

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Use of tabletop exercises for healthcare education: a scoping review protocol
AUTHORS	Frégeau, Amélie; Cournoyer, Alexis; Maheu-Cadotte, Marc-André; Iseppon, Massimiliano; Soucy, Nathalie; St-Cyr Bourque, Julie; Cossette, Sylvie; Castonguay, Véronique; Fleet, Richard

VERSION 1 – REVIEW

REVIEWER	Kaitlyn Watson Queensland University of Technology, Brisbane Australia
REVIEW RETURNED	31-Jul-2019

GENERAL COMMENTS	<p>I believe this scoping review will provide a great context and foundation on which table-top exercises will be based on within the healthcare setting. The methodology looks sound and robust. A suggestion would be for the results of the scoping review paper to come to include a clear distinction of what was excluded in terms of the study selection criteria as the protocol makes suggestions of what will be included and does not elaborate on what will be clearly excluded.</p> <p>One concern I have is the date the search was conducted on was over 12 months old and the protocol is only just being published suggesting the analysis process has yet to be completed. I would suggest the search is re-conducted because as they authors mentioned the popularity of tabletop exercises has increased significantly in this field of late.</p>
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REVIEWER	Elena Skryabina Public Health England, England
REVIEW RETURNED	01-Aug-2019

GENERAL COMMENTS	<p>Thank you for offering to review this manuscript. It is a detailed protocol for conducting a scoping review of literature on the utility of tabletop exercises in healthcare settings. I would like to praise the authors for following a methodological framework for undertaking this study and also for including additional quality of studies check, which is not often performed in scoping reviews. Using Kirkpatrick's model for reporting interventions outcomes is an advantage.</p> <p>Below are a few of my comments to the authors:</p> <ol style="list-style-type: none">1. The scope of the study is too broad, with no specific purpose clearly stated. In the introduction the necessity to improve education of EDs staff is mentioned, with tabletop exercises
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	<p>meeting the needs, but there is no further mentioning of this specific focus in the protocol.</p> <p>2. Tabletop exercises belong to a broader range of discussion-based exercises, known under different names, including desktop; so I would suggest to consider other synonyms in your search terms strategy.</p> <p>3. I am also not sure if “whiteboards with magnetic symbols” are classified as a type of a tabletop exercise. ETS system (https://www.emergotrain.com/), for example, which uses magnetic symbols with patient information and white boards, is considered as a low-fidelity simulation drill, performed under time pressure and with little involvement from facilitators, unlike for TTX, so I would suggest you to refine your search strategy and give a clear definition of a tabletop exercise to start from.</p>
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REVIEWER	Virginia Plummer Monash University Australia
REVIEW RETURNED	04-Aug-2019

GENERAL COMMENTS	<p>The scoping review protocol is interesting however there are a number of points that need clarification.</p> <ul style="list-style-type: none"> -The title does not accurately reflect the content and those interested in this work on the evidence on education of healthcare providers preparing for disaster or MCI would not find this paper, please revise the title. - Editing by a native English speaker would enhance the flow, grammar and choice of words throughout and is highly recommended. For example in the abstract "this highly international context urged the need to develop.." when an inanimate object cannot urge anything. -The scoping review method and in particular that of Arksey & O'Malley has not been adhered to, the research question includes 7 specific questions, none of which refer to the evidence or the literature, when one broad question referring to the literature is preferred, the authors have included quality review of the papers and synthesis of the findings both of which are not features of the method and are not required. This can be found on p27 of the reference 21 referred to by the authors on P10 of the manuscript and demonstrating a clear misunderstanding of what was required. Are the authors linking the evidence on table top exercise, healthcare settings in disaster and MCI and Kirkpatrick model of outcome education? if so this link has not been made? <p>Supplementary materials I, II and III do not seem to add anything to the paper.</p> <p>The PRISMA-ScR was not completed</p> <p>The method is repeated again in the discussion and is not required.</p> <p>The reason for doing the scoping review does not fit well with the reasons provided by Arksey and O'Malley.</p> <p>-</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1

I believe this scoping review will provide a great context and foundation on which table-top exercises will be based on within the healthcare setting. The methodology looks sound and robust. A suggestion

would be for the results of the scoping review paper to come to include a clear distinction of what was excluded in terms of the study selection criteria as the protocol makes suggestions of what will be included and does not elaborate on what will be clearly excluded.

