Title: Educational Programs and Curricula on Risk Communication in Disasters and Emergencies: A Scoping Review Protocol

Authors: Faezeh Rahmani[1], Zohreh Ghomian[1,2,*], Mohtasham Ghaffari[3], Sakineh Rakhshanderou[3], Pir-Hossein Kolivand[4]

1. *Department of Health in Disasters and Emergencies, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*
2. *Safety Promotion and Injury Prevention Research Center, Research Institute for Health Sciences and Environment, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*
3. *Department of Health Education and Health Promotion, School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*
4. *Department of Health Economics, Faculty of Medicine, Shahed University, Tehran, Iran.*

To appear in: ***Health in Emergencies & Disasters Quarterly***

Received date: 2025/10/15

Revised date: 2026/02/18

Accepted date: 2026/02/28

First Online Published: 2026/04/24

Please cite this article as:

Rahmani F, Ghomian Z, Ghaffari M, Rakhshanderou S, Kolivand PH. Educational Programs and Curricula on Risk Communication in Disasters and Emergencies: A Scoping Review Protocol. Health in Emergencies & Disasters Quarterly. Forthcoming 2026. Doi: http://dx.doi.org/10.32598/hdq.2026.716.3

Abstract

Background: The increasing frequency of natural and man-made disasters highlights the critical need for effective risk communication to bolster healthcare systems and enhance community resilience. Inadequate dissemination of accurate information, coupled with the proliferation of misinformation, can undermine public trust and hinder crisis response efforts. Although training in risk communication is vital for improving preparedness and mitigating vulnerability, structured, evidence-based educational programs in this domain remain scarce and fragmented. Accordingly, this study seeks to identify, map, and characterize existing curricula and educational programs focused on disaster and emergency risk communication across diverse contexts.

Materials and methods: This scoping review will adhere to the Joanna Briggs Institute (JBI) methodology. Comprehensive searches will be conducted across major international databases (PubMed, Scopus, Web of Science, and Google Scholar) and Persian-language databases (ISC, SID, and MAGIRAN), with no time restrictions applied. Additionally, relevant organizational websites, including those of the World Health Organization (WHO), the United Nations Office for Disaster Risk Reduction (UNDRR), and other pertinent institutions, will be systematically searched to identify gray literature, existing curricula, and educational programs related to disaster and emergency risk communication.

Conclusion: This scoping review will provide a comprehensive overview of existing curricula and educational programs in disaster and emergency risk communication. The findings are expected to inform the development of standardized, evidence-based training frameworks to enhance communication skills among professionals engaged in disaster and emergency management.

Ethics code: This study is part of a Ph.D. thesis approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (IR.SBMU.PHNS.REC.1404.004).

Keywords: risk communication, curriculum, educational program, disaster, emergencies

Introduction

In recent years, the sharp increase in the frequency and severity of natural and man-made disasters—including floods, earthquakes, storms, droughts, wildfires, and industrial accidents—has posed substantial challenges to societies, infrastructure, and healthcare systems worldwide. This escalating trend highlights the growing vulnerability of communities and indicates that, without effective preventive and mitigation measures, the human, economic, and social toll will continue to rise. According to the International Disaster Database (EM-DAT), 393 natural disasters were recorded in 2024, resulting in 16,753 deaths, affecting 167.2 million people, and causing economic losses totaling USD 241.95 billion—a substantial increase over previous years [1, 2].

One of the primary weaknesses in disaster management is the lack of timely, accurate, and transparent information dissemination. Delays in issuing warnings, incomplete or inaccurate information, and poor coordination among responsible agencies frequently result in heightened casualties and damage. These shortcomings underscore the critical need for robust risk communication systems that deliver transparent, reliable, timely, and accessible information to at-risk communities, local and national authorities, and the private sector. Such systems not only facilitate early warnings but also enhance opportunities for preventive actions through public education, community engagement, and the integration of emerging technologies. The United Nations Sendai Framework for Disaster Risk Reduction (2015–2030) similarly emphasizes the importance of effective risk communication, with a specific target to substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments for all people by 2030 [3–5].

