

Original Research

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Evaluation of the Opinions of Volunteers Involved in Disaster on the Use of Social Media

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Abstract

Objective: The aim was to deeply examine the opinions of volunteers who took part in the Kahramanmaraş-centered earthquakes that occurred in Türkiye on February 6, 2023, regarding the use of social media during the disaster period.

Methods: The study was designed as qualitative research. Because it was planned to examine the participant experiences in depth, the phenomenological design was employed in the study. Study data were collected from individuals who had earthquake experience through a semi-structured interview form between May 2023 and July 2023.

Results: In line with the data obtained, 2 themes were created: “social media content and communication analysis” and “social media impact analysis and results.” It was found that for information seeking, information sharing, or interaction during disasters, Twitter (X), Instagram, and WhatsApp were the most preferred social media platforms, respectively. Participants mentioned that posts related to disaster during times of disasters have an impact on their emotions. It was determined that the proper use and correct management of social media tools in times of earthquakes affect coordination and relief efforts.

Conclusions: It was concluded that the type of content shared during earthquake times affects both disaster victims and other individuals of the society positively or negatively.

Disasters are situations that cause profound effects on the environment and society, interrupt daily life, and cause serious loss and damage.¹ A disaster can be conceptually defined as “an event, whether natural, technological, or human-induced, that causes physical, economic, and social losses affecting all or certain segments of the population, disrupts normal life and human activities, and exceeds the coping capacity of the affected community. Disaster is not the event itself but the consequences it brings.”² It is essential to follow a successful disaster management process to minimize the social effects of possible disasters. It is important to use digital technology and social media tools to be able to combat similar disasters in the future.^{3,4} It can be stated that the use of social media is significant in determining whether disaster management is successful or not. In a study conducted to determine the relationship between social media use and disaster management, it was stated that the data collected from social media during a disaster had benefits such as providing early warning and information sharing in terms of disaster management.⁵ The use of social media tools is critical in improving the disaster management process and establishing communication during disasters.^{6,7} It has been stated that social media is used in disaster management stages.^{8,9} Globally, the contribution of the use of social media in disasters to the disaster management process has been recognized.^{6,10–12} The use of digital technology and social media tools contributes to sending early warning messages to individuals in possible extraordinary situations, enabling them to cope with disasters,^{3,4} improving the disaster management process, and facilitating communication during disasters.^{6,7} The use of social media tools in disasters allows first-hand information to be collected and disseminated in real-time. The ability of users to quickly reach many people through social networks contributes to the disaster management process.^{6,10,11,13–15} It has been stated that social media can play an important role in volunteer management during disasters.¹⁶ Social media is becoming an important source of information, including volunteer participation, for better management of disasters.¹⁷

Social media tools can have significant impacts on setting agendas and directing public opinion depending on their intended use during emergencies or critical processes outside of normal conditions.¹⁸ In emergencies or critical processes, social media is one of the most important sources of information and significantly influences or shapes the perspectives, perceptions, and reactions of society and government to dangers.¹⁹

Social media in disaster management can provide a great opportunity to support disaster risk reduction and to use large-scale spatio-temporal data for disaster managers.²⁰ During disasters, first response teams shared situation reports via social media to provide visual information.²¹

Social media has been used to inform, guide, and register volunteers during disasters in Hungary, Sweden, Finland, and Norway.²² The use of social media tools can be the most significant support for search and rescue efforts during disasters. Instant information flow can be provided through applications such as Facebook, Twitter (X), and WhatsApp, and relief efforts can be directed to the areas where they are needed.¹⁸ The use of social media can provide an advantage to authorities in the disaster management process by providing an opportunity for the dissemination of information. Although there are advantages to using social media in times of disaster, sometimes there can be disadvantages. For example, serving inaccurate information can make it difficult for both managers and rescuers. It can also have negative consequences on society. Such situations can worry social media users in times of disaster.²³ People can contribute to the spread of fake news with the effect of the psychological state they are in.²⁴ A study examining disinformation on social media has concluded that Twitter is the platform where false news is shared the most.²⁵ During the earthquakes experienced in Türkiye in 2023, a large number of texts, photos, videos, chats, live broadcasts, etc. content shares were carried out through social media tools such as Twitter, Instagram, TikTok, YouTube, Facebook, WhatsApp, and Telegram.²⁶ Therefore, the accuracy and manageability of the contents of social media shares during disasters can allow the disaster management process to be successfully continued. Studies in the literature on the use of social media during disasters or unusual situations generally examine the overall user perspectives. However, there was no study examining the opinions of volunteers who participated in disaster relief efforts and used social media tools during their involvement in the disaster zone on the use of social media. It was stated that more research is needed on how social media can help manage volunteers in disasters.¹⁶ The aim of the study was to examine the opinions of volunteers who took part in the February 6, 2023 Türkiye earthquakes regarding the use of social media. In this context, the question “What are the opinions of volunteers working in earthquakes regarding the use of social media?” was answered.

