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PROFESSIONAL PAPER

# Standardized, virtual patient, and other role-play-based learning approaches for smoking cessation counseling in health care education: A scoping review protocol

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Smoking cessation counseling is a critical component of healthcare education, yet the effectiveness of different role-play-based learning approaches remains insufficiently investigated. The objective of this scoping review is to systematically map the existing evidence on the use of role-play-based learning approaches—including standardized patients, virtual patients, and other simulation methods—for training healthcare students and professionals in smoking cessation counseling.

The review will follow the methodology for scoping reviews. Searches will be conducted in PubMed, Scopus, Web of Science, ERIC, IEEE Xplore for peer-reviewed English-language articles involving healthcare students or professionals, role-play-based learning approaches addressing tobacco cessation. Two reviewers will independently screen and chart the data.

Findings will be presented through summary tables outlining intervention characteristics, target populations, educational settings, and outcomes, complemented by narrative descriptions highlighting key benefits, limitations, and implementation factors. Additionally, thematic mapping will be used to synthesize insights relevant to the development of virtual patient applications. The results will be disseminated through peer-reviewed publication and conference presentations.

**Keywords**: smoking cessation, health education, role-play, standardized patients, virtual patients, Generative Artificial Intelligence Virtual Patient, scoping review

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## Introduction

The Brief Advice for Smoking Cessation (BASC) is a simple, effective intervention that increases smoking abstinence rates [1]. An ongoing project, launched in February 2025, at the George Emil Palade University of Medicine, Pharmacy, Science, and Technology of Targu Mures, Romania University, is developing and will evaluate the effectiveness of using **Gen**erative **A**rtificial **I**ntelligence **V**irtual **P**atients (GenAI-VP) to enhance the training of medical personnel in delivering BASC, with the goal of promoting broader adoption of tobacco control measures and generating substantial public health benefits.

Simulated patient (SiP) learning approaches—namely Standardized Patients (SPs), Virtual Patients (VPs), and Role-play Simulations—are widely employed to teach communication and clinical skills [2-6]. These approaches offer varying degrees of realism, standardization, and feedback opportunities essential for healthcare education. A preliminary search of PubMed and Scopus on 15 April 2025 identified only one scoping review with a related aim [7]; however, it focused broadly on smoking cessation curricula, without specifically examining role-play-based training methods as this review does.

A scoping review methodology was selected to map the existing literature on role-play-based educational methods for smoking cessation counseling [8, 9]. The field is characterized by diverse terminologies, heterogeneous interventions, and varied evaluation measures, making it ideal for scoping rather than systematic review. The goal is to synthesize current knowledge and inform the development of AI-enhanced virtual patient applications.

This article outlines the protocol for a scoping review that will synthesize the available evidence on the use of role-play-based learning approaches (standardized pa-

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tients, virtual patients, and other role-play strategies) for training healthcare students and professionals in smoking cessation counseling.

## Methods

The research question formulation was guided by the Population-Concept-Context (PCC) framework [10].

***Primary research question:*** What evidence is available regarding the use, benefits, and limitations of role-play-based learning approaches—including standardized patients, virtual patients, and other role-play methods—for training healthcare students and professionals in smoking cessation counseling?

***The secondary research questions*** are presented in Figure 1.

***Types of Sources:*** Primary research studies including quantitative, qualitative, or mixed methods and other relevant publications, will be considered.

***Search strategy:*** A comprehensive search will be conducted across multiple databases using keywords and controlled vocabulary related to "smoking cessation counseling," "role-play," "standardized patients," "virtual patients," and "healthcare education." Date restriction will not be applied; only English-language articles will be included.

Information sources will include the following databases: PubMed, Scopus, Web of Science, ERIC, IEEE Xplore, and ProQuest.

Additional sources will include the following journals: Academic Medicine (Wolters Kluwer), Medical Education (Wiley), Advances in Health Sciences Education (Springer), and JMIR Medical Education (JMIR Publications).

***Study selection:*** The selection of sources for the scoping review will follow a structured two-step process including a preliminary screening and a thorough eligibility assessment. Two trained reviewers will independently screen titles, abstracts, and full texts according to the established criteria. Disagreements will be resolved by discussion or third-party adjudication.

The flowchart of the study selection process is presented in Figure 2.

### Data extraction, summarization, and dissemination

***Data mapping process:*** A standardized data extraction form will be developed, piloted on a subset of studies, and refined as needed. Data items intended to be collected are presented in Figure 3. Data will be charted independently by two reviewers [11].