Comprehensive, targeted education and information dissemination regarding disaster risks can enhance community awareness, knowledge, and preparedness, thereby facilitating more effective disaster responses. Such efforts foster trust in responsible institutions, mitigate the spread of rumors, and promote protective behaviors. Furthermore, they improve collective resilience, substantially reducing loss of life and property damage while supporting informed decision-making, improved coordination, and accelerated post-disaster recovery [6–8].

Effective and timely communication with at-risk communities can substantially reduce disaster risks and overall community vulnerability to potential threats. However, the success of these communication processes hinges on disaster managers' and experts' mastery of core principles of effective risk communication. These principles enable the establishment of efficient, transparent, and trustworthy interactions with vulnerable populations, thereby facilitating preventive measures. Despite the critical importance of risk communication training, it has yet to receive adequate attention and faces numerous challenges, including evolving threats, the rising frequency and diversity of disasters, neglect of vulnerable groups, resource constraints, shortages of skilled personnel, and difficulties in modifying maladaptive behaviors during crises. Additional barriers include the spread of misinformation, limited access to communication technologies, cultural and linguistic diversity, and insufficient evaluation of training effectiveness [9–14].

It is crucial to recognize that risk communication is a complex process extending far beyond mere information transfer. Consequently, effective training in risk communication plays a pivotal role in mitigating disaster risks, reducing vulnerability, and enhancing community resilience. Identifying gaps, challenges, and training needs in this domain is therefore crucial [15, 16]. As highlighted in previous studies, key educational gaps include the lack of standardized models, a paucity of high-quality research, inadequate motivational strategies, limited investigations in developing countries, and complications arising from audience diversity and the unpredictable nature of disasters [17]. Universities and academic institutions can contribute significantly by incorporating risk communication into curricula, conducting workshops and simulations, evaluating educational interventions, and fostering a culture of safety [15]. Accordingly, this study aims to identify, map, and characterize existing curricula and educational programs in disaster and emergency risk communication, thereby laying the foundation for the development of evidence-based training frameworks.

Study Questions

Primary Question

what educational disaster risk communication curricula and programs exist worldwide?

Secondary Questions

- Who is the target audience for these training programs?
- What content and educational topics are covered in these programs?
- What instructional methods are employed in these programs?
- What approaches are used to evaluate the learners?
- What types of disasters or emergencies are addressed in these programs?
- What challenges and gaps exist in the design or implementation of these training programs?

Materials and Methods

This scoping review will be conducted in accordance with the Joanna Briggs Institute (JBI) guidelines, providing a standardized and systematic methodology for identifying, selecting, and synthesizing evidence. Findings will be reported using the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) framework to ensure transparency, reproducibility, and comprehensive documentation [18-20].

Step 1: Inclusion and Exclusion Criteria

Resources will be included if they describe curricula or training programs in risk communication targeted at disaster management personnel, first responders, volunteers, at-risk communities, students, or healthcare professionals. Eligible programs must detail specific content areas, total duration, training methods, and learner assessment approaches. The search will encompass English-language articles from international databases, Persian-language articles from national databases, and relevant institutional documents or guidelines. No time restrictions will be applied. Sources unrelated to the design or implementation of risk

communication training programs will be excluded. Studies addressing only theoretical aspects without describing a specific curriculum or program will also be excluded. Additionally, those conducted outside the fields of disaster management, crisis response, or public health, or lacking sufficient details on key educational components (content, duration, teaching methods, or assessment), will not be included. Articles published in languages other than English or Persian will be excluded.

The decision to limit inclusion to English- and Persian-language resources stems from the nature of the available evidence and the methodological requirements of this scoping review. English predominates as the primary language for international scientific publications, documents from global organizations, and official educational programs in disaster management and risk communication, with the majority of relevant evidence published in this language. Additionally, Persian was included to encompass studies, educational documents, and curricula available in national scientific databases and domestic sources.

