



# Civil-Military Coordination in Natural Disasters: A Qualitative Study

Hassan Araghizadeh<sup>1</sup>, Mahmoudreza Peyravi<sup>2,3</sup>, Simintaj Sharififar<sup>4</sup> and Milad Ahmadi Marzaleh<sup>5,\*</sup>

<sup>1</sup>Department of Anesthesiology, School of Medicine, Baghiyyatollah al-Azam Hospital, Baqiyatallah University of Medical sciences, Tehran, Iran

<sup>2</sup>Department of Health in Disasters and Emergencies, Health Human Resources Research Center, School of Management and Medical Informatics, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>3</sup>Research Center for Emergency and Disaster Resilience, Red Crescent Society of the Islamic Republic of Iran, Tehran, Iran

<sup>4</sup>Department of Health in Disasters and Emergencies, Faculty of Nursing, AJA University of Medical Sciences, Tehran, Iran

<sup>5</sup>Student Research Committee, Department of Health in Disasters and Emergencies, Health Human Resources Research Center, School of Management and Medical Informatics, Shiraz University of Medical Sciences, Shiraz, Iran

\*Corresponding author: PhD of Health in Disasters and Emergencies, Student Research Committee, Department of Health in Disasters and Emergencies, Health Human Resources Research Center, School of Management and Medical Informatics, Shiraz University of Medical Sciences, Shiraz, Iran. Tel: +98-7132340776, Fax: +98-7132340039, Email: miladahmadimarzaleh@yahoo.com

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## Abstract

**Background:** A large number of natural disasters, including floods and earthquakes, occur in Iran annually. Recognition of the factors influencing the civil-military coordination in natural disasters is amongst the prerequisites in disaster management. Experts' perspectives towards coordination in these disasters can also be indicative of the importance of this subject. Given the fact that no studies have been carried out regarding the relationship between the civil and military forces in the aftermath of natural disasters in Iran, these factors can be recognized according to individuals' and experts' viewpoints.

**Objectives:** The present study aimed at extracting the factors influencing the civil-military coordination in the course of natural disasters in Iran through interviewing experts in 2019.

**Methods:** The present qualitative research was conducted through semi-structured and in-depth interviews with 20 key informants who were selected via snowball, convenience, and purposive sampling methods. A session was also held with the presence of the panel of experts. The data were analyzed using thematic analysis in order to extract the factors influencing the civil-military coordination in natural disasters in Iran.

**Results:** The factors influencing the coordination between the military and civil organizations were categorized into personnel, staff, and system issues (structure). In addition, 33 subcategories were also identified. The specialists emphasized that holding instructional courses and regular and periodic exercises could enhance coordination in response to disasters.

**Conclusions:** The present study showed that coordination between civil and military organizations in the management of natural disasters in Iran is faced with many challenges that should be overcome and reduced through providing organizational, political, and structural supports. Recognition of the factors influencing coordination can be effective in line with the correct management of natural disasters. Furthermore, organizations can be made readier for taking better measures in disasters according to the extracted factors. In order to provide a proper response to natural disasters, all coordination components should be elevated simultaneously and coherently.

**Keywords:** Coordination, Natural Disaster, Military, Civilian

## 1. Background

In the early stages of incidents and disasters, organizations do not have access to sufficient information and every organization possesses a part of the information (1). The organizations in charge seek for collecting information from natural resources so as to be able to correctly evaluate the disaster and provide an appropriate response to the incident. There is a need for close cooperation among organizations so that a coherent response can be given to disasters. This cooperation and coordination cannot be easily attained because there is usually distrust

among various organizations (2). The civil-military coordination refers to the implementation of similar operations between military and civil organizations (3). Effective response necessitates coordination and coincidence of endeavors by organizations, each one with its own specific knowledge and skills (4).