**Critical appraisal of individual sources of evidence.** Formal critical appraisal is optional in scoping reviews and

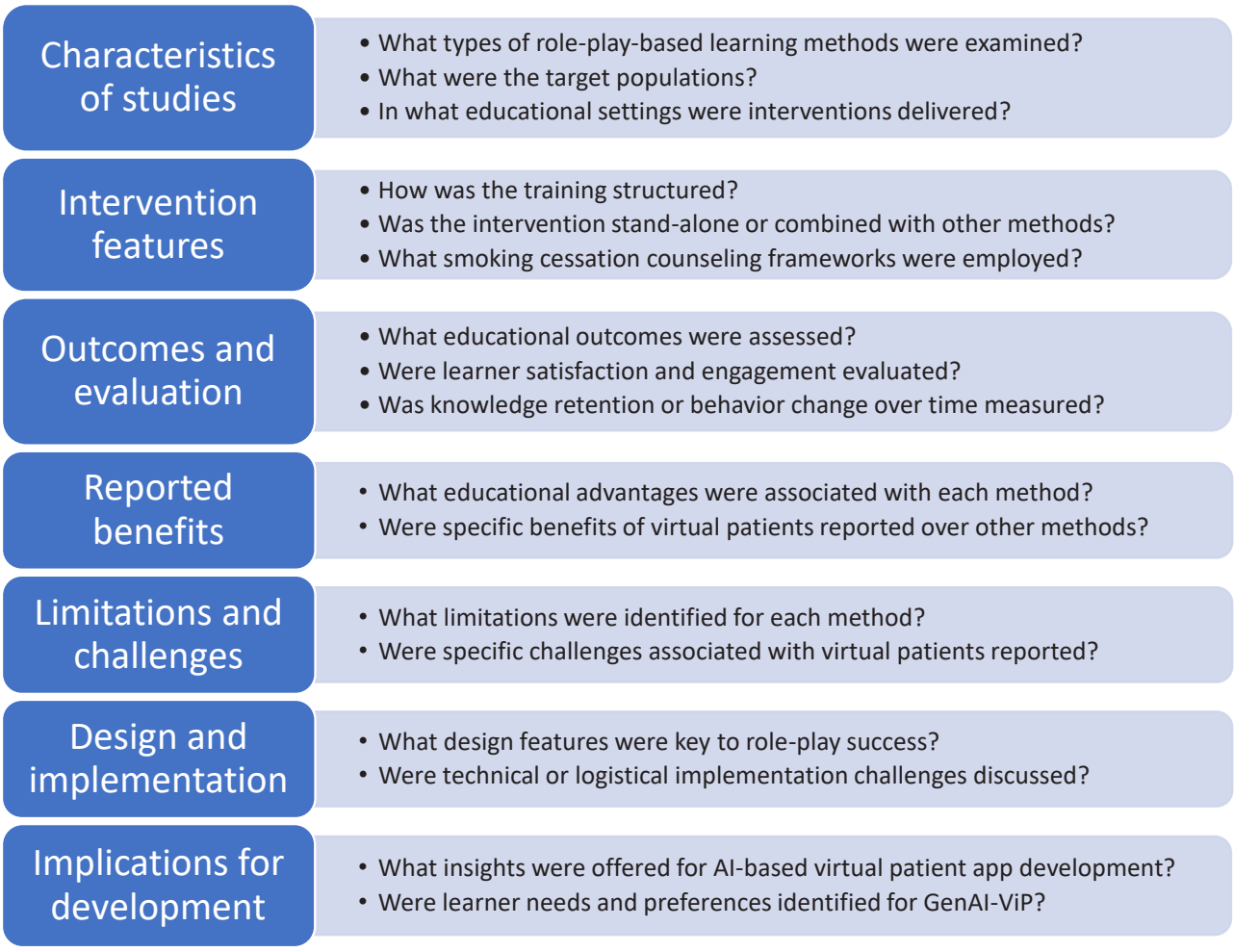


Fig. 1. Diagram representing the core themes and the specific secondary questions guiding the scoping review

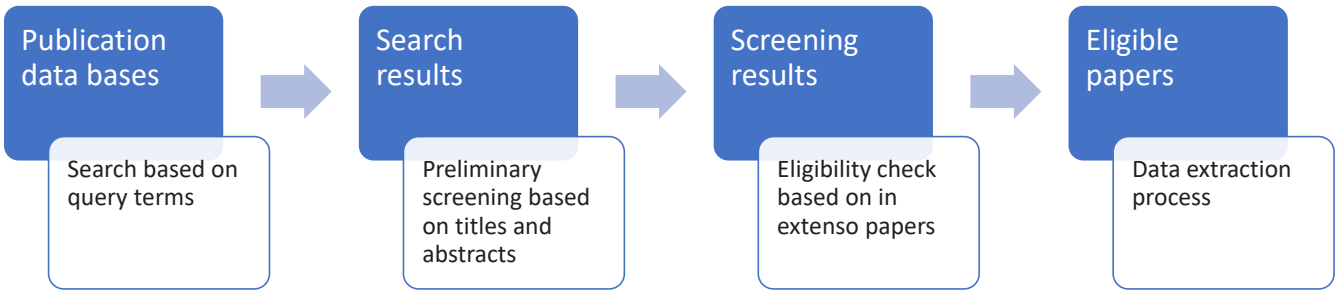


Fig. 2. Flowchart representing the selection process from database search to preliminary screening and eligibility check

