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Tabletop Exercises for Prehospital Preparedness During Emergencies: A Scoping review protocol.

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We use this protocol and it's working

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Abstract

Introduction:

Tabletop exercises (TTEs) are low-stress, discussion-based simulations designed to enhance decision-making, coordination, and communication in emergency scenarios. While recent articles have explored their use in medical emergencies, the role of TTEs in prehospital settings, specifically their impact on preparedness activities leading up to hospital admission remains underexplored.

Purpose:

This scoping review systematically maps existing evidence on how TTEs are used to assess and improve prehospital emergency preparedness.

Methods:

Conduct the scoping review following the Arksey and O'Malley framework with Levac refinements and PRISMA-ScR guidelines. Include studies published in English within the past 10 years that involve the use of TTEs in EMS or other prehospital emergency training contexts. Search multiple medical, educational, and grey literature databases comprehensively. Extract and synthesize data related to TTE structure, training context, target populations, disaster types, and outcome measures. Map reported outcomes to the Kirkpatrick Model of training evaluation. Incorporate stakeholder consultation throughout the review process.



Guidelines

Guidelines

1. PRISMA Extension for Scoping Reviews (PRISMA-ScR) Checklist.
2. Arksey and O'Malley Scoping Review Framework.
3. PRESS (Peer Review of Electronic Search Strategies) guidelines.

Materials

Computers, Internet Connection, MS Word, MS Excel, Reference Manager (Mendeley/EndNote/Zotero), Covidence.

Objectives:

- 1 Map and analyze how tabletop exercises (TTEs) are employed to assess and enhance prehospital preparedness during mass casualty incidents (MCIs) and other emergency scenarios.
- 2 Explore the contexts in which TTEs are used, such as disaster versus non-disaster scenarios, interprofessional education (IPE) versus non-IPE formats, and the presence or absence of game-based elements.
- 3 Classify, where available, reported outcomes and educational impacts.
- 4 Inform healthcare educators, emergency planners, and institutional decision-makers with the findings of this review.
- 5 Provide a foundational framework for future researchers to design and build primary studies.

Methodology Overview

- 6 Follow the methodological framework established by Arksey and O'Malley, incorporating enhancements recommended by Levac et al.
- 7 Adhere to the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews) guidelines.
- 8 Develop and register the protocol on protocols.io.
- 9 Submit the protocol to appropriate international registries for systematic review protocols.

Stage 1: Identify the research question

- 10 Primary Research Question:

- 10.1 In what ways have tabletop exercises (TTEs) been used to assess or enhance prehospital preparedness during emergencies?
- 11 Secondary Research Questions:
 - 11.1 Have these TTEs been implemented in the context of disaster response, routine emergency preparedness, or non-disaster scenarios?
 - 11.2 Were they conducted as interprofessional education (IPE) exercises or within a single-discipline framework?
 - 11.3 Did any of the exercises incorporate game-based or board-game elements?
 - 11.4 What outcomes have been reported from studies using TTEs in prehospital emergency preparedness, based on the Kirkpatrick Model of training evaluation?
 - 11.5 Which levels of the model (Reaction, Learning, Behavior, Results) are most frequently addressed?
 - 11.6 Are certain outcome levels underrepresented in the current literature?
 - 11.7 What are the key characteristics of studies using TTEs in prehospital settings?

Stage 2: Identify relevant studies

- 12 Databases: PubMed, Embase, Scopus, PsycINFO, CINAHL, Cochrane Library, ClinicalTrials.gov, and Google Scholar.
- 13 Create the search strategy using a combination of keywords and Medical Subject Headings (MeSH), identified through the MeSH database on PubMed.

Population	Concept	Context
paramedic*	tabletop exercise*	emergency preparedness
first responder*	table-top exercise*	disaster preparedness
ambulance*	Table top exercise*	mass casualty incident*
emergency medical services	tabletop simulation*	MCI
EMS	discussion-based exercise*	field triage
prehospital	discussion based simulation*	incident command
	tabletop	prehospital care
	tabletop drill*	disaster simulation
	preparedness exercise*	response coordination
	board game*	"Mass Casualty Incidents"[Mesh]
	simulation game*	
	scenario-based simulation*	
	"Computer Simulation"[Mesh]	
	"Gamified exercise"	

Keywords

- 14 Submit the search strategy for peer review following the PRESS (Peer Review of Electronic Search Strategies) guidelines to enhance accuracy and completeness.
- 15 Adapt the search strategy for each database: PubMed, Embase, Scopus, PsycInfo, CINAHL, Cochrane Library, and ClinicalTrials.gov.