Given the broad nature of the review we plan to perform, only studies published in a language other than French or English will be excluded.

We added that specification in the manuscript.

One concern I have is the date the search was conducted on was over 12 months old and the protocol is only just being published suggesting the analysis process has yet to be completed. I would suggest the search is re-conducted because as they authors mentioned the popularity of tabletop exercises has increased significantly in this field of late.

The search strategy has been developed in July 2018, but we plan to perform the search following the acceptance of the present manuscript and another time one month prior to submission for publication of the final review.

This was clarified in the manuscript.

Reviewer 2

Thank you for offering to review this manuscript. It is a detailed protocol for conducting a scoping review of literature on the utility of tabletop exercises in healthcare settings. I would like to praise the authors for following a methodological framework for undertaking this study and also for including additional quality of studies check, which is not often performed in scoping reviews. Using Kirkpatrick's model for reporting interventions outcomes is an advantage.

Thank you for reviewing our manuscript and for your positive comments.

Below are a few of my comments to the authors

1. The scope of the study is too broad, with no specific purpose clearly stated. In the introduction the necessity to improve education of EDs staff is mentioned, with tabletop exercises meeting the needs, but there is no further mentioning of this specific focus in the protocol.

Thank you for this comment.

We agree that the introduction was too specific for the broad scope of the study and we modified it accordingly. We hope that that the purpose is now much clearer.

2. Tabletop exercises belong to a broader range of discussion-based exercises, known under different named, including desktop; so I would suggest to consider other synonyms in your search terms strategy.

In light of this comment, the keyword desktop has been added to the search strategy.

3. I am also not sure if "whiteboards with magnetic symbols" are classified as a type of a tabletop exercise. ETS system (<https://www.emergotrain.com/>), for example, which uses magnetic symbols with patient information and white boards, is considered as a low-fidelity simulation drill, performed under time pressure and with little involvement from facilitators, unlike for TTX, so I would suggest you to refine your search strategy and give a clear definition of a tabletop exercise to start from.

This was clarified in the methods section. Specific definitions of what will be considered as tabletop exercises, interprofessional education and disaster medicine were added. The search strategy has also been modified accordingly. Since Emergo has previously been considered by some educators as a type of tabletop exercise, keywords related to Emergo (ETS system, whiteboards, magnetic symbols) have been kept in the search strategy. (Khan K. Tabletop Exercise on Mass Casualty Incident Triage, Does it Work? Health Science Journal. 2018;12:1-6)

Reviewer: 3

The scoping review protocol is interesting however there are a number of points that need clarification.

The title does not accurately reflect the content and those interested in this work on the evidence on education of healthcare providers preparing for disaster or MCI would not find this paper, please revise the title.

As suggested, the title has been revised.

Keywords such as 'disaster medicine' and 'interprofessional education' were added to the abstract.

Editing by a native English speaker would enhance the flow, grammar and choice of words throughout and is highly recommended. For example in the abstract "this highly international context urged the need to develop." when an inanimate object cannot urge anything.

The whole manuscript has been revised by a native English speaker to improve its quality.

The scoping review method and in particular that of Arksey & O'Malley has not been adhered to, the research question includes 7 specific questions, none of which refer to the evidence or the literature, when one broad question referring to the literature is preferred, the authors have included quality review of the papers and synthesis of the findings both of which are not features of the method and are not required. This can be found on p27 of the reference 21 referred to by the authors on P10 of the manuscript and demonstrating a clear misunderstanding of what was required.

