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Team Based Learning pedagogy enhances the education quality: a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 January 2025 and was last updated on 19 January 2025.

INTRODUCTION

Review question / Objective Team Based Learning pedagogy enhances the education quality: a systematic review and meta-analysis.

Condition being studied The Team-Based Learning (TBL) method is a teacher-guided small-group learning approach that involves students in both individual and group activities. The Lecture-Based Learning (LBL) method is the most common way of disseminating information, in which students are primarily exposed to a teacher's lecture. A meta-analysis was conducted to compare the effects of TBL and LBL on medical education.

METHODS

Search strategy The following electronic databases were systematically searched until July 2022: MEDLINE, EMBASE, the Cochrane Library, and the Chinese National Knowledge Infrastructure (CNKI).

Participant or population The participants were medical students. Outcome should be available and could be extracted and used for pooled analysis. To ensure the global accessibility of all studies, only English written studies were enrolled.

Intervention TBL teaching method.

Comparator LBL teaching method.

Study designs to be included Include criteria: (1) the trials should clearly describe 2 interventions (TBL and LBL); (2) the reported data should conclude at least one of primary outcome with or without secondary outcomes; (3) the study had detailed quantitative results for TBL and LBL groups; (4) data should be available and could be extracted and used for pooled analysis.

Eligibility criteria To ensure the global accessibility of all studies, only English written studies were enrolled.

Information sources Electronic databases.

Main outcome(s) The primary outcome evaluated in the meta-analysis was final examination scores.

Additional outcome(s) The secondary outcome was the advantages of both teaching methods.

Quality assessment / Risk of bias analysis The Cochrane Collaboration's tool for assessing risk of bias.

Strategy of data synthesis In this study, all statistical calculations were performed using Stata 12.0 (Stata Corp, College Station, TX, USA). Standard mean difference (SMD) with 95% confidence interval (CIs) was calculated for continuous variance. Heterogeneity was assessed by calculating I². χ^2 test was used to assess homogeneity among all enrolled trials with the significance threshold set at $P > 0.1$.

Subgroup analysis Chinese students and western country students.

Sensitivity analysis χ^2 test was used to assess homogeneity among all enrolled trials with the significance threshold set at $P > 0.1$. Sensitivity analysis was performed by excluding each study individually to reassess the quality and consistency of the results. We had also performed subgroup analysis to explore the diversity among different studies and source of heterogeneity. Publication bias was assessed using Egger's test and funnel plots 19 in Stata 12.0.

Country(ies) involved China.

Keywords Lecture Based Learning; Team Based Learning; meta-analysis; medical education.

Contributions of each author

Author 1 - Zhi-Bo Xie - Conceived and designed the experiments; performed the experiments;

analyzed the data; contributed reagents/materials/analysis tools; wrote the paper.

Author 2 - Xin-Yu Cheng - Analyzed the data; contributed reagents/materials/analysis tools; wrote the paper.

Author 3 - Xiao-Yan Li - Performed the experiments; contributed reagents/materials/analysis tools; wrote the paper.

Author 4 - Yi-Fan Zhang - Conceived and designed the experiments; performed the experiments; analyzed the data; contributed reagents/materials/analysis tools; wrote the paper.