

45. Crisis Communication Within The Framework Of Natural Disaster Management¹

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Abstract

Crisis communication is an important tool in natural disasters in order to establish a healthy communication with the target group that forms the relationship with the party exposed to the crisis and is affected by the crisis and to reduce the negative effects of the crisis. Especially in these situations, accurate, timely and continuous information is important for crisis communication. Earthquakes are the most common and first among natural disasters in Turkey. The study will analyze disaster-period crisis communication studies. Analysis will be carried out in articles containing models prepared in two different countries. The model of the research is systematic review. Data collection will be done by searching with keywords in the *Scopus* database and scanning all-accessible articles between 2020 and 2024. Articles will be selected based on subject, title and keywords. The selected articles will be compiled by meta thematic analysis method and a crisis communication model for natural disasters will be created. In our research, 15 articles were selected in Scopus journal search. Journals were selected and analysed by looking at certain keywords.

Keywords: Crisis Communication, Natural Disaster, Social Media

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Dođal Afet Yönetimi Çerçevesinde Kriz İletişimi³

Öz

Kriz iletişimi dođal afetlerde krize maruz kalan tarafla ilişkiyi oluşturan ve krizden etkilenen hedef kitleyle sağlıklı bir iletişim kurmak ve krizin yarattığı olumsuz etkilerini azaltmak için önemli bir araçtır. Özellikle bu durumlarda dođru, zamanında ve sürekli bilgilendirme; kriz iletişimi için önemlidir. Eđer kurumlar kriz yönetim planını hazırlarlarsa bu durumu daha hafif bir şekilde atlatabilirler. Türkiye'de dođal afetlerin arasında en çok ve ilk sırada depremler yer almaktadır. Unutulmaması gereken Türkiye'nin bir deprem ülkesi olduđu ve her an her yerde şiddetli ve yıkıcı bir depremin olma ihtimali gerçeğidir. Çalışmada afet ve kriz iletişimi konusunda sistematik derleme ile iki farklı ülkede oluşturulan modellerin olduđu makaleler seçilip analiz yapılacaktır. Veri toplama Scopus veri tabanından anahtar kelimelerle arama yapılarak tüm erişime açık olan 2020 ile 2024 yılları arasındaki makaleler taranarak yapılacaktır. Makaleler konu, başlık ve anahtar kelimelere bakılarak seçilecektir. Seçilen makaleler meta tematik analiz yöntemiyle derlenip dođal afetlere yönelik kriz iletişim modeli oluşturulacaktır. Arařtırmamızda Scopus dergi taramasında 15 makale seçilmiştir. Belli anahtar kelimelere bakılarak dergiler seçilmiş olup analiz edilmiştir.

Anahtar Kelimeler: Kriz İletişimi, Dođal Afetler, Sosyal Medya

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1. Introduction

Disasters refer to events that generally occur as a result of natural events, human activities or a combination thereof, causing serious damage, loss and disruption of the normal course of life in the society (Şahin, 2019: 182). Natural disasters such as earthquakes, floods, fires, tsunamis and hurricanes, as well as human-induced events such as accidents, epidemics and nuclear disasters, are also included in the scope of disaster. Earthquake, which is one of the most important disasters in Turkey, is seen as a serious problem. Due to its geographical location, Turkey is prone to earthquakes, floods, landslides, avalanches, etc. Considering the possibility of encountering disasters, it is a country that needs to take precautions against disasters and constantly prepare against disasters.

According to the definition made by Köseoğlu (2015), disaster management is the whole of policies and decisions aimed at returning life to normal by reducing the effects of the disaster in a rapid, effective and coordinated manner before, during and after the disaster. Different disaster management plans are implemented in many countries in the world. Japan is one of the most effective countries in disaster management because it is located in the earthquake zone and has experienced many devastating earthquakes until today. Early warning systems and observation networks have been established in Japan (Ishiwatari, 2021: 6). The main step of disaster management in Japan is carried out by municipalities. It is in the form of organisation of disaster prevention councils, preparation and execution of disaster prevention plans and participation of the public in these activities by municipal, prefecture and national level organisation in Japan (Atalay, 2010: 38).