Database	Search strategy
PubMed	((paramedic* OR "first responder" OR "first responders" OR ambulance* OR "emergency medical services" OR "emergency medical service" OR "EMS" OR "prehospital") AND ("Computer Simulation"[Mesh] OR "gamified exercise" OR "tabletop exercise" OR "tabletop exercises" OR "table-top exercise" OR "table-top exercises" OR "table top exercise" OR "table top exercises" OR "tabletop simulation" OR "tabletop simulations" OR "tabletop" OR "tabletop drills" OR "preparedness exercise" OR "preparedness exercises" OR "board game" OR "board games" OR "simulation game" OR "simulation games" OR "scenario-based simulation" OR "scenario-based simulations")) AND ("emergency preparedness" OR "disaster preparedness" OR "mass casualty incidents" OR "mass casualty incident" OR "MCI" OR "field triage" OR "incident command" OR "prehospital care" OR "disaster simulation" OR "response coordination" OR crisis OR "Mass Casualty Incidents"[Mesh]) AND (y 10[Filter])
Scopus	(TITLE-ABS-KEY (paramedic* OR "first responder*" OR ambulance* OR "emergency medical service*" OR ems OR prehospital)) AND (TITLE-ABS-KEY ("tabletop exercise*" OR "table top exercise*" OR "tabletop simulation*" OR "discussion based simulation*" OR "gamified exercise" OR tabletop OR "tabletop drill*" OR "preparedness exercise*" OR "board game*" OR "simulation game*" OR "scenario based simulation*")) AND (TITLE-ABS-KEY ("emergency preparedness" OR "disaster preparedness" OR "mass casualty incident*" OR mci OR "field triage" OR "incident command" OR "prehospital care" OR "disaster simulation" OR "response coordination")) AND PUBYEAR > 2014 AND PUBYEAR < 2026
Embase	#22 AND (2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py OR 2020:py OR 2021:py OR 2022:py OR 2023:py OR 2024:py OR 2025:py) #23 #22 #6 AND #12 AND #21 #21 #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 #20 'prehospital care' #19 'incident command' #18 'field triage' #17 'mass casualty incident' #16 'mass disaster' #15 'mass disaster' #14 'disaster preparedness' #13 'emergency preparedness' #12 #7 OR #8 OR #9 OR #10 OR #11 #11 'tabletop exercise' #10 'tabletop simulation' #9 tabletop #8 'simulation based medical education' #7 'simulation training' #6 #1 OR #2 OR #3 OR #4 OR #5 #5 'prehospital time' #4 'emergency health service' #3 'ambulance' #2 'first responder (person)' #1 'paramedical personnel'/exp OR 'paramedical personnel'

PsycNET	((Any Field: (paramedic*)) OR (Any Field: (first responder*)) OR (Any Field: (ambulance*)) OR (Any Field: (emergency medical services)) OR (Any Field: (EMS)) OR (Any Field: (prehospital))) AND ((Any Field: (tabletop exercise*)) OR (Any Field: (table-top exercise*)) OR (Any Field: (table top exercise*)) OR (Any Field: (tabletop simulation*)) OR (Any Field: (discussion-based exercise*)) OR (Any Field: (discussion based simulation*)) OR (Any Field: (tabletop)) OR (Any Field: (tabletop drill*)) OR (Any Field: (preparedness exercise*)) OR (Any Field: (board game*)) OR (Any Field: (simulation game*)) OR (Any Field: (scenario-based simulation*)) AND ((Any Field: (emergency preparedness)) OR (Any Field: (disaster preparedness)) OR (Any Field: (mass casualty incident*)) OR (Any Field: (MCI)) OR (Any Field: (field triage)) OR (Any Field: (incident command)) OR (Any Field: (prehospital care)) OR (Any Field: (disaster simulation)) OR (Any Field: (response coordination)))) AND Year: 2015 To 2025
CINAHL	(paramedic* OR "first responder*" OR ambulance* OR "emergency medical service*" OR ems OR prehospital) AND ("tabletop exercise*" OR "table top exercise*" OR "tabletop simulation*" OR "discussion based simulation*" OR tabletop OR "gamified exercise" OR "tabletop drill*" OR "preparedness exercise*" OR "board game*" OR "simulation game*" OR "scenario based simulation*") AND ("emergency preparedness" OR "disaster preparedness" OR "mass casualty incident*" OR mci OR "field triage" OR "incident command" OR "prehospital care" OR "disaster simulation" OR "response coordination") Filter: Last 10 years
Cochrane	paramedic* OR "first responder" OR "first responders" OR ambulance* OR "emergency medical service" OR "emergency medical services" OR ems OR prehospital in Title Abstract Keyword AND "tabletop exercise" OR "tabletop exercises" OR "table-top exercise" OR "table-top exercises" OR "table top exercise" OR "table top exercises" OR "tabletop simulation" OR "tabletop simulations" OR "gamified exercise" OR "tabletop" OR "tabletop drills" OR "preparedness exercise" OR "preparedness exercises" OR "board game" OR "board games" OR "simulation game" OR "simulation games" OR "scenario-based simulation" OR "scenario-based simulations" in Title Abstract Keyword AND "emergency preparedness" OR "disaster preparedness" OR "mass casualty incidents" OR "mass casualty incident" OR "MCI" OR "field triage" OR "incident command" OR "prehospital care" OR "disaster simulation" OR "response coordination" in Title Abstract Keyword
Clinicaltrials.gov	(paramedic* OR "first responder" OR "first responders" OR ambulance* OR "emergency medical service" OR "emergency medical services" OR ems OR prehospital) AND ("tabletop exercise" OR "tabletop exercises" OR "table-top exercise" OR "table-top exercises" OR "table top exercise" OR "table top exercises" OR "tabletop simulation" OR "tabletop simulations" OR "gamified exercise" OR "tabletop" OR "tabletop drills" OR "preparedness exercise" OR "preparedness exercises" OR "board game" OR "board games" OR "simulation game" OR "simulation games" OR "scenario-based simulation" OR "scenario-based simulations") AND ("emergency preparedness" OR "disaster preparedness" OR "mass casualty incidents" OR "mass casualty incident" OR "MCI" OR "field triage" OR "incident command" OR "prehospital care" OR "disaster simulation" OR "response coordination")