In light of this comment, the aims and research questions of our scoping review has been clarified. We agree that there is no universal consensus regarding the methods of scoping review and the one proposed by Arksey. However, the Joanna Briggs Institute 'JBI Reviewer's Manual – Chapter 11 Scoping reviews' refer to the methodology of Arksey & O'Malley as their second reference for scoping review. Hence, even though scoping reviews are a relatively new research methodology, they are recognized by the JBI and some scoping review protocols have been published previously in the BMJ Open. (McInerney D, Kupeli N, Stone P, et al. Emotional disclosure as a therapeutic intervention in palliative care: a scoping review protocol. *BMJ Open*. 2019;9:e031046) (Shen N, Sockalingam S, Jaoude A, et al. Scoping review protocol: education initiatives for medical psychiatry collaborative care. *BMJ open*. 2019;7:e015886)

We chose a scoping review methodology because it fitted best the research question we had. Indeed, as described by Arksey and O'Malley, we wanted to map the key concepts underpinning a research area and the conceptual boundaries of a topic. (Arksey and O'Malley, 2005)(JBI Reviewer's Manual – Chapter 11 Scoping reviews) We do not aim to elaborate any specific recommendations about tabletop exercises, since this is not the goal of a scoping review.

The methodology of scoping reviews has been mainly criticized because it doesn't mandate to assess the quality of the included study, but it is suggested by Arksey and O'Malley and it is part of the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist item #11. This is why we proposed to assess the quality of the included studies. These results will be available to the readers, but they will not influence the article selection. If this precludes the publication of the proposed manuscript, the methods could be adjusted to remove this section, but we would prefer not to for the aforementioned reasons.

<https://wiki.joannabriggs.org/display/MANUAL/11.4+Chapter+references>

Are the authors linking the evidence on table top exercise, healthcare settings in disaster and MCI and Kirkpatrick model of outcome education? if so this link as not been made?

We aim to identify how tabletop exercises have been used in healthcare settings. Given the broad

nature of the question, we will classify these uses in two different categories in an effort to organize our results: 'disaster medicine versus non-disaster medicine' and 'interprofessional education versus non-interprofessional education'. Moreover, the outcomes of each tabletop exercise study will be reported according to the Kirkpatrick Model of outcome in education. Again, this is in an effort of classify our results. We hope that this will efficiently map the different uses of tabletop exercises in healthcare. We do not aim to prove any link between these concepts, as this is not the purpose of a scoping review.

Supplementary materials I, II and III do not seem to add anything to the paper.
As suggested, the supplementary materials I, II and III have been removed.

The PRISMA-ScR was not completed.
This has been corrected.

The method is repeated again in the discussion and is not required.
As suggested, this section has been modified.

The reason for doing the scoping review does not fit well with the reasons provided by Arksey and O'Malley.

We opted to perform a scoping review according to the reasons provided by Arksey : 'To examine the extent, range and nature of research activity: this type of rapid review might not describe research findings in any detail but is a useful way of mapping fields of study where it is difficult to visualize the range of material that might be available' (Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. International journal of social research methodology, 8(1), 19-32.) This was clarified in the introduction.

VERSION 2 – REVIEW

REVIEWER	Kaitlyn Watson Queensland University of Technology, Australia
REVIEW RETURNED	03-Oct-2019