The United States established the Federal Emergency Agency as a result of the serious disasters they experienced. The Federal Situation Agency is tasked with coordinating disaster preparedness and relief. It is organised in 10 regional centres in the USA. This organisation is tasked with coordinating the role of the federal government in the preparation, prevention, mitigation, response and recovery efforts for all local disasters, natural or man-made, including terrorist incidents (Yılmaz, Balun ve Erbay, 2019: 382-383). It is seen that various countries such as Turkey, the USA and Japan are going through similar processes with international cooperation and similar structures in disaster management issues.

Communication is very important in disaster management and has many purposes. These are collecting, controlling and distributing information and keeping communication channels open. If disaster communication is done correctly, the disaster awareness of the society before the disaster will increase, and at the same time, implementing communication according to the determined rules during the disaster can reduce the disaster risk (Adrot ve Moriceau, 2013: 26).

It is important to manage the crisis process during a disaster. Because the crisis process is a complex process. The stages of the crisis process are divided into three as pre-crisis, crisis moment and post-crisis (Tutar, 2000: 51). Natural crises are crises caused by nature; they are often seen as acts of God. This is because they happen naturally, without any human instigation. They take the form of floods, earthquakes, hurricanes, volcanic eruptions, tsunamis, tornadoes, etc. (Wobodo, C. C. & Oparanma, A. O., 2019: 14).

Social media platforms also have very important tasks in times of crisis. In the past, an institution used to make press releases and announcements only through traditional media during a crisis, but with the introduction of social media into our lives, institutions have had the opportunity to share their crisis moments very quickly with their direct followers through their social media accounts. In recent

academic studies, we see that the effective use of social media platforms during disasters has been covered. In their study, Liu and Ni emphasized the importance of public institutions providing reliable information through social media platforms and revealing false information in order to prevent rumors and misinformation on social media platforms, and that people actively use social media to receive social support and express their feelings (Liu & Ni, 2022: 351-353).

2. Relationship Between Crisis Communication and Disaster Management

The word crisis is defined as "a time of great danger, difficulty or doubt when problems must be solved or important decisions must be made", "a time when a problem, a bad situation or a disease is at its worst point" (Karadađ, N. C., & Balcıođulları, A., 2023: 9). Situations called crisis generally "occur unexpectedly", "pose a threat to the business and its reputation" and "there is a limited time to intervene in the relevant event" can give us an idea about whether an event is a crisis or not. If an event includes the above three elements, then we can say that the relevant company, institution or country is facing a crisis. In terms of public relations, crises are considered as manageable events. Although crises occur at unexpected times, if institutions prepare and plan in advance against crisis possibilities, the negative effects of the crisis can be reduced by taking steps in line with existing crisis plans, regardless of when the crisis occurs.

Considering natural disasters related to situations that are described as crises, it can be claimed that every natural disaster is a crisis. Because natural disasters usually occur at unexpected times. Although geoscientists can make some predictions for earthquakes through their studies, these predictions correspond to wide time intervals. This situation also emerges as an uncertainty. In this context, natural disasters; We can consider it as a crisis because it occurs unexpectedly, puts the rulers of the country in a difficult situation, and has limited time to intervene (Wobodo, C. C., & Oparanma, A. O., 2019: 7-14). Natural crises are crises caused by nature; they are often seen as acts of God. This is because it happens naturally, without any human incentive. It can manifest itself in the form of floods, earthquakes, hurricanes, volcanic eruptions, tsunamis, tornadoes, etc. (Wobodo, C. C et al., 2020: 19).