In the Tsunami that occurred in southern Asia and Katrina Hurricane, the military sources and logistic capacities were not suitably supplied and discoordination occurred between the military and civil forces in response to the disasters that decreased the efficiency of the response op-

erations (5-7). The factors that influence the effectiveness of the response operations include high uncertainty, high temporal pressure, shortage of resources, disasters' effects and damages, and infrastructural malfunctioning. Other factors consist of opposing authorities of organizations, personnel clashes, and conflicts of interests (8). Many studies have shown a very weak coordination among organizations during disasters (9, 10).

Armed forces are usually employed for relief operations and these organizations assist the civil ones. The activities of the military organizations are enumerated amongst disaster management operations (11). In such situations, a high percentage of relief budgets is consumed in supports. Nevertheless, this leads to disorder and more wastage of resources when various organizations get involved in the rescue and relief operations. Using a unit commanding headquarter and a common language, the coordination between the civil and military organizations can be enhanced (12).

The coordination between civil and military organizations during crises and disasters leads to a faster reaction and a reduction in the number of casualties and damages. Civil and military coordination can play a determinant role in better management of disasters. Although commanding of the civil-military forces creates constraints for a more proper response (13), the coherent relationship between these organizations enables the removal of many challenges. The interventions made for establishing coordination between the military and civil organizations in response to disasters should exist in all phases of crisis management. Communication and information systems can contribute to these sectors (14). On-time information sharing by these organizations causes the availability of more precise data. There are numerous other issues, including information and data filtering and the role of information users in developing information systems, that are considered to be important, as well (15).

Annually, a large number of natural disasters, including floods and earthquakes, occur in Iran. Recognition of the factors influencing the civil-military coordination in natural disasters is amongst the prerequisites of disaster management. Experts' perspectives towards coordination in such disasters can be indicative of the significance of the subject. According to the fact that no studies have been conducted on the relationship between civil and military forces in natural disasters in Iran, these factors can be recognized and investigated according to individuals' and experts' (military and civilian forces) attitudes.

## 2. Objectives

The current study aimed at extracting the factors influencing the civil-military coordination in natural disasters

in Iran through interviewing experts in 2019.

## 3. Methods

The present study was conducted based on a qualitative method in 2019. The information was collected through interviews with key informants and experts and holding a session in the form of an expert panel. For interviews, experts were in Tehran and Shiraz. Interviews were conducted from April to June 2019. Thematic analysis was the method of choice for extracting the factors influencing the civil-military coordination in natural disasters in Iran.

### 3.1. Participants

Semi-structured and in-depth interviews were performed with health experts and specialists in the fields of disasters and emergencies and crisis management as well as with military men from various ranks with operational histories in the area of work in natural disaster scenes and other professionals who had sufficient knowledge or had done adequate research regarding crises and disasters. Then, the qualitative data were subjected to thematic analysis. Based on the perspectives of various individuals, the researchers sought to find the factors influencing coordination. The experts provided answers based on their knowledge and experience. The individuals' attitudes and the types of their perspectives were explored based on their knowledge, awareness, experience, and extent of insight over the subject.

The study inclusion criteria were having at least a B.A. degree, being present in disasters and/or performing managerial works on crisis and disaster management, having executive histories and relevant studies, and willingness to participate in the research. The experts were excluded from the study in case they were not willing to continue their participation in the study before and/or during the interviews.

The participants were selected based on snowball, convenience, and purposive methods. During the research, each expert was asked to introduce the next expert. The individuals who were rich in the aforementioned information were identified. Then, the study's importance and goals were explained to them and written informed consent forms were obtained. Afterward, the researcher referred to them to perform interviews. Figures along with signs like 1# and 2# were used to name the interviewees. None of the experts' names were mentioned in the demographic forms.