GENERAL COMMENTS	<p>Thank you for allowing me to review the revised manuscript. Readability has improved, however, there is still the occasional sentence that needs revising. "TTX are an educational initiative that has been as of now in disaster medicine for disaster preparedness."</p> <p>Depending on the aim of this review, I am not sure the distinction of disaster and non-disaster medicine is necessary. If the aim of this review is to map the uses of TTX in various contexts of healthcare, would the use of TTX in disaster healthcare not be one of these contexts and thus is an outcome of the review? Or, if the focus is on IPE, would the use of TTX in disasters not have a mix of IPE and non-IPE? I think having the two aims confuses the focus of this review - are the authors focusing on the distinction of disaster vs non-disaster use of TTX or the use of TTX in non-IPE and IPE?</p> <p>The title that has been revised doesn't seem to match the aim outlined in the study "This scoping review aims to report the use of tabletop exercises in healthcare." It seems to suggest the focus of</p>
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	<p>the review is only on disaster and non-disaster medicine differences in TTX.</p> <p>In the methods section, the definition of TTX seems very narrow, only indicating board game, with movable markers. What about other TTX scenarios that don't involve a board game?</p> <p>Perhaps, reconsidering the term of disaster medicine, as we are moving away from the term 'disaster medicine', to 'disaster health' as disaster health is a more inclusive and collaborative term, acknowledging the various healthcare professionals involved which supports the review's aim of IPE.</p> <p>The limitations of this review could be made clearer (i.e. a limitation of this review is the exclusion of other languages). If disaster medicine is the focus, other countries (i.e. Japan) have been working in this space of disaster education and preparedness.</p>
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REVIEWER	Elena Skryabina Public Health England, UK
REVIEW RETURNED	24-Sep-2019

GENERAL COMMENTS	<p>Thank you for offering to review the revised manuscript. Overall, it is a robust protocol to conduct a scoping review study to understand the extend of applications of a specific type of educational intervention in healthcare. The search criteria is very broad and includes searches in medical and educational databases using only Intervention terms. In this case the focus is on a virtual board game method, which authors call a tabletop exercise, but the offered search and inclusion criteria will identify not only this type of interventions but also conventional tabletop exercises (TTX) (which are defined as facilitated group discussions to discuss and resolve challenges presented by exercise scenario; such exercises are typically conducted with tactical and strategic staff and does not involve operational systems; please see definition of TTX provided by ECDC https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/Simulation-exercise-manual.pdf) and WHO https://www.who.int/ihr/publications/WHO-WHE-CPI-2017.10/en/</p> <p>1. The virtual board game method offers detailed clinical information on patients and resources and is more applicable for operational staff training. If authors would like to focus only on a boarding game method then they would need to refine their search strategy to exclude conventional TTX, or call them differently, to differentiate the outcomes from boarding games and TTX in their analysis. It may actually be of an advantage to see if there are substantial differences in the outcomes achieved from conventional TTX and boarding games, sometimes called in the papers also as TTXs. Including a narrative review of the studies, as provided in the protocol, will be of an advantage to help identify specificities that affect outcomes.</p> <p>2. Definition of a TTX given in the Abstract, Introduction section needs to be refined; at present not clear and not helpful. The title of this paper includes “tabletop exercises” so the definition of a TTX needs to be clear and non-ambiguous right from the beginning.</p> <p>3. The authors also offer to study the use of TTXs in two broad contexts: disaster medicine and non-disaster medicine, which would be useful, but the definition given for non-disaster medicine in the Introduction with references to Hsu, et al. (2004) and Skryabina, et</p>
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	<p>al.(2017) is confusing; both studies looked at TTX in the context of health emergency preparedness. In these two studies “exercises are used to evaluate the preparedness of an organisation and to educate participants in their roles during the response” – this is your definition of disaster medicine given in the Introduction, 2nd paragraph.</p> <p>4. Table 1; could you please clarify what you mean by “theoretical framework”, of what?</p> <p>5. It is not clear from the protocol how the study will “potentially identify gaps in Kirkpatrick’s level of outcomes”, but this is mentioned as an outcome of this study. Please clarify.</p> <p>I hope these comments are helpful.</p>
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REVIEWER	Virginia Plummer Monash University, Australia
REVIEW RETURNED	22-Sep-2019

GENERAL COMMENTS	A thorough revision was undertaken and the paper is significantly enhanced
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VERSION 2 – AUTHOR RESPONSE

Reviewer 1

Thank you for allowing me to review the revised manuscript. Readability has improved, however, there is still the occasional sentence that needs revising. "TTX are an educational initiative that has been as of now in disaster medicine for disaster preparedness."

We tried our best to improve the quality of the manuscript and the whole manuscript has been revised again by a native English speaker to improve its quality.