Step 2: Search Strategy Development for Scientific Databases

This study will conduct comprehensive searches across multiple databases. Scientific literature in English will be retrieved from major international databases, including Scopus, PubMed, and Web of Science. To maximize inclusion, Google Scholar will also be searched. Given the limitations of this platform in supporting advanced and structured searches, a simplified strategy based on key relevant terms will be employed. Due to the high volume of results typically retrieved, only the first 1,000 records, sorted by relevance, will be screened.
Persian-language articles will be identified through national databases, including Magiran, SID, and ISC. Searches in these Persian-language databases will utilize the available features and adapt to the specific capabilities of each platform, as they generally lack advanced search functionalities. Searches in the English-language databases will employ tailored strategies specific to each database (Table 1).

Table 1: Search Strategy for Scientific Databases

Data Base	Search Strategy
Scopus	(TITLE-ABS-KEY ("risk communication") OR TITLE-ABS-KEY ("crisis communication") OR TITLE-ABS-KEY ("disaster communication") OR TITLE-ABS-KEY ("emergency communication")) AND (TITLE-ABS-KEY (curriculum) OR TITLE-ABS-KEY (train*) OR TITLE-ABS-KEY (educat*) OR TITLE-ABS-KEY (teach*) OR TITLE-ABS-KEY (instruct*)) AND (TITLE-ABS-KEY (program*) OR TITLE-ABS-KEY (package) OR TITLE-ABS-KEY (intervention) OR TITLE-ABS-KEY (guideline) OR TITLE-ABS-KEY (module)) AND PUBYEAR > 1900 AND PUBYEAR < 2026
PubMed	("risk communication"[Title/Abstract] OR "crisis communication"[Title/Abstract] OR "emergency communication"[Title/Abstract] OR "disaster communication" [Title/Abstract]) AND ("educat*" [Title/Abstract] OR "train*"[Title/Abstract] OR "teach*"[Title/Abstract] OR "curriculum" [Title/Abstract] OR "instruct*" [Title/Abstract]) AND ("program*"[Title/Abstract] OR "intervention" [Title/Abstract] OR "package"[Title/Abstract] OR "guideline"[Title/Abstract] OR "module" [Title/Abstract]) AND 1900/01/01:2025/12/31[Date - Publication] AND "English" [Language]
Web of Science	TS=("risk communication" OR "crisis communication" OR "emergency communication" OR "disaster communication") AND TS=(educat* OR train* OR teach* OR curriculum OR instruct*) AND TS=(program* OR intervention OR package OR guideline OR module) AND PY=(1900-2025)
Google Scholar	("risk communication" OR "crisis communication" OR "disaster communication" OR "emergency communication") AND (curriculum OR train OR training OR educate OR education OR teach OR teaching OR instruct OR instruction) AND (program OR programs OR package OR intervention OR guideline OR module OR modules)

Step 3: Search for Gray Documents

Gray literature, including organizational documents, academic training programs, curricula, training manuals, and modules, will be identified by systematically searching the official websites of key international organizations active in disaster and risk communication. These include the World Health Organization (WHO), the International Federation of Red Cross and Red Crescent Societies (IFRC), the United Nations Office for Disaster Risk Reduction (UNDRR), the United Nations Children's Fund (UNICEF), the Centers for Disease Control and Prevention (CDC), and other relevant international entities.

Additionally, to identify gray literature not available on the websites of major recognized organizations, targeted searches will be conducted using the Google search engine with

combinations of relevant keywords (including "risk communication," "disaster," "emergency," "curriculum," "training program," "manual," and related synonyms). The resulting links will guide the identification of pertinent organizational, institutional, and academic websites, the contents of which will be systematically reviewed.

Step 4: Study Selection Process

The final selection of resources will follow a multi-stage process in accordance with the Joanna Briggs Institute (JBI) guidelines for scoping reviews. All scientific articles and gray literature identified during the search phase will be imported into EndNote software. Duplicates will first be removed. Subsequently, two researchers will independently screen the titles and abstracts of the remaining records for relevance to the review objectives, excluding irrelevant sources.