### 3.2. Data Collection

Semi-structured and in-depth interviews were done by the experts in person. Open and semi-structured interview

questions were used to ask the experts and specialists to speak about civil-military coordination in natural disasters. The following questions were asked: (1) "In your opinion, what are the existing problems between the civil and military forces in managing natural disasters?", (2) "What interventions do you think should be done for increasing the coordination between the civil and military forces in Iran's natural disasters?", and (3) "Do you think that a single command headquarter can contribute to enhancing the coordination between the military and civil forces in natural disasters?". Follow-up questions, such as "why?", "how?" and "could you explain more?", were also asked during the interviews. In addition, a session was held with the presence of eight elites constituting the panel of experts for three hours. It should be noted that other aspects of the interviewees' notions were also explored during the interviews when speaking about the subjects under discussion, and other probing questions were asked. Overall, a total of 22 interviews were carried out with 20 experts by the researcher. After reaching data saturation, the interviews were terminated. Each interview lasted for about 30 - 75 minutes. In order to prevent the probable problems from occurring during recording the experts' voices, the interviews were recorded by two voice recorders and the contents were immediately transcribed.

### 3.3. Data Analysis

At the same time of data collection, data analysis was done. All interviews were written down word-by-word after immediate recording. The researchers also took notes during the interviews. Thematic analysis was the method of choice for data analysis.

Thematic analysis was carried out in six stages as follows: (A) familiarity with the data: repetitive reading of the data and active indulgence in the data; (B) creation of the preliminary codes: the preliminary codes were extracted from the texts and the data. Hierarchical coding was carried out manually; (C) searching for themes: classification of various codes within the format of the potential themes and ordering of all data summaries within the format of the specified themes. In this stage, analysis of the codes was initiated; (D) reviewing the categories and subcategories: the defined categories and subcategories were analyzed again so as to figure out which aspect of the data was accommodated by which category and subcategory; and (E) preparation of reports: the final analysis and writing a report (16). Some of the interviews were made available to the individuals if needed so as to perform proofreading or add some materials. In the end, the texts of the interviews were manually analyzed, the categories were classified, and the categories and subcategories were extracted. After analyzing the texts of the interviews, 214 codes were extracted. Finally, elimination of the repetitive codes and

their re-analysis resulted in three categories and 33 subcategories.

### 3.4. Rigor

To ensure the accuracy and precision of the qualitative data, Schwandt et al. (17) scales were employed:

#### 3.4.1. Trustworthiness

It is the very internal validity, meaning that whether the participants and experts find the meaning given to the reality of the findings related to their own social grounds or not. This was evaluated through using such measures as peer review, long-term involvement, direct observation, review by the researcher, researcher's trustworthiness, and review by the participants.

#### 3.4.2. Transformability

It is equivalent to external validity, meaning that whether the study results can be transformed for similar situations or similar participants. The researchers used special coding procedures and provided more details regarding the participants to achieve this goal.

#### 3.4.3. Dependability or Credibility

It is equivalent to the reliability, referring to the extent to which the results obtained from the interviews are trustable. This was determined by offering perfect details regarding the interviews and contemplation over data stability.

#### 3.4.4. Confirmability

It is used as an indicator of confirming the findings. To achieve this goal, objectivity was the index of interest in the present study. Accordingly, a number of the interview texts were presented to the study methodology experts who were familiar with qualitative research to ensure the accuracy of the study process.

### 3.5. Ethical Considerations

After acquiring the required permits, receiving a letter of recommendation from the armed forces' headquarter, and gaining confirmation by the security branch of the armed forces' headquarter, the researchers introduced themselves to the participants, explained the study objectives, and ensured them that all recorded cases in the course of interviews would be kept confidential. Afterward, the participants who were willing to take part in the study were selected. In the meantime, the participants were assured that they could withdraw from the study at any stage. Other ethical considerations were as follows: (1) obtaining a permission from the proctor organization, (2)

observing the ethical considerations in terms of the confidentiality of the study participants' information, (3) obtaining written informed consent from the experts, (4) assuring the participants that they would be provided with the study results upon request, (5) expressing acknowledgment and gratitude to all experts who cooperated with the researchers in the course of the study, (6) destroying the recorded and handwritten materials after data analysis, and (7) discussing and omitting the cases that were in conflict with the national interests.

