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## Effectiveness of flipped classrooms in Chinese baccalaureate nursing education: A meta-analysis

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**Background & Aim:** In recent years, the flipped classroom approach has been broadly applied to nursing courses in China. However, a systematic and quantitative assessment of the outcomes of this approach has not been conducted. The purpose of the meta-analysis is to evaluate the effectiveness of the flipped classroom pedagogy in Chinese baccalaureate nursing education.

**Methods:** All randomized controlled trials (RCTs) relevant to the use of flipped classrooms in Chinese nursing education were retrieved from the following databases: PubMed, EMBASE, the Cochrane Central Register of Controlled Trials, China National Knowledge Infrastructure, Wanfang Database, and the Chinese Scientific Journals Database. The reference lists of identified RCTs were also screened. The Cochrane risk of bias tool was used to evaluate the quality of the studies, RevMan (5.3) was used to analyze the data, and the quality of the combined results was evaluated using the GRADE system.

**Results:** 9 RCTs were included. The meta-analysis indicated that the theoretical scores and skill scores were significantly higher in the flipped classroom group than in the traditional lectures group (SMD=1.19, 95% CI: 0.84-1.55,  $P<0.001$ , and SMD=1.75, 95% CI: 0.95-2.56,  $P<0.001$ ).

**Conclusion:** Flipped classroom pedagogy is more effective than traditional lectures in improving students' theoretical and skill scores. However, the heterogeneity of the included studies should be considered when interpreting the results of the study.

**Implications on Practice:** High-quality studies, with a large sample size, which perform accurate randomization, blind the outcome assessors, use uniform measurements and evaluate the long-term effects of the flipped classroom, are warranted.