The article abstracts and gray literature documents will be independently assessed by two researchers according to the inclusion and exclusion criteria. Resources meeting these criteria will be included in the final selection. Any disagreements arising during screening or evaluation will be resolved through discussion between the two researchers or, if necessary, by consulting a third researcher. All steps of the resource selection process will be fully documented, and the flow of resource identification, screening, and selection will be depicted using the PRISMA-ScR flow chart (Figure 1)[1] [20].

1 This PRISMA flow diagram will be completed with final search results in the main scoping review

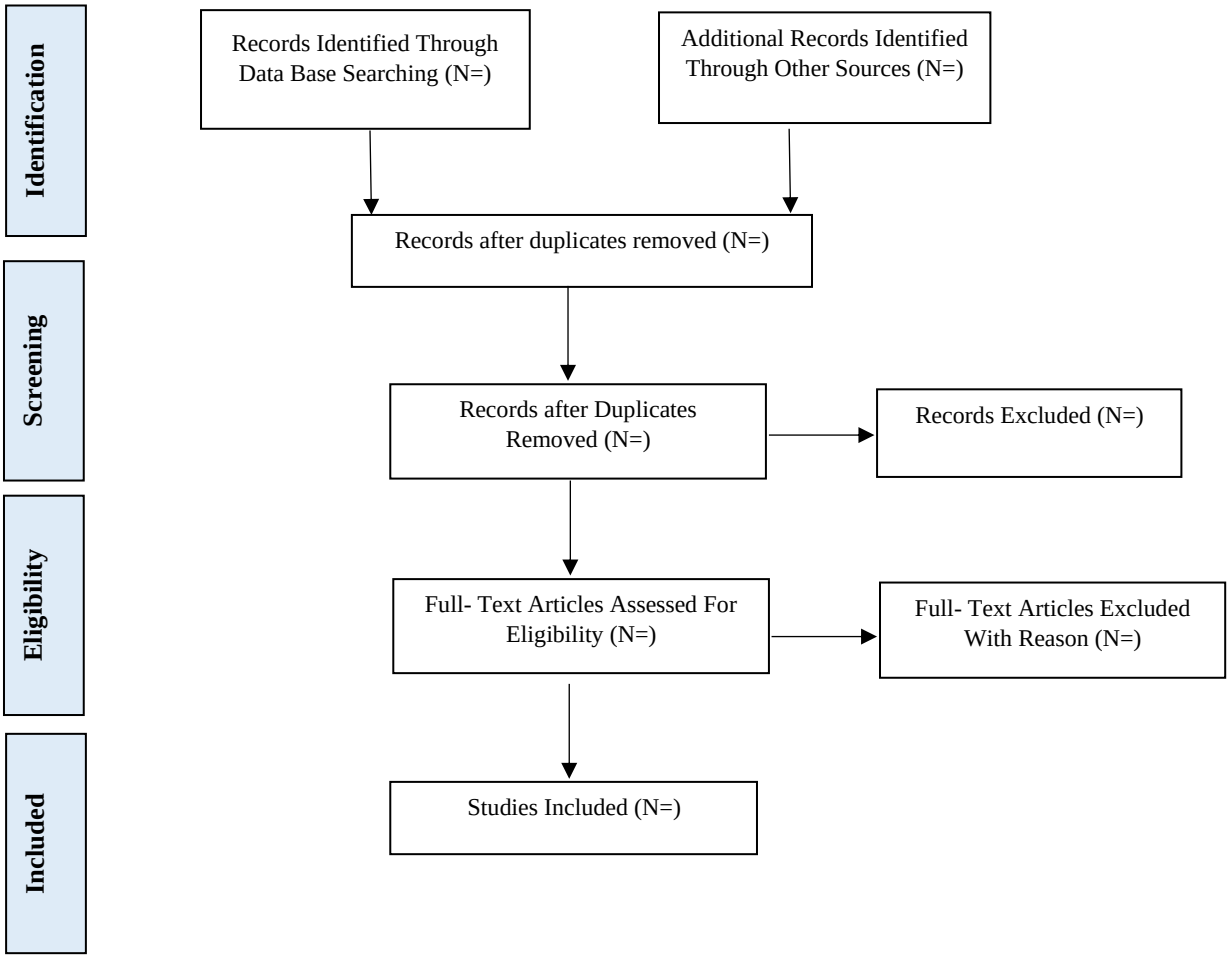

Figure1: PRISMA Flow Diagram for Scoping Review Process (PRISMA-ScR) [20]