Disaster management consists of four main phases such as mitigation, preparedness, response and recovery. However, these phases can be detailed into eight phases such as mitigation, preparedness, forecasting and early warning, disasters, impact analysis, response, recovery and reconstruction (Kadiođlu, 2008: 186)

3. Use of Social Media during Disasters and Crisis Communication

Social media platforms have very important tasks in times of crisis. In the past, an organisation could only use traditional media in times of crisis, while press releases and announcements were made through traditional media such as newspapers, radio, television, corporate website, etc. With the introduction of social media into our lives, institutions have had the opportunity to share their press releases and announcements directly with their followers through their social media accounts very quickly in times of crisis.

The use of social media for crisis communication by public institutions has three main functions. These are a. Information updates and provision: In order to prevent rumours and misinformation on social media platforms, public institutions can be used to provide reliable information and reveal false information through social media platforms. b. Inter-agency Coordination and Relationship Building:

During and after the disaster, social media platforms can be actively used to mobilise the tangible and intangible resources of the society through partnerships between public institutions and non-profit organisations (non-governmental organisations, aid organisations) c. Community Building: Crises and disasters have a great psychological and emotional impact on the community. People actively use social media to get social support and express their feelings (Liu & Ni, 2022: 351-353).

It has also been taken into consideration that there is too much data flow on social media during disasters and that their uncontrolled dissemination may cause problems for disaster management. Social media can spread information quickly, but it can also spread misinformation just as quickly. Journalists have editors who determine whether their stories will be published. "There is nothing and no one stopping citizen journalists from spreading misinformation to a global audience in seconds" (Fearn-Banks, 2016: 55). Fearn Banks makes the following recommendations regarding the use of social media in times of crisis: "a. Know your target audience. What information do they have on the subject? b. What is the best method of communication? What is the best way to reach your audience? c. Monitor social media to see what is being said about your issues and who is communicating. Participate in the discussion. d. Make sure everything is correct. e. Make sure that everything is clearly understood. A reader should not have to read more than once to understand the event f. Do not use emoticons such as smiley faces (emoji) and abbreviations used in commercial communication. g. Edit and proofread. Have a second party read your text" (Fearn-Banks, 2016: 59-62).

Social media should be used more meticulously during disasters than at other times. Otherwise, a post on social media platforms in the rush of a crisis or disaster may cause the existing crisis to escalate even further.

4. Method of The Research

In the research, studies on crisis communication during disasters conducted in the last four years will be compiled and articles containing models created in two different countries (Japan and America) will be selected and a meta-thematic analysis will be carried out. The reasons for the selection of Japan and the USA are that natural disasters such as earthquakes, tsunamis and tornadoes are high in these countries and that they have taken more progress in terms of precautions compared to other countries and that they are successful in crisis management.

Data collection will be carried out by searching the *Scopus* database by advanced search with keywords (e.g. crisis communication, natural disaster, disaster management, risk communication, social media) for articles between 2020 January 2024 March. PRISMA Notification Checklist will be selected for writing the research report. In the findings of the research, keywords will be analysed in the database. The second analysis will be made and eliminated by looking at the title, keyword and abstract. The final articles will be tabulated by meta thematic analysis method and a crisis communication plan will be created.

Meta-thematic analysis, which includes a verbal/textual analysis process based on document analysis, aims to combine the qualitative findings of the studies by creating themes and codes. In other words, meta-thematic analysis involves examining qualitative studies on any subject from the perspective of the researcher and obtaining comprehensive and general findings (Batdı, 2017: 764).

The following questions will be evaluated;

- ✓ How is a crisis communication model made during a disaster?
- ✓ How do the countries that are selected in the sample present crisis communication in the Prism model?
- ✓ Which themes are prominent in crisis communication?

Below is a diagram of the numbers of repeated and selected articles in the systematic review method. The components of the research question (PICOS) are given as a table with participants (P: population), interventions (I: interventions), comparison groups (C: comparators), results (O: outcomes) and research designs (S: study designs) (Karaçam, 2013: 28).