#### 4. Results

All the 20 participants were male, with the mean age of 52 years. Their demographic and vocational specifications are presented in Table 1. The factors influencing the civil-military coordination in natural disasters in Iran were classified into three primary categories, namely staff, stuff, and system (structure). The subcategories are displayed in Table 2.

**Table 1.** Demographic and Occupational Characteristics of the Participants

Characteristics	Number	Percentage (%)
<b>Gender</b>		
Male	20	100
Female	0	0
<b>Level of education</b>		
Bachelor	1	5
Master of Sciences	3	15
Doctor of Philosophy	12	60
General Physician	1	5
Specialist Physician	3	15
<b>Field</b>		
Civilian	10	50
Military	10	50

Regarding the coordination in military organizations, one of the disaster management experts expressed:

A 52-year-old man, a military expert said:

“... The main problem in coordination arises from civil organizations. Military men are excellent, obeyable, and more coordinated” (P.4).

Considering the military organizations' problems, one of the aerial rescue and relief experts maintained:

A 59-year-old man, a military expert said:

“... Military men work within the framework of certain regulations and have classified information limitations; they are not self-sufficient in disaster-stricken regions; for example, during the recent earthquake in Kermanshah, the military forces

**Table 2.** The Categories and Subcategories Obtained from the Interviews with the Participants for Extracting the Factors Influencing the Civil-Military Coordination in Iran's Natural Disasters

Category	Frequency	Percentage (%)
<b>Staff</b>		
Creativity	00.44	1
Transferring experience	1.33	3
Existence of a common language among individuals	2.23	5
Self-sufficiency of the forces	4.01	9
Avoiding politicization	00.89	2
Welcoming criticism	1.78	4
Obevable and trustable commander	4.91	11
Presence of the military men as commanders	2.67	6
<b>Stuff</b>		
Use of the latest technologies like social networks	1.78	4
<b>Structure (system)</b>		
Communication	1.78	4
Job division	1.33	3
Security	4.01	9
Safety	3.57	8
Single command headquarter	5.80	13
Instruction	3.57	8
Exercise	6.25	14
Inter-organization links and representatives	2.67	6
Organization	2.23	5
Incident command system (ICS)	5.803	13
Having job description	3.12	7
Formation of workgroups	2.23	5
Transparency of the duties	1.33	3
Holding common sessions	3.12	7
Regularly providing and receiving reports	2.67	6
Launching an emergency operation center (EOC)	3.57	8
Sharing guidelines	3.12	7
Existence of legal support	4.01	9
Having a memorandum of understanding	2.23	5
Supervision and monitoring	4.91	11
Procedural unity	2.23	5
Determination of the priorities	2.23	5
Information provisioning	4.91	11
Having guidelines	3.12	7

were not obeying the Red Crescent. Another problem is that the military forces are not well-trained and instructed about healthcare and treatment” (P.5).

Regarding instructions and exercises, one of the experts stated:

A 44-year-old man, a civilian expert said:

*"... The instructions should be held regularly between the military and civil organizations. Intra- and inter-organizational exercises should also be performed. Common maneuvers cause the extraction of the problems and strong points of coordination. After holding maneuvers, the experiences should be written down, so that their lessons can be learned" (P.1).*

Indeed, two experts talked about the command unit as follows:

A 52-year-old man, a civilian expert said:

*"... In my opinion, establishment of a trustable and obeyable command unit contributes to more coordination among the personnel from various organizations" (P.8).*

A 55-year-old man, a military expert said:

*"... In my opinion, the military men's duty is establishing security in the rescue and relief of the injured persons and they should not get involved in rescue and relief operations. Incident management and command should also be left to the civil personnel" (P.3).*

As the solutions for the enhancement of coordination, one of the experts stated:

A 46-year-old man, a civilian expert said:

*"... Codification of job description, memoranda of understanding, binding rules, guidelines, and protocols in the presence of various shareholders, and appropriate executive mechanisms can contribute to more coordination between the civil and military organizations" (P.4).*

