

INPLASY202370024

doi: 10.37766/inplasy2023.7.0024

Received: 07 July 2023

Published: 07 July 2023

Corresponding author:

Manish Kumar

dr_manishk@outlook.com

Author Affiliation:

All India Institute of Medical Sciences, Gorakhpur.

Singh, S¹; Kumar, M².

ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202370024

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 July 2023 and was last updated on 07 July 2023.

INTRODUCTION

Review question / Objective The aim of this systematic review is to compare educational effectiveness of Augmented Reality (AR) or Virtual Reality (VR) as teaching learning method (TLM) for human anatomy education compared to traditional methods like cadavers, models or textbooks.

Rationale There is evolving evidence regarding use of augmented or virtual reality in human anatomy education. There is paucity of pooled evidence regarding use of AR/VR in human anatomy education incorporating recent studies. This review is aimed at addressing this evidence gap.

Condition being studied AR and VR are relatively recent additions to teaching learning methods armamentarium for human anatomy education of health care professionals. Its use has steadily increased with improvement in technology over past two decades. The disruptions arising out of

COVID-19 pandemic has catapulted the use of AR and VR as TLM in human anatomy education. There is evolving evidence, generally favorable, supporting the educational efficacy of AR/VR.

METHODS

Search strategy Following database will be searched - Medline, CENTRAL, CINAHL and Google Scholar. Search strategy will include keywords and related indexing terms/MESH terms for augmented reality, virtual reality, mixed reality, virtual training, anatomy, human anatomy.

Participant or population Medical or Dental or Nursing or Allied Healthcare students or professionals learning human anatomy.

Intervention Use of AR or VR in human anatomy education.

Comparator Traditional teaching-learning methods in human anatomy education like cadavers, models, atlas or textbooks.

Study designs to be included Randomised or quasi-randomised trials.

Eligibility criteria All randomised or quasi-randomised studies in English language with full text available evaluating educational effectiveness of AR or VR in human anatomy education will be eligible for inclusion. Articles of any other study design or not reporting test or assessment scores of learners or not addressing human anatomy education will be excluded.

Information sources Following database will be searched - Medline, CENTRAL, CINAHL and Google Scholar.

Main outcome(s) Test or Assessment Scores of learners.

Additional outcome(s) Satisfaction of learners.

Data management The search results will be uploaded into RAYYAN web app for selection of eligible studies. Only randomized clinical trials will be considered for inclusion.

All authors will independently collect study details and outcomes data using a predetermined form designed for this purpose. Study details will be entered into the 'Characteristics of included studies' tables. Following details will be collected: Lead Author, Year, Location, Journal, Sample size, Learner profile, Gender distribution, Course, Type of AR/VR intervention, Comparator, Duration of intervention, and Timing of intervention
Any disagreement will be resolved by consensus.

Quality assessment / Risk of bias analysis All review authors will independently assess the risk of bias for each study, using the criteria outlined in the Cochrane Handbook for Systematic Reviews of Interventions according to the following domains: random sequence generation; allocation concealment; blinding of participants and personnel; blinding of outcome assessment; incomplete outcome data; selective outcome reporting; other bias.

Strategy of data synthesis We will calculate mean differences (MD) with their associated 95% CI for continuous data when the eligible trials use the same instrument to measure a given construct. In cases where different measurement instruments are used, we will calculate standardised mean differences (SMDs).

We will pool the results where possible using a random-effects model. Heterogeneity between the studies in effect measures will be assessed using the I^2 statistic.

Subgroup analysis Subgroup analysis by country/region of study, learner profile, course type, type of intervention or comparator, if indicated, will be done.

Sensitivity analysis Sensitivity analysis, if indicated, will be done by excluding studies with significant risk of bias.

Language restriction English.

Country(ies) involved India.

Keywords Augmented reality; Virtual reality; Anatomy.

Dissemination plans This systematic review will be published in peer reviewed journal.

Contributions of each author

Author 1 - Shilpa Singh.

Author 2 - Manish Kumar.