4.1. Data Collection Process and Analysis

The research covers studies between January 2020 and March 2024. The process followed in collecting and analyzing data in *Scopus*. In this context, first of all, the international database was scanned according to the keywords “natural disaster”, “crisis management”, “risk communication” and “crisis communication”, “disaster and social media”. The number of 331 articles was reached by entering English and social sciences data into the database. The researches were analysed and disaster-related studies except for the USA and Japan were eliminated. For Turkey, studies involving natural disasters such as tsunamis or tornadoes were also not included, as articles that would help the topic of disaster - oriented crisis communication would be selected. After scanning all these keywords in the abstract and title, a total of 15 articles were included in the study.

Table 1. Picos Diagram of Selected Studies

Describing	Number of studies identified in the database:331
Division	Number of studies after removal of repeats:129
Selection	Number of studies allocated in title and abstract:78
Selection	Number of full-text articles to choose from:63
Inclusion	Number of studies included in the analysis:15
Records excluded for reasons:	Issues such as global warming, climate crisis, migrant crisis; Different countries are eliminated (Except USA&Japan); Natural disasters that do not occur in Turkey; Covid 19 & Pandemic crisis are eliminated.

As a result of the screening, 15 studies with the theme of “natural disaster & crisis communication” were identified in *Scopus*. Climate crisis, global warming, migrant crisis, Covid 19, pandemic-related crises and natural disasters that did not occur in Turkey were eliminated. The findings of the research were obtained and interpreted through 15 articles.

4.2. Characteristics of The Studies Included in The Research

Article (Country)	Participants	Intervention		Results	Pattern of the Study

		Intervention	Control Group		
1. Eddie Lucero et al. (2022) America	2.085 adults	Management planning	None	The speed and compliance with which people evacuate.	quantitative study
2. Somya D. Mohanty et al. (2021) America	784 Twitter users	Preparedness response & recovery model	None	disaster and emergency model	Data mining
3. Tisha Joseph Holmes et al. (2022) America	Twitter Users	Case study	None	emergency response processes	qualitative study
4. Seungyoon Lee et al. (2021) America	Mail sent to 5000 households	quantitative study	None	evacuation decision-making process, providing practical implications regarding the needs.	quantitative study
5. Chung-Shing Chan (2021) Japan	15 participants	For risk management	None	post-disaster recovery	qualitative study
6. Jennifer M. First et al. (2020) America	625 adults who experienced a disaster in the last three years		scale development	The Disaster Adaptation and Resilience Scale was developed	quantitative study
7. Naim Kapucu et al. (2021) America	Coordinators of aid groups	Semi-structured interview	None	evacuation, intervention	qualitative study
8. Tomoki Tanaka et al. (2021) Japan	30,000 visitors	Simulation	None	evacuation methods	Simulation model
9. Tara Powell et al. (2022) America	762 health workers	well-being plan	None	support mental health during and after the disaster.	quantitative study
10. Abukhalaf vd. (2022) America	120 university students	Emergency Planning	None	Students' well-being and daily challenges, and Disaster preparedness	quantitative & qualitative study

				challenges.	
11. Hamilton Bean et al. (2021) Japan, America	USA-Japan workshop	emergency planning	None	improve the effectiveness of mobile alert and warning systems	qualitative study
12. Tzioutzios et al. (2022) Japan	Household survey conducted in Osaka Bay	disaster prevention plans, plans for risk reduction	None	Risk management policy	quantitative study
13. Patricia A. Champ et al. (2022) America	two data sources are collected	training planning based on disaster response (fire)	None	To guide the local wildfire mitigation and education effort.	quantitative study
14. Oliver Nahkur et al. (2022) America	95 expert interviews and 4 online participants	aid trainings	None	campaigns to raise volunteers' awareness of support possibilities and providing first aid trainings	quantitative study
15. Wei Zhai (2022) America	Twitter users	preparing information package	None	Increasing situation awareness	Case study

Lucero et al. (2022) A management plan is made based on organizing, encouraging & increasing the speed of evacuation efforts during natural disasters. It has shown that increased trust between citizens and government representatives does more than encourage good will as political institutions and the public cooperate, inform, and raise awareness.