## 5. Discussion

The role of the military forces has always been accentuated in the management of large events and incidents worldwide. After Katrina Hurricane, the single command headquarter was posited due to the emergence of a large number of challenges regarding the civil and military forces' collaborations. To resolve the command problems in disasters, there are two solutions: (1) the existence of two civil and military commanders and coordination between them and (2) the existence of a single commander. Using a command chain can lead to improvement of solidarity, enhancement of efforts' integration, reduction of operational conflicts, decrease in reworking, and increase in the insights of the personnel from various organizations (18). In response to disasters, military personnel are more accountable compared to other personnel from other organizations. Due to the same reason, military men are more appropriate for commanding in disasters (19). Military commanders are more systematic and

more law-oriented compared to personnel from other organizations. Therefore, it would be better to appoint military men as the general commander and commander of other organizations in their command chain.

The qualitative research by Nieves et al. showed that there were discrepancies regarding the quality of the interaction with other organizations. There were also shortages in knowledge about the resources in some states. Enhancement of the relationship between these organizations would contribute to providing an effective response to disasters (20).

In disaster management, the top-down bureaucratic command and control structure results in the creation of an integrated and united command bond between the army and the numerous organizations involved in disasters, which leads to enhancement of the coordination (21). Using a single command structure leads to transfer of information with more accuracy and precision amongst the members of other organizations. In this context, the corresponding officer and coordinators play a key role in linking the organizations to one another. They can also exchange information, if necessary (19, 22). Information sharing and proper communication cause more coordination in response to emergency conditions. Inter-personnel trust will be increased, as well. Indeed, intra-organizational challenges can be resolved via information sharing that has to be carried out in line with the concepts and perceptions of the managers and commanders of disaster management. Holding instructional courses would enhance the knowledge, awareness, and performance of the organizations' personnel (23, 24). Information documentation can contribute to the betterment of the communication and achievement of a common language among the personnel of the organizations involved in disaster management (25, 26). Transparent and clear-cut communication results in augmentation of inter-organizational trust.

Bureaucratic decision-making, different policies, and distrust are amongst the very important factors of discoordination during disasters. Politics can also influence the responsibilities, roles, resources allocation, and disaster management process (27). Central governments normally codify the regulations, policies, and protocols of coordination among various organizations and oblige all organizations to practice them. If organizations are made aware of the regulations and rules of other organizations, the incidents and disasters can be managed more rapidly.

Holding instructional and exercise courses can bring about an increase in the synergy between the civil and military forces (13, 24, 26). In addition, awareness of the guidelines and instructions and participation in instructional workshops can contribute to the integration of the organizations' activities (28). Exercise sessions should be held in six-month periods continuously. After holding ex-

ercise sessions, the strong and weak points of the operation should be investigated and efforts should be made for enhancing the strong points and removing the weak points. The learned lessons should be applied in the future, as well.

The civil forces are at odds with the military personnel's presence in disaster management because they are afraid that the military personnel's presence might lead to the militarization of the activities. On the contrary, the results of the studies on recent disasters indicated that the military men's presence resulted in overcoming challenges related to organizational culture and work culture (29). Military men can perform purposive and integrated activities to remove the cultural conflicts among organizations and communities and manage disasters better than civil organizations. Military forces are highly willing to lead all crisis and disaster management teams and they might be dissuaded from performing activities if this responsibility is withdrawn from them (30). In this context, holding daily sessions with the presence of all organizations can contribute to more coordination. If daily sessions are held at the beginning and/or end of the day and all military and civil commanders engage in discussion and exchange of views regarding the activities they should do during the day, many of the reworking and parallel activities will be reduced.

Effective disaster management entails coordination at international, national, and local levels (31). If military and civil forces cooperate in the early stages of disasters, the lowest number of problems can come about. The organizations that regularly cooperate with other organizations and promote and encourage such activities are in better collaboration and coordination.

