate pre-readers for each meeting to help the presenter promote the discussion;
4. Set up a convenient meeting time (time and day in the week) and place (if face to face) For example: around lunch time at the same place at the same time on the same day of the week to make it a routine;
5. Identify a facilitator (a senior skilled person) to support the trainee lead and presenters for the meeting depending on the sub-specialty or field of the paper to be discussed;
6. Welcome guest speakers time to time to break with the routine;
7. Hold the journal club and encourage active participation (make it mandatory and keep records) of those attending using the discussion questions;
8. Be punctual (start and end on time);
9. Evaluate the journal club by gathering anonymous or non-anonymous feedback from participants at the end of each meeting or once a while (each month, each trimester, each semester, each year);
10. Determine how the next journal club meeting could be made more beneficial using their feedback , for example, add tea/coffee or lunch to the schedule, tape-record the session for those unable to attend;
11. Schedule the next meeting.
12. If post-graduates are attending, ask them to assess the paper being discussed. Their assessment will be on the research question, hypothesis or study objective in the introduction, the reproducibility of the methods along the suitability of the statistical analysis, and power calculation, and structure of the discussion.

Roles and responsibilities should be assigned. ‘Presenter’ for each journal club should read, critique and prepare a short presentation on a paper, the trainee lead or the senior facilitator should ask for suggestions, critique and explanation of research methods, and experts attendees will foster the discussion (Eusuf D, Shelton C 2022).

Journal Clubs that maintain high attendance over a long period usually have a mandatory attendance, availability of food, and perceived importance by the program director8. In addition, journal clubs should be a learner-centred approach to organization, scheduling and delivery, and appropriate paper selection and support in undertaking critical appraisal (Eusuf D, Shelton C 2022).

To start an online journal club at your institution, get inspire from the suggestions below (Eusuf D, Shelton C 2022):

1. Assign a chairperson and a facilitator, to avoid one person having to manage the information technology (IT) aspects (screen sharing, recording etc.) at the same time as presenting;
2. Set a time when attendees can access a computer. Evenings may be most suitable, depending on hospital or research institution IT infrastructure.
3. Promote (e.g. via social media) the journal club is important to encourage online attendance.
4. Use a videoconferencing system that is easy to use, free for attendees to access and allows the ability to record. Make log-in details simple and clear.
5. Explain videoconferencing etiquette at beginning of each session (mute when not speaking, keep their cameras on, notification of the beginning and end of recording).
6. Chair effectively the discussion, which is more important than in the face-to-face setting.
7. Make time after the recording has finished for informal or social discussion.
8. Use an online survey platform for feedback; quick response (QR) code links allow rapid access via mobile phone.
9. Be prepared to change the format in response to feedback from attendees and facilitators

Both traditional and online journal clubs have pros and cons.

A traditional journal club based around a didactic presentation runs the risk of attendees becoming passive listeners. Journal clubs led and facilitated by senior clinicians may result in discussions dominated by those with more experienced viewpoints. Face-to-face meetings that adhere to rigid schedules do not suit healthcare professionals who work different shift patterns or who are geographically isolated (McGlacken-Byrne et al., 2020). New approaches include flipped classroom and use of digital platforms (McGlacken-Byrne et al., 2020).

The effectiveness of journal clubs are evaluated differently depending on the participants career stages. For graduate and medical students, institutions may use either a pretest-intervention i.e. a given number of learner-centered journal clubs-posttest format or Kirkpatrick’s evaluation model or the improvement of evidence-based medicine and/or confidence level of attendees to assess the knowledge and skills gained by students (Cahill EM, Ferreira G, Glendinning D 2023). For postgraduates, a sustained journal club with constant high attendances has been associated to its productivity and effectiveness (Cahill EM, Ferreira G, Glendinning D 2023).

To sum, there is no standard format for journal clubs as long as you are presenting, discussing and learning lessons from recently published and relevant journal articles depending on your initial short and long term goals. Keep it short 1 hour max knowing that the shorter the better (Schwartz et al., 2007).

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