Depending on the aim of this review, I am not sure the distinction of disaster and non-disaster medicine is necessary. If the aim of this review is to map the uses of TTX in various contexts of healthcare, would the use of TTX in disaster healthcare not be one of these contexts and thus is an outcome of the review? Or, if the focus is on IPE, would the use of TTX in disasters not have a mix of IPE and non-IPE? I think having the two aims confuses the focus of this review - Are the authors focusing on the distinction of disaster vs non-disaster use of TTX or the use of TTX in non-IPE and IPE?

We aim to map the uses of TTX in healthcare education. To organize our results, we will present the contexts and specific characteristics of the TTX interventions.

For each TTX intervention, three of its characteristics will be presented (disaster health or not, IPE or not and use a board game or not) in our main results table. For example, one article could use an intervention to prepare an emergency department for an earthquake. Its simulation would include doctors, nurses and respiratory therapists and would use the Emergo Train System. This article would then be presented in the results section as pertaining to disaster health, IPE and using a board game.

The manuscript has been modified to clarify this.

The title that has been revised doesn't seem to match the aim outlined in the study "This scoping review aims to report the use of tabletop exercises in healthcare." It seems to suggest the focus of the review is only on disaster and non-disaster medicine differences in TTX.

As suggested, the title has been modified to better fit the aforementioned aim.

In the methods section, the definition of TTX seems very narrow, only indicating board game, with

movable markers. What about other TTX scenarios that don't involve a board game?

As suggested, we changed the definition of TTX. We also added a definition specifically for board game TTX.

We based our definition on the World Health Organization (WHO) as suggested:

<https://apps.who.int/iris/bitstream/handle/10665/254741/WHO-WHE-CPI-2017.10-eng.pdf?sequence=1>

The definition of TTX for our manuscript will be: "A tabletop exercise is an exercise that uses a progressive simulated scenario to make participants consider the impact of a potential health emergency on existing plans, procedures and capacities. A TTX simulates an emergency situation in an informal, stress-free environment. The purpose of a TTX is to strengthen readiness to manage a health emergency, through facilitated group discussions."

Perhaps, reconsidering the term of disaster medicine, as we are moving away from the term 'disaster medicine', to 'disaster health' as disaster health is a more inclusive and collaborative term, acknowledging the various healthcare professionals involved which supports the review's aim of IPE. As suggested, this has been modified throughout the manuscript.

The limitations of this review could be made clearer (i.e. a limitation of this review is the exclusion of other languages). If disaster medicine is the focus, other countries (i.e. Japan) have been working in this space of disaster education and preparedness.

This has been modified and sentences about this limitation have been added to the Strengths and limitations and Discussion sections.

Reviewer 2

Thank you for offering to review the revised manuscript. Overall, it is a robust protocol to conduct a scoping review study to understand the extent of applications of a specific type of educational intervention in healthcare. The search criteria is very broad and includes searches in medical and educational databases using only Intervention terms. In this case the focus is on a virtual board game method, which authors call a tabletop exercise, but the offered search and inclusion criteria will identify not only this type of interventions but also conventional tabletop exercises (TTX) (which are defined as facilitated group discussions to discuss and resolve challenges presented by exercise scenario; such exercises are typically conducted with tactical and strategic staff and does not involve operational systems; please see definition of TTX provided by ECDC

(<https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/Simulation-exercise-manual.pdf>) and WHO <https://www.who.int/ihr/publications/WHO-WHE-CPI-2017.10/en/>

1. The virtual board game method offers detailed clinical information on patients and resources and is more applicable for operational staff training. If authors would like to focus only on a boarding game method then they would need to refine their search strategy to exclude conventional TTX, or call them differently, to differentiate the outcomes from boarding games and TTX in their analysis. It may actually be of an advantage to see if there are substantial differences in the outcomes achieved from conventional TTX and boarding games, sometimes called in the papers also as TTXs. Including a narrative review of the studies, as provided in the protocol, will be of an advantage to help identify specificities that affect outcomes.

