

Climbing Towards Better Evidence-Based Medical Education



A Systematic Review of Teaching Methods

Zahraa Al-Dabbagh¹, Gokul Prasath Meganathan¹, Jana Abu-Tair, Aderonke Ajiboye¹, Morris Gordon¹, Vasiliki Sinopoulou¹

¹ University of Lancashire, School of Medicine and Dentistry

4 IMPACT

- First major review in a decade, providing updated insights into EBM teaching for medical students. The previous review by Ahmadi et al. (2015) included only 27 studies [4].
- This review provides a broader and more comprehensive overview than previous ones (larger scope, 189 studies, no language restrictions, diverse study designs inclusion).
- While most reviews focus on Kirkpatrick Levels 1 & 2, very few evaluate Levels 3 and 4, highlighting a gap in understanding how EBM teaching influences overall clinical behaviour and patient outcomes.
- Approximately 200 hours of work have been invested by our team, reflecting the large scale and thoroughness of the project.

3 RESULTS

- 54% of courses were in the clinical phase of medical school, while 26% in the pre-clinical phase.
- Of the 189 studies included, 60 are randomised controlled trials, providing an opportunity for a detailed analysis of more reliable evidence.
- 89% studies reported outcomes at Kirkpatrick Level 2 (Learning), indicating that knowledge and skill acquisition is the most commonly assessed outcome with the most varied forms of evaluation (see Figures 2 & 3).