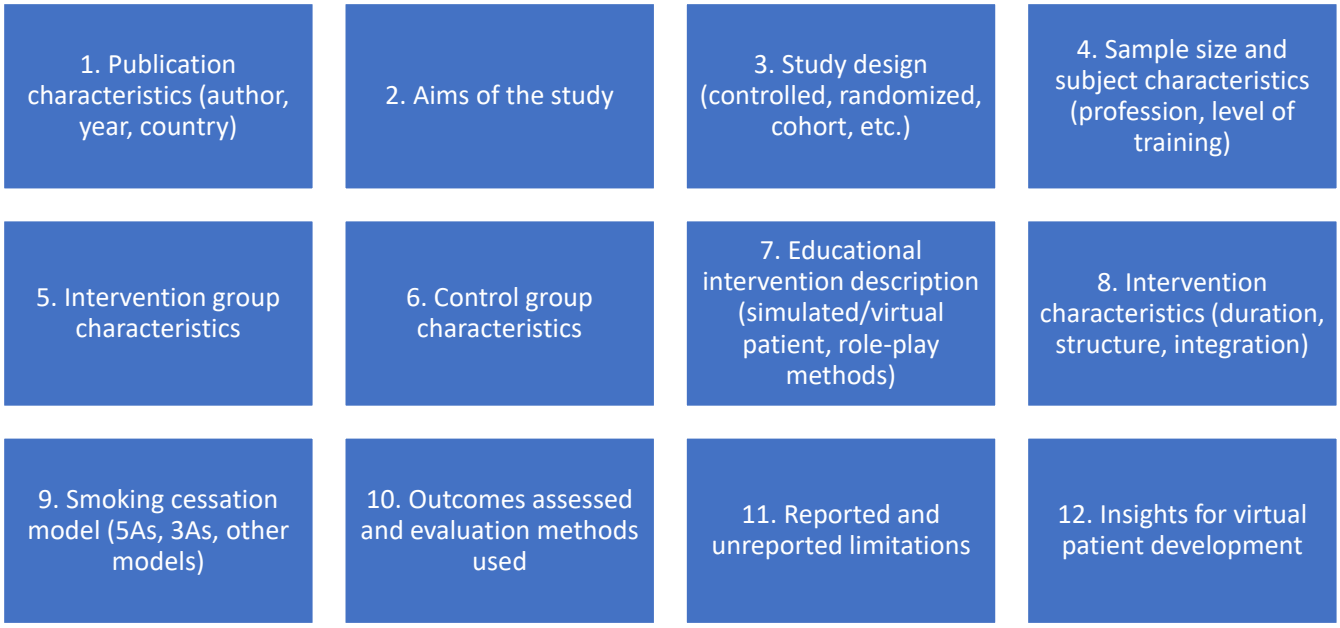


Fig. 3. Structure of the mapping grid and data items collected from the eligible studies

will not be performed. However, study limitations will be summarized where reported.

***Synthesis and presentation of results:*** Data will be synthesized descriptively using tables, thematic categorization, and narrative summaries aligned with the secondary research questions [10].

***Findings will be presented using:***

– Summary tables categorizing interventions, populations, educational settings, and outcomes
– Narrative descriptions of benefits, limitations, and implementation factors
– Thematic mapping of insights relevant to virtual patient development

***Dissemination plans:*** The results will be published in a peer-reviewed educational or healthcare journal. Findings will also be presented at conferences related to medical education and digital health innovation. A summarized report will be prepared for stakeholders involved in the GenAI-ViP project.

## Conclusions

This scoping review will map the available evidence on role-play-based learning strategies for smoking cessation counseling in healthcare education. Findings will help identify knowledge gaps, inform the development of a virtual patient application dedicated to training in brief advice for smoking cessation. The review may also assist educators and curriculum designers in selecting effective teaching methods for smoking cessation counseling.

## Authors' contributions

VN (Conceptualization; Methodology; Planning formal analysis; Writing the first draft; Project administration)
CEB (Conceptualization; Methodology; Reviewing and revising the manuscript)
FSB (Methodology; Planning formal analysis; Planning data collection; Visualization; Reviewing and revising the manuscript)
SMM (Conceptualization; Methodology; Reviewing and revising the manuscript)
LBJ (Conceptualization; Methodology; Reviewing and revising the manuscript; Supervision)

## Conflict of interest

None to declare.

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