Step 5: Data Extraction (Data Charting)

The data extraction process for this scoping review will be conducted in accordance with the Joanna Briggs Institute (JBI) guidelines. Data will be extracted using a predefined table developed by the authors. This table will be piloted, reviewed, and refined as needed to ensure comprehensiveness and accuracy. The extraction form includes key variables specifically designed to address the review questions. These variables are:

- Title of article/curriculum/ program
- Name of author/organization
- Publication Year
- Location / Country
- Target Group / Audiences
- Educational Content
- Training Methods

- Learner Assessment Methods
- Challenges / Gaps

After completing the data extraction table, two independent researchers will review the information for accuracy and completeness. Any disagreements will be resolved by consensus or consultation with a third researcher.

Step 6: Data Analysis and Presentation

Following data extraction, a thematic content analysis will be performed to identify key patterns and components of disaster risk communication training programs. This process will involve iterative review and coding of the extracted data to uncover recurring concepts across the included curricula and educational programs. Main themes will be identified, refined, and revised iteratively to develop a coherent thematic framework. This framework will elucidate the design and implementation of the programs while highlighting existing gaps and training needs in the field. Ultimately, the analysis will provide a comprehensive and structured overview of the content, structure, and core components of disaster and emergency risk communication training [21].

Step 7: Reporting the results

A comprehensive scoping review report will be published, comprising an abstract, introduction, research questions, eligibility criteria, methodology, findings, discussion, and conclusion. The final reporting will adhere to the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) checklist [22].

Discussion

This scoping review will provide a comprehensive overview of disaster risk communication training programs. The findings are expected to inform the development of standardized, evidence-based training frameworks, highlight key educational components and gaps, and guide culturally and contextually appropriate program design. Additionally, the review will identify future research priorities and contribute to improving the effectiveness of risk communication in disaster management.

Strengths and Limitations

Strengths:

- The importance of effective risk communication in improving public awareness and preparedness is one of the key points of the studies conducted based on this protocol.
- The possibility of identifying the best practices and effective strategies in disaster risk communication education is provided by comparing different curricula.
- The interdisciplinary approach of this study, which includes the fields of education, communication and crisis management, increases the applicability of its results.

- Familiarity with diverse risk communication educational approaches from different countries and multiple organizations leads to a more comprehensive understanding of global practices.

Limitations:

- Some gray literature or local/private curricula may not be accessible, potentially limiting completeness.

Ethical Considerations

Compliance with ethical guidelines

This study is part of a Ph.D. thesis under the approval of the Ethics Committee of Shahid Beheshti University of Medical Sciences and received an ethics code (IR.SBMU.PHNS.REC.1404.004).

Funding

This study is funded by Shahid Beheshti University of Medical Sciences.

Conflict of Interest

All the authors claim no conflict of interest in this study.

Acknowledgment

The authors appreciate Shahid Beheshti University of Medical Sciences for supporting this study.

Authors' Contribution

All the authors contributed equally to develop this protocol.

References:

[۱]Nurhaliza W, Yasya W, Ayuningtyas Q. Communication and Disaster Education in The Perspective of Learning Theory: A Literature Review. Siber Journal of Advanced Multidisciplinary. 2024;2:220-228.

[۲] 2024 disasters in numbers. centre for research on the epidemiology of disasters (CRED). 2025.

[۳]Krumay B, Brandtweiner R. The role of information systems to support disaster management. Disaster Management and Human Health Risk IV: Reducing Risk, Improving Outcomes2015. p. 301-313.

[۴]Šakić Trogrlić R VDHM ,Budimir M, McQuistan C, Sneddon A, Golding B.Early Warning Systems and Their Role in Disaster Risk Reduction In: Goldin B, editor. Towards the Perfect" Weather Warning: Springer International Publishing.; 2022. p. 11-46.