Coordination systems should be launched before the occurrence of disasters. This leads to a reduction in reworking, repetitive plans, and overlaps (19, 32). However, lack of knowledge and awareness and variations in other organizations' work methods result in misjudgment and bias. Moreover, different legal codes, different organizational standards, and different work cultures cause the emergence of discoordination between the military and civil forces. Distrust between the military and civil forces, as well, worsens disaster management (25). However, launching an Incident Command System (ICS) can resolve both inter- and intra-organizational challenges (26). ICS is an organizational structure for providing a proper response to disasters and resource management. Various organizations fall in this structure, which elevates the efficiency of their activities in providing a response to incidents.

One of the limitations of the present study was the inability to identify and interview all the key informants, especially the civil and military disaster management com-

manders and managers, for security reasons. Therefore, efforts were made to use available individuals. Deep experiences of the managers and commanders who have been present in natural disasters can be helpful for further studies.

The present study findings were indicative of several accomplishments: firstly, allocation of certain instructions for making the military men, commanders, and crisis managers of military and civil organizations aware of the disaster management concept; secondly, preparation and arrangement of guidelines and instructions for integrated disaster management; and thirdly, performing coordination activities before the occurrence of disasters by crisis management organizations.

The present study indicated that the coordination between the military and civil organizations in the management of natural disasters in Iran was faced with numerous challenges. Hence, efforts should be made to reduce these problems by taking organizational, political, and structural supports into account. Recognition of the factors influencing coordination can be influential parallel to the proper management of natural disasters. Additionally, considering the extracted factors, organizations can be prepared more for providing a better response to disasters. In order to be able to provide a proper response to natural disasters, all coordination components should be enhanced simultaneously and coherently.

#### Footnotes

**Authors' Contribution:** Hassan Araghizadeh, Mahmoudreza Peyravi, Simintaj Sharififar, and Milad Ahmadi Marzaleh were responsible for the study conception and design. Hassan Araghizadeh, Mahmoudreza Peyravi, Simintaj Sharififar, and Milad Ahmadi Marzaleh performed data collection and prepared the first draft of the manuscript. Hassan Araghizadeh, Mahmoudreza Peyravi, Simintaj Sharififar, and Milad Ahmadi Marzaleh did the data analysis, made critical revisions to the paper for important intellectual content, and supervised the study.

**Conflict of Interests:** The authors have no conflict of interest to declare.

**Ethical Approval:** After acquiring the required permits, receiving a letter of recommendation from the armed forces' headquarter, and gaining confirmation by the security branch of the armed forces' headquarter, the researchers introduced themselves to the participants, explained the study objectives, and ensured them that all recorded cases in the course of interviews would be kept confidential. Afterwards, the participants who were willing to take part in the study were selected. In the mean-

time, the participants were assured that they could withdraw from the study at any stage. Other ethical considerations were as follows: 1) obtaining a permission from the proctor organization, 2) observing the ethical considerations in terms of the confidentiality of the study participants' information, 3) obtaining written informed consents from the experts, 4) assuring the participants that they would be provided with the study results upon request, 5) expressing acknowledgment and gratitude to all experts who cooperated with the researchers in the course of the study, 6) destroying the recorded and handwritten materials after data analysis, and 7) discussing and omitting the cases that were in conflict with the national interests.