Search Strategies

- 16 Manually search Google Scholar to capture relevant studies missed in database searches and to identify grey literature.

Stage 3: Study selection

- 17 Include studies involving first responders, EMS personnel, paramedics, ambulance teams, disaster response teams, and healthcare trainees (students, interns, residents, physicians) who participate in prehospital tabletop exercises.

- 18 Select studies conducted in academic, clinical, field-based, or professional training environments focused on prehospital emergency preparedness.
- 19 Include interventions that use tabletop exercises (TTEs), either as stand-alone activities or as part of a multicomponent intervention (e.g., simulation, lectures, or workshops).
- 20 Include studies that report on TTEs addressing prehospital planning, triage, response coordination, or decision-making in simulated emergencies or disaster scenarios, and that report at least one learning outcome aligned with the Kirkpatrick Model.
- 21 Include studies published in English within the last 10 years.
- 22 Consider a range of study designs, including qualitative, quantitative, mixed-methods studies, case reports, commentaries, pedagogical descriptions, conference proceedings, and viewpoint articles.
- 23 Exclude studies that focus solely on in-hospital preparedness or omit the prehospital phase of emergency response.
- 24 Exclude reviews, including systematic reviews, literature reviews, and other scoping reviews.

Stage 4: Data Charting

- 25 Develop the data extraction form by piloting five eligible studies. Identify common variables relevant to tabletop exercises in prehospital preparedness during emergencies.
 - 25.1 Study Identification and Context
 - Study ID
 - Country
 - Study Design
 - Disaster Type
 - Prehospital Focus
 - 25.2 Participant and Setting Characteristics
 - Population Type
 - Sample Size
 - Training Setting
 - Interprofessional Involvement
 - 25.3 Intervention Description
 - TTE Description



- Exercise Objectives
- Number of Scenarios
- Duration of Exercise
- Pre-Exercise Lecture
- Supplementary Resources
- Real-World Alignment

25.4 Evaluation and Assessment

- Pre-TTE Evaluation
- Post-TTE Evaluation
- Comparator
- Measurement Tools
- Competency Tracking
- Self-Reported Measures
- Outcomes Assessed
- Kirkpatrick Level

25.5 Implementation Factors

- Subject Matter Experts Availability
- Support Team Availability
- Debriefing

25.6 Findings and Interpretation

- Main Findings
- Gaps Identified
- Barriers and Challenges
- Limitations Reported
- Key Message

Stage 5: Collating, Summarising, and Reporting the Results

26 Two independent reviewers verify key study details to ensure accuracy and consistency.

26.1 Resolve any disagreements through discussion or consultation with a third reviewer.

27 Use Microsoft Excel to compile and structure all extracted data for analysis.

28 Summarize and display the findings using tables, figures, and visual illustrations.

29 Analyze quantitative data descriptively (e.g., frequencies, sample sizes).



- 30 Conduct thematic analysis of qualitative data
- 31 Thematically analyse studies based on the following domains:
 - Study focus and objectives
 - Educational or training context
 - Target populations (e.g., EMS personnel, paramedics, first responders)
 - TTE characteristics (e.g., format, setting, disaster type)
 - Outcomes reported, categorized using the Kirkpatrick Model
- 32 Identify Gaps and Make Recommendations

Stage 6: Conduct Stakeholder Consultation (Optional Stage)

- 33 Engage relevant stakeholders involved in the design, delivery, or evaluation of tabletop exercises (TTEs) for prehospital emergency preparedness as part of an optional consultation step.
- 34 Include participants such as EMS educators, emergency physicians, paramedics, disaster management officials, policymakers, and simulation specialists.

Dissemination

- 35 Submit the final manuscript to a peer-reviewed journal specializing in emergency medicine, disaster preparedness, or simulation-based training.
- 36 Present key results at leading national and international conferences

Timeline:

- 37 Month 1: Registration & stakeholder meeting
- 38 Months 2-3: Search execution & import
- 39 Months 4-5: Screening



- 40 Months 6-7: Data extraction
- 41 Month 8: Synthesis workshop
- 42 Month 9: Draft manuscript
- 43 Month 10: Peer review & protocols.io publication

Protocol references

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