Methods

In this section of the study, the research design, the creation of the data collection tool, data collection, sampling, analysis of the data, validity and reliability, and the ethical dimension of the study are included.

Research Pattern

The study was designed as qualitative research. Because it was planned to examine the participant experiences in depth, the phenomenological design was employed in the study. The phenomenological design preferred in qualitative research focuses on examining the experiences felt or observed by people with different perspectives.^{27–29} In the phenomenological approach, answers are sought for what and how people experience.³⁰ This study aims to examine the thoughts of individuals with earthquake experience regarding the use of social media during disasters. Therefore, the use of a phenomenological design is considered appropriate. Thematic analysis was used to analyze the qualitative data obtained from the interviews.³¹

Creating the Data Collection Tool

In the study, a semi-structured interview form created by the researchers was used to collect the study data. By conducting a

literature review, the researchers created an 18-item question pool to measure the thoughts of people with earthquake experience about social media use. The created items were evaluated in detail by all researchers and presented to the expert opinion. Based on expert opinions, the items were reviewed, and those that did not accurately reflect the research subject or were similar to each other were removed. As a result, a 13-item questionnaire was created. The semi-structured interview form was tested in the form of a pilot interview with 2 people who had experienced an earthquake. As a result of the pilot interviews, it was determined that there were no questions that were difficult to understand by the participants, and the 13-item question form was finalized as the final interview form. The interview form includes 13 questions related to the content of the study in addition to socio-demographic questions such as age, gender, marital status, city of residence, occupation, education status, and frequency of using social media. Individuals who underwent pilot interviews were not included in the participants of the study. A sample question from the semi-structured interview is presented below.

- What are the disadvantages of using social media during disasters? Can you explain?

Data Collection

The data of the study were collected via a semi-structured interview form from individuals who experienced an earthquake between May 2023 and July 2023. Data collection was carried out online. The data collection process began with the consent of the participants. The data collection process continued until data saturation, which is preferred for determining the sample size in qualitative research, was reached.³² When the literature is examined, it is seen that qualitative studies are generally conducted with 10–15 people.³³ In our study, it was accepted that the sample was sufficient because it was carried out with a total of 33 people and data saturation was reached. All researchers participated in the data collection process.

Participants

In this study, a purposive sampling and maximum diversity strategy were preferred to obtain rich and varied information.^{34,35} The sample of this study consisted of volunteers who participated in the February 6, 2023 Türkiye earthquakes. The inclusion criteria for this study were being on duty during the February 6, 2023 Türkiye earthquakes, having used social media during disasters, not having communication or speech disabilities, and being voluntary to participate. The exclusion criteria are not having earthquake experience or not having used social media during disasters. The participants consisted of 18 males and 15 females. In terms of education status, 19 participants had completed associate degrees, 8 had postgraduate degrees, 5 had undergraduate degrees, and 1 had completed secondary school (Table 1).

Data Analysis

In this study, the content analysis method was preferred for data evaluation. Content analysis involves systematic, rules-based techniques used to analyze the informational content of textual data.³⁶ To anonymize the participants, each participant was assigned codes from P1 to P33. To assess similar or different aspects of the participants' responses, the researchers independently evaluated the transcriptions on different days. The encoded transcriptions were re-evaluated with the participation of all researchers to achieve

Table 1. Socio-demographic characteristics of the participants

Participant code	Gender	Marital status	Educational status	The city of residence
P1	Female	Single	Associate degree	Hatay
P2	Female	Single	Associate degree	Samsun
P3	Male	Single	Associate degree	Mardin
P4	Female	Married	Graduate	Trabzon
P5	Female	Married	Graduate	Trabzon
P6	Female	Single	Associate degree	Nevşehir
P7	Female	Single	Secondary school	Ankara
P8	Female	Single	Associate degree	Kahramanmaraş
P9	Male	Single	Associate degree	Kahramanmaraş
P10	Male	Single	Associate degree	Trabzon
P11	Female	Single	Associate degree	Malatya
P12	Female	Single	Associate degree	Şanlıurfa
P13	Male	Single	Undergraduate	Gaziantep
P14	Male	Single	Associate degree	Samsun
P15	Male	Single	Associate degree	Adana
P16	Male	Single	Associate degree	Hakkâri
P17	Female	Single	Associate degree	Ankara
P18	Male	Single	Undergraduate	Erzincan
P19	Male	Single	Undergraduate	Van
P20	Female	Single	Associate degree	Bursa
P21	Male	Single	Associate degree	Istanbul
P22	Male	Single	Associate degree	Sakarya
P23	Female	Single	Associate degree	Diyarbakır
P24	Male	Married	Graduate	Artvin
P25	Male	Single	Associate degree	Balıkesir
P26	Male	Married	Undergraduate	Artvin
P27	Male	Single	Undergraduate	Malatya
P28	Female	Single	Associate degree	Kayseri
P29	Female	Single	Graduate	Bolu
P30	Female	Single	Graduate	Sinop
P31	Male	Married	Graduate	Trabzon
P32	Male	Married	Graduate	Artvin
P33	Male	Single	Graduate	Ardahan