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## References

- McMaster R, Baber C, Houghton R. Analysis of multiagency intent: An example from the emergency services. *Hum Factors*. 2007.
- Rodríguez H, Quarantelli EL, Dynes RR, Andersson WA, Kennedy PA, Ressler E. *Handbook of disaster research*. Springer; 2007. doi: [10.1007/978-0-387-32353-4](https://doi.org/10.1007/978-0-387-32353-4).
- De Coning C. Civil-military coordination and UN peacebuilding operations. *Afr J Conflict Resolut*. 2007;5(2). doi: [10.4314/ajcr.v5i2.39393](https://doi.org/10.4314/ajcr.v5i2.39393).
- Comfort LK, Dunn M, Johnson D, Skertich R, Zagorecki A. Coordination in complex systems: increasing efficiency in disaster mitigation and response. *Int J Emerg Manage*. 2004;2(1/2):62-80. doi: [10.1504/ijem.2004.005314](https://doi.org/10.1504/ijem.2004.005314).
- Bennett J, Bertrand W, Harkin C, Wickramatillake H, Samarasinghe S. *Coordination of international humanitarian assistance in Tsunami-affected countries*. Tsunami Evaluation Coalition (TEC); 2006.
- Chua AY, Kaynak S, Foo SS. An analysis of the delayed response to Hurricane Katrina through the lens of knowledge management. *J Am Soc Inf Sci Technol*. 2007;58(3):391-403. doi: [10.1002/asi.20521](https://doi.org/10.1002/asi.20521).
- Telford J, Cosgrave J. The international humanitarian system and the 2004 Indian Ocean earthquake and tsunamis. *Disasters*. 2007;31(1):1-28. doi: [10.1111/j.1467-7717.2007.00337.x](https://doi.org/10.1111/j.1467-7717.2007.00337.x). [PubMed: [17367371](https://pubmed.ncbi.nlm.nih.gov/17367371/)].
- Chen R, Sharman R, Rao H, Upadhyaya SJ. Coordination in emergency response management. *Commun ACM*. 2008;51(5):66-73. doi: [10.1145/1342327.1342340](https://doi.org/10.1145/1342327.1342340).
- McEntire DA. Issues in disaster relief: Progress, perpetual problems and prospective solutions. *Disaster Prev Manage Int J*. 1999;8(5):351-61. doi: [10.1108/09653569910298279](https://doi.org/10.1108/09653569910298279).
- Banipal K. Strategic approach to disaster management: Lessons learned from Hurricane Katrina. *Disaster Prev Manage Int J*. 2006;15(3):484-94. doi: [10.1108/09653560610669945](https://doi.org/10.1108/09653560610669945).
- Hall RA, Cular A. Civil-military relations in disaster rescue and relief activities: Response to the mudslide in southern Leyte, Philippines. *Sci Mil South Afr J Mil Stud*. 2011;38(2). doi: [10.5787/38-2-90](https://doi.org/10.5787/38-2-90).
- Tatham P. *Improving the civil-military dimension of disaster-related humanitarian logistics*. Asia Pacific Civil-Military Centre of Excellence; 2011.
- Nugroho SP, Pandanwangi TS, Suprpto S. Civil-military cooperation in disaster management. *J Pertahanan*. 2016;2(2):129-44.
- Heaslip G, Sharif AM, Althonayan A. Employing a systems-based perspective to the identification of inter-relationships within humanitarian logistics. *Int J Prod Econ*. 2012;139(2):377-92. doi: [10.1016/j.ijpe.2012.05.022](https://doi.org/10.1016/j.ijpe.2012.05.022).
- Cullen A. *The Oasis approach to civil/military information sharing for disaster and emergency management, C3I for crisis, emergency and consequence management symposium*. IST-086/RSY-019, May 2009, Bucharest; 2009.
- Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77-101. doi: [10.1191/1478088706qp0630a](https://doi.org/10.1191/1478088706qp0630a).
- Schwandt TA, Lincoln YS, Guba EG. Judging interpretations: But is it rigorous? trustworthiness and authenticity in naturalistic evaluation. *New Directions Eval*. 2007;2007(114):11-25. doi: [10.1002/ev.223](https://doi.org/10.1002/ev.223).
