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Team-based learning versus small group discussions for delivering an evidence-based medicine course to undergraduate medical students

Submission date
19/12/2021

Recruitment status
No longer recruiting

Registration date
30/12/2021

Overall study status
Completed

Last Edited
23/08/2022

Condition category
Other

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
The teaching of evidence-based medicine (EBM) in the new undergraduate medical curriculum at the Faculty of Medicine of the American University of Beirut (AUB) is designed to start in the first year and continue vertically until graduation from medical school. Current methods of EBM instruction at AUB include Team-Based Learning (TBL), lecturing and medium-sized group discussions, whereas the classical format of teaching EBM is small group discussions. We do not know however whether TBL is more, less or as effective as small group discussions in increasing students' EBM knowledge and skills since there has been no head-to-head comparison of the two instructional methods. The aim of this study is to investigate which of the two methods is more effective at improving students' EBM knowledge and skills.

Who can participate?
Medical students of the 2021 graduating class

What does the study involve?
Participants will be randomly allocated to receive EBM instruction during the second year either in TBL or in a small group discussion format. EBM knowledge of the two groups will be compared using a validated EBM questionnaire at the end of the second year. EBM skills will be compared at the end of the final clinical year.

What are the possible benefits and risks of participating?
The findings from this project will provide much-needed evidence about the effectiveness of TBL in teaching EBM to large classes. Since this was an Educational Quality Improvement project, there were no anticipated risks and no benefits to the students as they were being taught a course that was a curricular requirement.

Where is the study run from?
American University of Beirut (Lebanon)

When is the study starting and how long is it expected to run for?
February 2017 to May 2019

Who is funding the study?
American University of Beirut (Lebanon)

Who is the main contact?
Dr Mona Nabulsi
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Contact information

Type(s)
Principal investigator

Contact name
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Additional identifiers

Protocol serial number
PED.MN.QI2

Study information

Scientific Title
Team-based learning versus small group discussions for delivering an evidence-based medicine course to undergraduate medical students: an educational quality improvement project

Study objectives
Team-based learning is more effective than group discussions in teaching evidence-based medicine (EBM) critical appraisal to preclinical medical students.

Ethics approval required
Old ethics approval format

Ethics approval(s)

Approved 30/06/2017, Curriculum Committee of the Faculty of Medicine (American University of Beirut, Bliss Street, Beirut, Lebanon; no telephone number provided; badr@aub.edu.lb), ref: none provided

Primary study design
Interventional

Study design
Interventional randomized controlled trial

Study type(s)
Other

Health condition(s) or problem(s) studied
Teaching medical students

Interventions
First-year medical students are randomly divided into two groups by an independent statistician using a computer-generated permuted block randomization of variable block sizes (1:1 ratio). One group receives instruction in critical appraisal using Team-Based Learning (TBL) as the instructional method, whereas the other group used Group Discussions (GD) as the instructional method. The generated random sequence is kept with the statistician to conceal allocation from students and instructors until the first day of the course. The two groups have a total of five critical appraisal (CA) sessions spread over one academic year.

Team-based learning:
This group conducts a typical TBL session with a 10-minute individual readiness assurance test (IRAT) at the start of the CA session. Then students are divided into smaller subgroups of 6-8 students and are administered the same 10-minute test which they would answer as a group after reaching consensus using scratch-off cards (group readiness assurance test [GRAT]). Following the GRAT, there is an active discussion between the students and the instructor on controversial questions. Once all student queries are addressed, the students in each subgroup work together on an application exercise consisting of CA of a published paper. The time allotted for the application exercise is 60 minutes, after which the instructor facilitates a discussion of CA elements among subgroups, clarifying controversial issues.

Group discussions:
Students in this arm are further divided into smaller subgroups of 8-13 students with each subgroup assigned to one instructor. Each subgroup starts the session with the same 10-minute test administered to the TBL group. However, there is no GRAT test later or teamwork on an application exercise. Instead, students in the GD arm discuss the same paper assigned to students in the TBL arm as a small group discussion, with the EBM instructor facilitating the discussion and interfering only when the subgroups need redirection of the ongoing discussion, or further clarification of a controversial issue that the students are unable to resolve.

Outcomes:
The primary outcome is students' knowledge in EBM as measured by their performance on the mandatory final exam administered at the end of the second year of medical school. The Berlin Questionnaire-Set B was used as the EBM final examination.

Intervention Type
Behavioural

Primary outcome(s)
Student's EBM knowledge measured by the student's performance on the validated Berlin Questionnaire at end of the second year of medical school

Key secondary outcome(s)
1. Student's EBP behavior assessed by faculty during EBM rounds in the third and fourth year clinical rotations
2. Student's self-efficacy in EBM assessed by the validated Self-efficacy in EBM scale at end of the fourth year of medical school
3. Student's self-assessed EBP implementation assessed by the validated EBP implementation at the end of the fourth year of medical school

Completion date
31/05/2019

Eligibility

Key inclusion criteria
All first year medical students at the Faculty of Medicine of the American University of Beirut who graduate in June 2021

Participant type(s)
Other

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Total final enrolment
107

Key exclusion criteria
Does not meet inclusion criteria

Date of first enrolment
01/04/2018

Date of final enrolment
01/04/2018

Locations

Countries of recruitment
Lebanon

Study participating centre
American University of Beirut
Riyadh El Solh 1107 2020
Beirut
Lebanon
11-0236

Sponsor information

Organisation
American University of Beirut

ROR
https://ror.org/04pznsd21

Funder(s)

Funder type
University/education

Funder Name
American University of Beirut

Alternative Name(s)
The American University of Beirut, American university in Beirut, , AUB

Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
Lebanon

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated and analysed during the current study will be available upon request from Dr Mona Nabulsi (mn04@aub.edu.lb) as anonymized raw data after securing approval from the Associate Dean for Medical Education, American University of Beirut, Beirut, Lebanon.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		04/02/2022	07/02/2022	Yes	No
Protocol file			23/08/2022	No	No