INPLASY PROTOCOL

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None declared.

Effects of five teaching methods in clinical nursing teaching: A protocol for systematic review and network meta-analysis

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Review question / Objective: **In this study, network Meta-analysis was used to comprehensively evaluate the application effects of five teaching methods in four aspects: nursing students' knowledge and skill scores, learning satisfaction and patients' satisfaction.**
Condition being studied: **Clinical nursing teaching is an essential part of nursing education. It has become a focus of nursing educators to flexibly select appropriate teaching methods. In recent years, various teaching methods have been applied, such as critical pathways, problem-based learning, patient simulation, case-based learning and mentors. Despite the characteristics and advantages of each teaching method, the effect of their application is inconclusive. Therefore, it is of theoretical and practical significance to evaluate the effects of different teaching methods in clinical nursing teaching.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 08 December 2021 and was last updated on 19 April 2022 (registration number INPLASY2021120040).

INTRODUCTION

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METHODS

Search strategy: #1 "Students, Nursing" [Mesh]
#2 ((((((Pupil Nurses[Title/Abstract]) OR (Student, Nursing[Title/Abstract])) OR (Nurses, Pupil[Title/Abstract])) OR (Nurse, Pupil[Title/Abstract])) OR (Pupil Nurse[Title/Abstract])) OR (Nursing Student[Title/Abstract])) OR (Nursing Students[Title/Abstract])
#3 #1 OR #2
#4 ((((((((((((Critical Pathway[Title/Abstract]) OR (Care Pathway[Title/Abstract])) OR (Clinical Path[Title/Abstract])) OR (Clinical Pathway[Title/Abstract])) OR (Problem-Based Learning[Title/Abstract])) OR (Problem-Based Curriculum[Title/Abstract])) OR (Problem-Based Curricula[Title/Abstract])) OR (Patient Simulation[Title/Abstract])) OR (Simulation, Patient[Title/Abstract])) OR (Case-based learning[Title/Abstract])) OR (Case-based teaching[Title/Abstract])) OR (Case method[Title/Abstract])) OR (Mentor[Title/Abstract])) OR (Mentorship[Title/Abstract])
#5 (random*[Title/Abstract]) OR (randomized controlled trial[Publication Type])
#6 #3 AND # 4 AND #14

Participant or population: Nursing students receiving clinical nursing teaching.

Intervention: Using critical pathways, problem-based learning, patient simulation, case-based learning or mentors in clinical nursing teaching.

Comparator: Traditional teaching method.

Study designs to be included: Randomized Controlled Trial.

Eligibility criteria: The study included only randomized controlled studies in English and Chinese, and there was no restriction on the year of publication. Inclusion and exclusion criteria were based on the PICOs principles. In addition, literature using combined teaching methods was excluded.

Information sources: This study will search the following databases: PubMed, Embase, Web of Science, The Cochrane Library, China National Knowledge Infrastructure Database, China Biology Medicine disc, Wanfang Database and VIP Chinese Science and Technique Journals Database.

Main outcome(s): Nursing students' knowledge and skill scores.

Additional outcome(s): Nursing students' learning satisfaction and patients' satisfaction with nursing students.

Quality assessment / Risk of bias analysis: According to the Cochrane Collaboration's tool for assessing the risk of bias in randomized trials, two authors will independently perform the risk of bias analysis of included study. The tool evaluates the following items: random sequence generation and allocation concealment (selection bias), blinding of participants and personnel (performance bias), blinding of outcome assessment (detection bias), incomplete outcome data (attrition bias), selective reporting (reporting bias), and other bias.We will grade each item as "low risk", "high risk", or "unclear". Disagreements will be resolved by discussion or another author.

Strategy of data synthesis: The pairwise meta-analysis will be performed by Rev Man 5.3. Effects will be estimated as standardized mean difference (SMD) or odds ration (OR) along with 95% confidence intervals. For heterogeneity test, if $P>0.10$, $I2<50\%$ will select fixed effects model, otherwise the random effects model. Meanwhile, we will draw network evidence diagram by Stata 16.0 and carry out network meta-analysis by GeMTC software and R software. Besides,

homogeneity tests, similarity tests, consistency tests, model fit tests and degree of convergence will be completed. And we will present value of the Surface Under the Cumulative Ranking (SUCRA) curve for each teaching method as well as their rankings.

Subgroup analysis: Subgroup analysis will be conducted to explore sources of heterogeneity in pairwise comparison. If sufficient studies are available, we will conduct subgroups analysis such as intervention timing and intervention duration.

Sensitivity analysis: To examine the impact of bias on study results, sensitivity analyses will be performed excluding studies deemed at high risk of bias. We will compare results to determine whether lower-quality studies should be excluded.

Country(ies) involved: China.

Keywords: Teaching Method; Clinical Nursing Teaching; Network Meta-analysis.

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Author 4 - Li Liao.