Zhai (2022) The aim of the research is to increase situation awareness, prepare an information package regarding infrastructure and public services, support and necessary information regarding natural disasters.

Mohanty et al. (2021), the research shows potential for application in disaster and emergency contexts, with the single unified model allowing users to quickly search and filter relevant geolocated tweets.

Holmes et al. (2022) It is a case study, supported by semi-structured telephone interviews. 4 main emergency response processes were assessed. Notifications and communication, evacuation and transport, sheltering and inter-institutional coordination. Producing public health and emergency services. Preparing risk management lessons to inform preparedness and response plans.

Lee et al. (2021) The article provides practical implications regarding the difficulties and lack of information in evacuation decision-making during disasters, contributing to uncertainties, accessing the right information in disaster situations, difficulties in decision-making stages, uncertainty process, providing information coordination for the evacuation decision-making process that has developed this study, providing practical implications regarding the needs.

Chan et al. (2021) The study aims for a sustainable development with a long-term vision and strategy in post-disaster recovery.

First et al. (2020) In this article, the Disaster Adaptation and Resilience Scale was developed. Adaptive responses in individuals exposed to disasters: physical resources; social resources; problem solving; hazard regulation; and optimism.

Kapucu et al. (2021) To ensure coordination in disaster response, motivations and with other emergency management institutions. A model for obtaining information and coordinating relief efforts.

Tanaka et al. (2021) In this study, the scarcity of shelters in disaster situations, limited capacity, draws attention to the difficulties experienced while evacuating. The study proposes evacuation methods to evacuate a large number of evacuees, focusing on weak areas affected by the disaster and providing guidance to all evacuees.

Powell et al. (2022), This study examined the psychological distress of health and social care providers after a short group intervention, Resilience and Coping for the Health Community, and then assessed pre-disaster and post-traumatic stress, anxiety, burnout and secondary traumatic stress to prepare an action, well-being plan to reduce this distress.

Abukhalaf et al. (2022) The main purpose of the study is to develop new knowledge about the behaviour of international students in US higher education institutions in relation to hurricanes in order to improve overall campus crisis management.

Bean et al. (2021) The US, Japan and global stakeholders are developing, deploying and seeking to improve the effectiveness of mobile alert and warning systems and messages.

Tzioutzios et al. (2022) This study aims to assess whether residents around Osaka Bay, Japan, have this demand for disclosure of risk information and aims to understand their communicative behaviour and perceived difficulties through the prism of Situational Problem Theory. In the study, two urban areas near industrial complexes in Osaka Bay were selected (a household survey was conducted).

Champ et al. (2022), This study helps to guide the local wildfire mitigation and education effort. In the research, risk reduction behaviours, fire mitigation, and developing wildfire preparedness and mitigation programmes that address communication preferences among communities.

Nahkur et al. (2022), This study attempts to fill this gap by focusing on policies and institutional arrangements for the integration of informal volunteers, methods and tools used for the integration of volunteers.

5. Conclusion

In our research, 15 articles were selected in Scopus journal search. Journals were selected and analysed by looking at certain keywords. In 2024, articles on disasters were also published; however, no conformity was found according to the keywords and countries we selected. The concept of Disaster Management, which is expressed as a set of plans prepared for institutions to work in a coordinated manner before and after possible disasters, includes both individual and social effects of disasters. Preparation of Disaster Management plans is very important in terms of their applicability and raising

awareness of institutions and the public about disaster management. When the studies are analysed and the findings are considered, it can be applied to schools and universities on a small scale, but in the next stage, it can be applied to municipalities in Turkey. Simple-to-use web-based disaster software can be developed. Trainings on what to do in disasters, evacuation in an emergency, psychological well-being and first aid can be given. In case of a natural disaster, an information package should be prepared for the individual in the form of where to ask for help and what to do. A budget should be prepared for all this. Especially sheltering, nutrition, security and communication issues are the most important problems of the disaster. In addition, search and rescue, which is the most important issue of the disaster, personnel dispatch, coordination and cooperation with other stakeholders are essential.

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