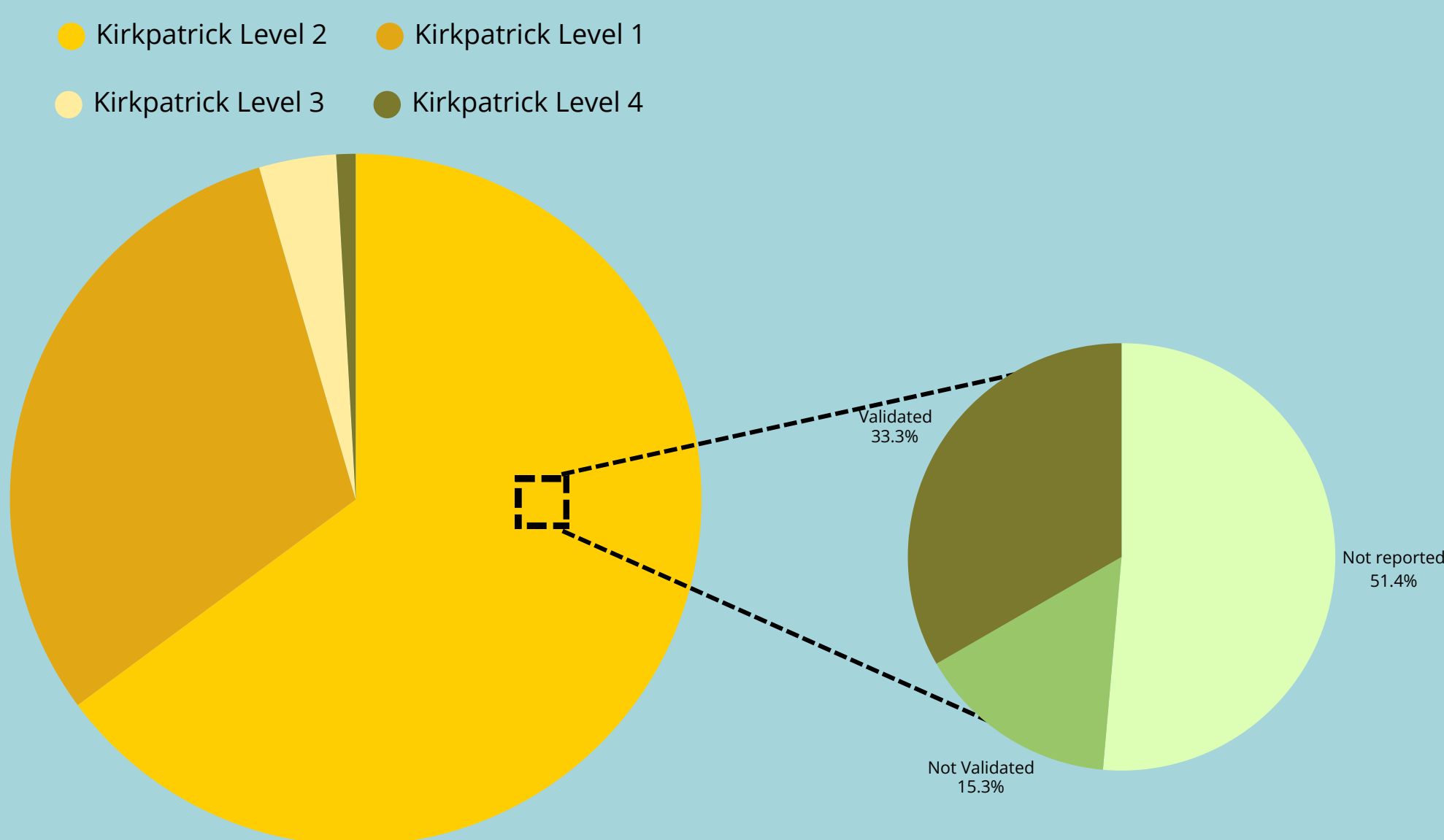


Figure 2. Percentage of Each Kirkpatrick Level Assessed

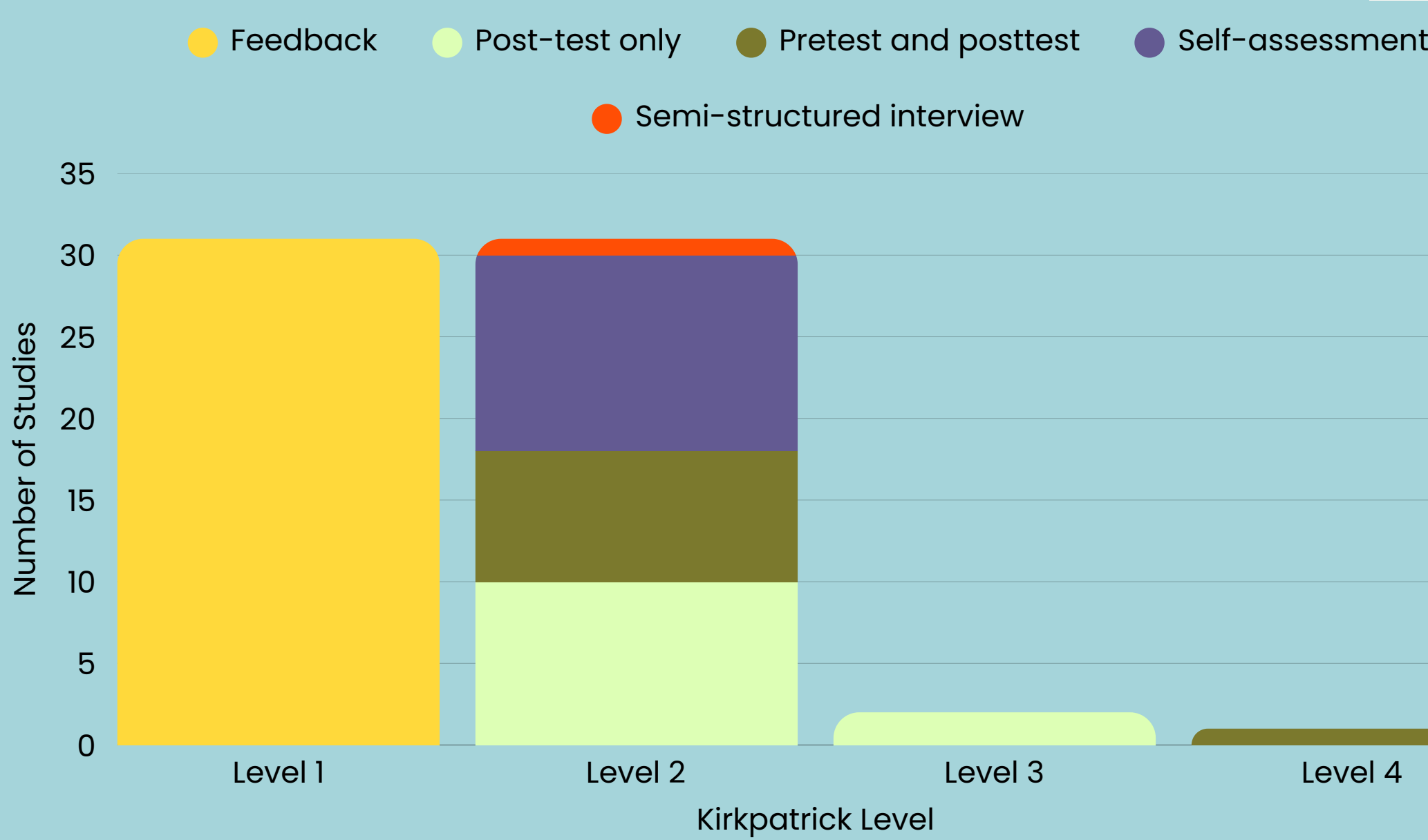


Figure 3. Type of Evaluation Used for Each Kirkpatrick Level Outcome

2 AIM & METHODS

To systematically review and explore the impact of EBM teaching methods on undergraduate medical students' knowledge, skills, attitudes, and behaviours.

P Undergraduate medical students
I Any teaching method to enhance EBM skills
C Any comparator or no comparator
O Any Kirkpatrick Level Outcome

Kirkpatrick's model is a widely used framework for evaluating the effectiveness of training programs. It assesses outcomes at 4 levels:

- (1) Reaction – how participants feel about the training
- (2) Learning – the knowledge or skills they gain
- (3) Behaviour – how they apply what they learned in practice
- (4) Results – the overall impact on the organisation [3].