As discussed earlier, we will include TTX interventions that both use and do not use a board game. We will include a narrative review of each included study and present their characteristics. We will discuss the different results achieved by each type of study according to their characteristics. We modified our manuscript accordingly to clarify our goal and the definition of TTX.

2. Definition of a TTX given in the Abstract, Introduction section needs to be refined; at present not clear and not helpful. The title of this paper includes "tabletop exercises" so the definition of a TTX needs to be clear and non-ambiguous right from the beginning.

The definition of TTX through the manuscript has been clarified.

3. The authors also offer to study the use of TTXs in two broad contexts: disaster medicine and non-disaster medicine, which would be useful, but the definition given for non-disaster medicine in the Introduction with references to Hsu, et al. (2004) and Skryabina, et al.(2017) is confusing; both studies looked at TTX in the context of health emergency preparedness. In these two studies “exercises are used to evaluate the preparedness of an organisation and to educate participants in their roles during the response” – this is your definition of disaster medicine given in the Introduction, 2nd paragraph.

The definition of disaster health in the introduction has been modified to fit the definition stated in methods – stage 1.

Moreover, the references to Hsu, et al. (2004) and Skryabina, et al. (2017) have been modified to better illustrate the use of TTX in non-disaster health. New references now include Gordon, et al. (2005) and Moller, et al. (2015) and report the use of TTX to teach a prehospital stroke protocol and the use of TTX to improve the patient flow in surgical wards through the operating room.

4. Table 1; could you please clarify what you mean by “theoretical framework”, of what? This concept was removed from Table 1 because it was not related to the goal of the study. Moreover, the “Context” section of Table 1 was bonified with questions about the three main characteristics (disaster health versus non-disaster health, IPE versus non-IPE and board game versus non-board game).

5. It is not clear from the protocol how the study will “potentially identify gaps in Kirkpatrick’s level of outcomes”, but this is mentioned as an outcome of this study. Please clarify.

The outcomes of all included studies will be reported according to Kirkpatrick’s level of outcomes. There are four possible levels: reaction, learning, behaviour and results. Thus, it will be possible to observe if the available literature focuses primarily on a single level of outcome or omits a particular level of outcome.

This has been clarified in the manuscript.

I hope these comments are helpful

We thank you for your support in improving the manuscript.

Reviewer: 3

A thorough revision was undertaken and the paper is significantly enhanced.

We thank you for your support in improving the manuscript.

VERSION 3 – REVIEW

REVIEWER	Kaitlyn Watson Queensland University of Technology, Australia I run these types of TTX for IPE undergraduate classes and conferences.
REVIEW RETURNED	25-Nov-2019

GENERAL COMMENTS	Thank you to the authors for their revision of this manuscript. The focus and intention of the scoping review has been made clearer with the broader term of health education. The readability has improved substantially. One suggestion I have is perhaps the authors could reconsider their categorization/classification of different styles of TTX within their scoping review with this broader approach to health education taken. IPE and disaster health would
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	perhaps be 2 niche aspects of health education? Are there any other major categories in health that should be considered?
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VERSION 3 – AUTHOR RESPONSE

Reviewer 1

Thank you to the authors for their revision of this manuscript. The focus and intention of the scoping review has been made clearer with the broader term of health education. The readability has improved substantially. One suggestion I have is perhaps the authors could reconsider their categorization/classification of different styles of TTX within their scoping review with this broader approach to health education taken. IPE and disaster health would perhaps be 2 niche aspects of health education? Are there any other major categories in health that should be considered?

We thank you for your suggestion.

The various uses of TTX were categorized based on the most frequently observed contexts of TTX in our preliminary literature review.

In light of your comment, we reviewed a few articles we had already identified on the subject and could not find another frequent context. However, we adjusted the protocol so that if new contexts not identified beforehand emerge during our research, we will add them iteratively.

Thank you for your help in improving our manuscript and we hope it will meet expectations for publication in the BMJ Open.