- Burke R. Lessons from Katrina: Commanding the military during disaster response - then and now. *Int J Emerg Manage*. 2016;12(3):221. doi: [10.1504/ijem.2016.079016](https://doi.org/10.1504/ijem.2016.079016).
- Thompson WC. Success in Kashmir: A positive trend in civil-military integration during humanitarian assistance operations. *Disasters*. 2010;34(1):1-15. doi: [10.1111/j.1467-7717.2009.01111.x](https://doi.org/10.1111/j.1467-7717.2009.01111.x). [PubMed: [19459902](https://pubmed.ncbi.nlm.nih.gov/19459902/)].
- Nieves WJ. *Review of civil-military coordination in local disaster response*. Dayton, Ohio: Wright State University; 2012.
- Berggren P, Nählinder S, Svensson E. Characteristics of command and control in response to emergencies and disasters. *Assessing command and control effectiveness*. CRC Press; 2017. doi: [10.1201/9781315568119](https://doi.org/10.1201/9781315568119).
- Rietjens SJ, Verlaan K, Zaalberg TW, de Boer SJ. Inter-organisational communication in civil-military cooperation during complex emergencies: A case study in Afghanistan. *Disasters*. 2009;33(3):412-35. doi: [10.1111/j.1467-7717.2008.01081.x](https://doi.org/10.1111/j.1467-7717.2008.01081.x). [PubMed: [19178549](https://pubmed.ncbi.nlm.nih.gov/19178549/)].
- McMaster R, Baber C. Multi-agency operations: Cooperation during flooding. *Appl Ergon*. 2012;43(1):38-47. doi: [10.1016/j.apergo.2011.03.006](https://doi.org/10.1016/j.apergo.2011.03.006). [PubMed: [21570058](https://pubmed.ncbi.nlm.nih.gov/21570058/)].
- Salmon P, Stanton N, Jenkins D, Walker G. Coordination during multi-agency emergency response: Issues and solutions. *Disaster Prev Manage Int J*. 2011;20(2):140-58. doi: [10.1108/09653561111126085](https://doi.org/10.1108/09653561111126085).
- Pramanik R. Challenges in coordination: Differences in perception of civil and military organizations by comparing international scientific literature and field experiences. *J Risk Res*. 2015;18(7):989-1007. doi: [10.1080/13669877.2015.1043566](https://doi.org/10.1080/13669877.2015.1043566).
- Scotter JR, Pawlowski SD, Cu TD. An examination of interdependencies among major barriers to coordination in disaster response. *Int J Emerg Manage*. 2012;8(4):281. doi: [10.1504/ijem.2012.051640](https://doi.org/10.1504/ijem.2012.051640).
- Czerwinski SJ. *Disaster recovery: Experiences from past disasters offer insights for effective collaboration after catastrophic events*. DIANE Publishing; 2010.
- Bollettino V. Civil-military engagement: An empirical account of humanitarian perceptions of civil-military coordination during the response to Typhoon Haiyan. *Disaster Med Public Health Prep*. 2016;10(1):7-10. doi: [10.1017/dmp.2015.85](https://doi.org/10.1017/dmp.2015.85). [PubMed: [26160337](https://pubmed.ncbi.nlm.nih.gov/26160337/)].
- Malesic M. The impact of military engagement in disaster management on civil-military relations. *Curr Sociol*. 2015;63(7):980-98. doi: [10.1177/0011392115577839](https://doi.org/10.1177/0011392115577839).
- Joyce N. Civilian-military coordination in the emergency response in Indonesia. *Mil Med*. 2006;171(10 Suppl 1):66-70. doi: [10.7205/milmed.171.1s.66](https://doi.org/10.7205/milmed.171.1s.66). [PubMed: [17447628](https://pubmed.ncbi.nlm.nih.gov/17447628/)].
- Morris JC, Morris ED, Jones DM. Reaching for the philosopher's stone: Contingent coordination and the military's response to Hurricane Katrina. *Public Admin Rev*. 2007;67:94-106. doi: [10.1111/j.1540-6210.2007.00818.x](https://doi.org/10.1111/j.1540-6210.2007.00818.x).
- Nabi PG. Coordinating post-disaster humanitarian response: lessons from the 2005 Kashmir earthquake, India. *Dev Prac*. 2014;24(8):975-88. doi: [10.1080/09614524.2014.964187](https://doi.org/10.1080/09614524.2014.964187).