1 BACKGROUND

What is Evidence-Based Medicine (EBM)?
EBM is the practice of using the best available research evidence together with clinical skills to make informed decisions about patient care. It involves five steps: asking, acquiring, appraising, applying, and assessing evidence [1].

What is the current problem?
A survey found that most UK medical students often fail to effectively apply EBM in practice due to insufficient curriculum time, a shortage of trained tutors, and a lack of teaching materials [2].

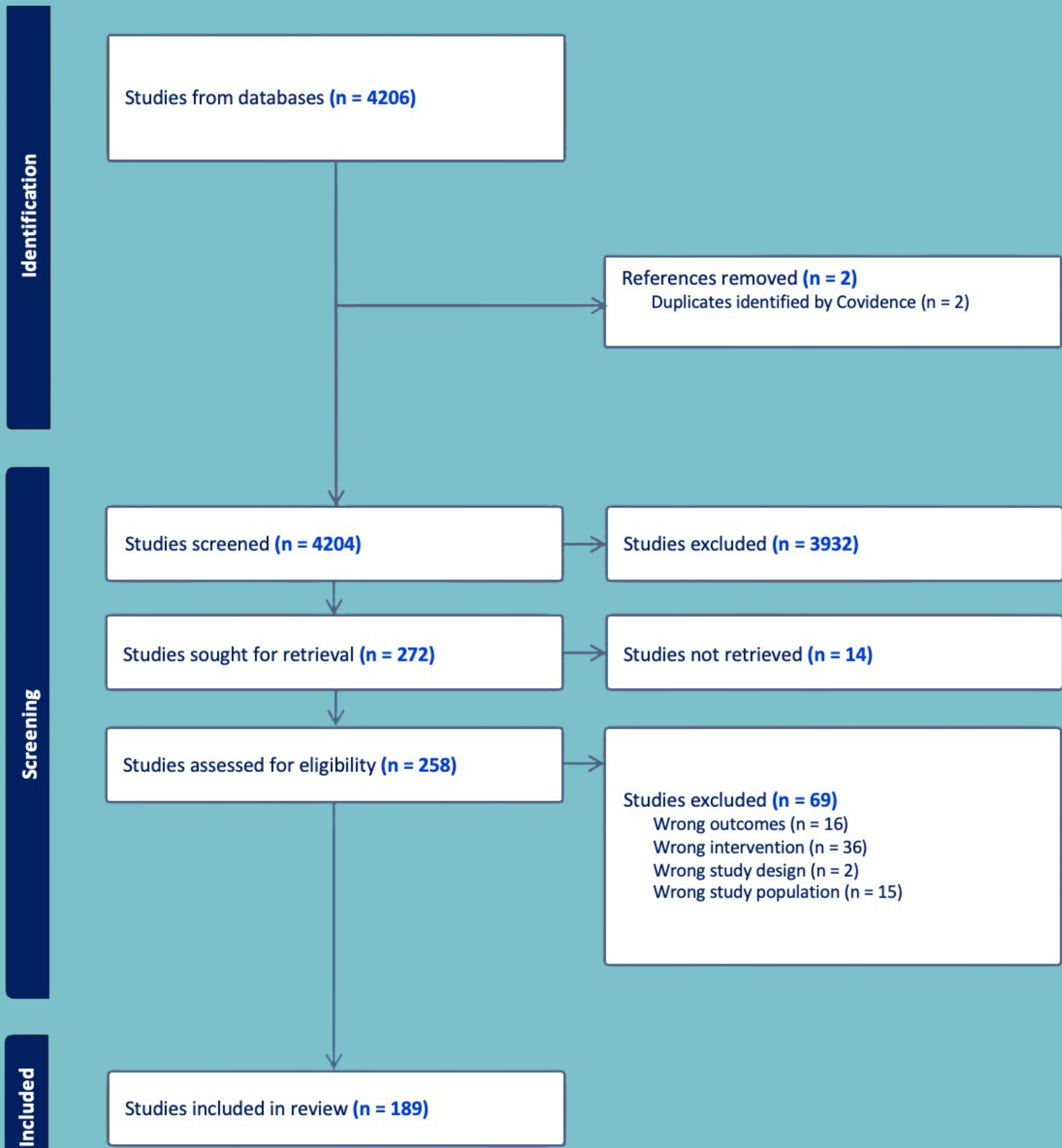


Figure 1. PRISMA Flow Chart

References
1. Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence-Based Medicine: What It Is and What It Isn't. BMJ. 1996;312:71–72.
2. Meats E, et al. Evidence-based medicine teaching in UK medical schools. BMC Med Educ. 2009;9:1–6
3. Kirkpatrick DL, Kirkpatrick JD. Evaluating Training Programs: The Four Levels. 3rd ed. San Francisco: Berrett-Koehler; 2006.
4. Ahmadi SF, Baradaran HR, Ahmadi E. Effectiveness of teaching evidence-based medicine to undergraduate medical students: a BEME systematic review. Med Teach. 2015 Jan;37(1):21–30. doi: 10.3109/0142159X.2014.971724. Epub 2014 Nov 17. PMID: 25401408.