[۵]Sendai Framework for Disaster Risk Reduction , 2015 - 2030. United Nations. 2015.

[۶]Perpiñá-Galvañ J, Juliá-Sanchis R, Olmos-Castelló É, Mollá-Pérez S, Sanjuan-Quiles Á. European educational programmes in health emergency and disaster management: An integrative review. International Journal of Environmental Research and Public Health. 2021;18(21):11455.

[۷]Ingrassia PL, Foletti M, Djalali A, Scarone P, Ragazzoni L, Della Corte F, et al. Education and training initiatives for crisis management in the European Union: a web-based analysis of available programs. Prehospital and disaster medicine. 2014;29(2):115-126.

[۸]Communicating risk in public health emergencies, A WHO guideline for emergency risk communication (ERC) policy and practice. World Health Organization. 2017.

[۹]Herovic E, Sellnow TL, Sellnow DD. Challenges and opportunities for pre-crisis emergency risk communication: lessons learned from the earthquake community. Journal of Risk Research. 2020;23(3):349-364.

[۱۰]Fakhruddin B, Clark H, Robinson L, Hieber-Girardet L .Should I stay or should I go now? Why risk communication is the critical component in disaster risk reduction. Progress in disaster science. 2020;8:100139. [۱۱]Dargin JS, Fan C, Mostafavi A. Vulnerable populations and social media use in disasters: Uncovering the digital divide in three major US hurricanes. International Journal of Disaster Risk Reduction. 2021;54:102043.

[۱۲]Matracia M, Saeed N, Kishk MA, Alouini M-S. Post-disaster communications: Enabling technologies, architectures, and open challenges. IEEE Open Journal of the Communications Society. 2022;3:1177-1205.

[۱۳]Cole JM, Murphy BL. Rural hazard risk communication and public education: Strategic and tactical best practices. International journal of disaster risk reduction. 2014;10:292-304.

[۱۴]Rice RM, Jahn JL. Disaster resilience as communication practice: Remembering and forgetting lessons from past disasters through practices that prepare for the next one. Journal of Applied Communication Research. 2020; 48(1):136-155.

[۱۵]Rowan KE, Botan CH, Kreps GL, Samoilenko S, Farnsworth K. Risk communication education for local emergency managers: Using the CAUSE model for research, education, and outreach. Handbook of risk and crisis communication: Routledge; 2020. p. 168-191.

[۱۶]Iwahori T. Disaster Education Based on Legitimate Peripheral Participation Theory: A New Model of Disaster Science Communication. Disaster Risk Communication: A Challenge from a Social Psychological Perspective: Springer; 2020. p. 83-103.
[۱۷]Fathollahzadeh A, Salmani I, Morowatisharifabad MA, Khajehaminian M-R, Babaie J, Fallahzadeh H. Models and components in disaster risk communication: A systematic literature review. Journal of education and health promotion. 2023;12(1):87.
[۱۸]Hadie SNH. ABC of a scoping review: a simplified JBI scoping review guideline. Education in Medicine Journal. 2024;16.(۲)
[۱۹]Peters MD, Marnie C, Tricco AC, Pollock D, Munn Z, Alexander L, et al. Updated methodological guidance for the conduct of scoping reviews. JBI evidence synthesis. 202.۲۱۱۹-۲۱۲۶:(۱۰)۱۸;۰
[۲۰]PRISMA Flow Diagram for the scoping review process [Internet]. Central European Journal of Nursing and Midwifery 2020 [cited 28/10/2025]. Available from: http://cejnm.osu.cz/incpdfs/inf-990000-0700_10_051.pdf.
[۲۱]Neuendorf KA. Content analysis and thematic analysis. Advanced research methods for applied psychology: Routledge; 2018. p. 211-223.
[۲۲]PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation [Internet]. 2019 [cited 2025 Oct 26]. Available from: https://static1.squarespace.com/static/65b880e13b6ca75573dfe217/t/65b9e60d891cf662fa5f7c13/1706681870986/PRISMA-ScR-Fillable-Checklist_11Sept2019.pdf.