a consensus. The obtained codes and themes were presented to the opinion of 3 experts who conducted qualitative research. Following expert opinions, the themes and categories were finalized. In the analysis of the data, licensed MAXQDA 2022 qualitative data analysis software was used. The Consolidated Criteria for Reporting Qualitative Research (COREQ) criteria have been used as the basis for reporting research data.³⁷

Validity and Reliability

In the process of data analysis, reliability criteria (credibility, dependability, confirmability, and transferability) were complied with.^{38,39} To ensure the reliability of the study, a series of measures

were implemented, including data triangulation, participant validation, expert support, independent coders, and detailed content presentation. To ensure transferability, detailed information about the study and examples were provided. To ensure confirmability, the data was archived by the researchers. Consistency was ensured by applying expert support during the preparation of the interview form, coding, and creation of categories.

Results

This section of the study presents the findings of the collected data. In line with the data obtained, 2 themes were created: “social media content and communication analysis” and “social media impact

analysis and results.” Under the theme of social media content and communication analysis, 3 categories were created as “the most preferred social media platforms, the most sought and needed content type in disasters, and the most shared content type in disasters.” Under the theme of social media impact analysis and results, 5 categories were created “the effect of social media on solidarity, the effect of social media on coordination, the effect of social media on survival, the effect of social media on emotions, and the content management of information shared on social media” (Figure 1).

Theme 1. Social Media Content and Communication Analysis

Category 1. The most preferred social media platforms in disasters

It was determined that the participants preferred social media platforms such as Twitter ($n=15$), Instagram ($n=14$), and WhatsApp ($n=7$). It was determined that the participants preferred social media platforms such as Twitter ($n=15$), Instagram ($n=14$), and WhatsApp ($n=7$) the most for information searching, sharing, or interaction during earthquakes (Participants were given more than one choice for the use of social media applications). Some of the participant statements regarding this category are as follows:

P16 “Some individuals, especially on Twitter, shared their location by writing their addresses. Some clearly wrote how their condition was, how much charge they had left, and who was with them. It was also very important to mention which room they were in. We communicated with them from there during the search and rescue efforts.”
P26 “I follow it mostly on Twitter agenda.”

Category 2. The most sought and needed content type in disasters

It was concluded that the participants frequently followed social media platforms or official institution accounts during or after the

earthquakes. It was determined that social media platforms or mass media are actively used to search for or share information in today’s world where mass communication is provided quickly. It was determined that the types of content that the participants searched the most during or after the disaster focused on obtaining the gathering area information, learning the region most affected by the earthquake, determining safe places, asking for help, obtaining information, providing instant news follow-up, communication, obtaining transportation and traffic information, and conducting needs analysis. Some of the participant statements regarding this category are as follows:

P4 “Information on the magnitude of the incident, and the number of dead and injured was needed. Those who live them can give information.”
P6 “Financial aid, finding of disaster victims, etc. can be shared through social media platforms such as Twitter, Instagram.”
P9 “It is used for the need for shelter and food, and the rescue of citizens under the rubble. People can spread the word by sharing.”
P19 “Accurate location notification may be needed of disaster victims who cannot reach aid, safe areas, shelters, food distribution areas, disaster crisis centers, and armed personnel who provide security that they can reach at a possible moment.”
P23 “There is often a need for information about safe places and what we can do during and after a disaster.”
P27 “Information such as assembly areas, loss of life, the severity of the incident, etc. is needed. This is mostly helped by social media applications such as Twitter.”

Category 3. The most shared content type in disasters

The types of content that participants shared the most during earthquake times were examined. In this regard, it was determined that the types of content that the participants shared the most focused on shelter, search-and-rescue, nutrition, health, notice, safety, and posts stating that they are safe and well. Among these shares, the content related to search and rescue, shelter, and

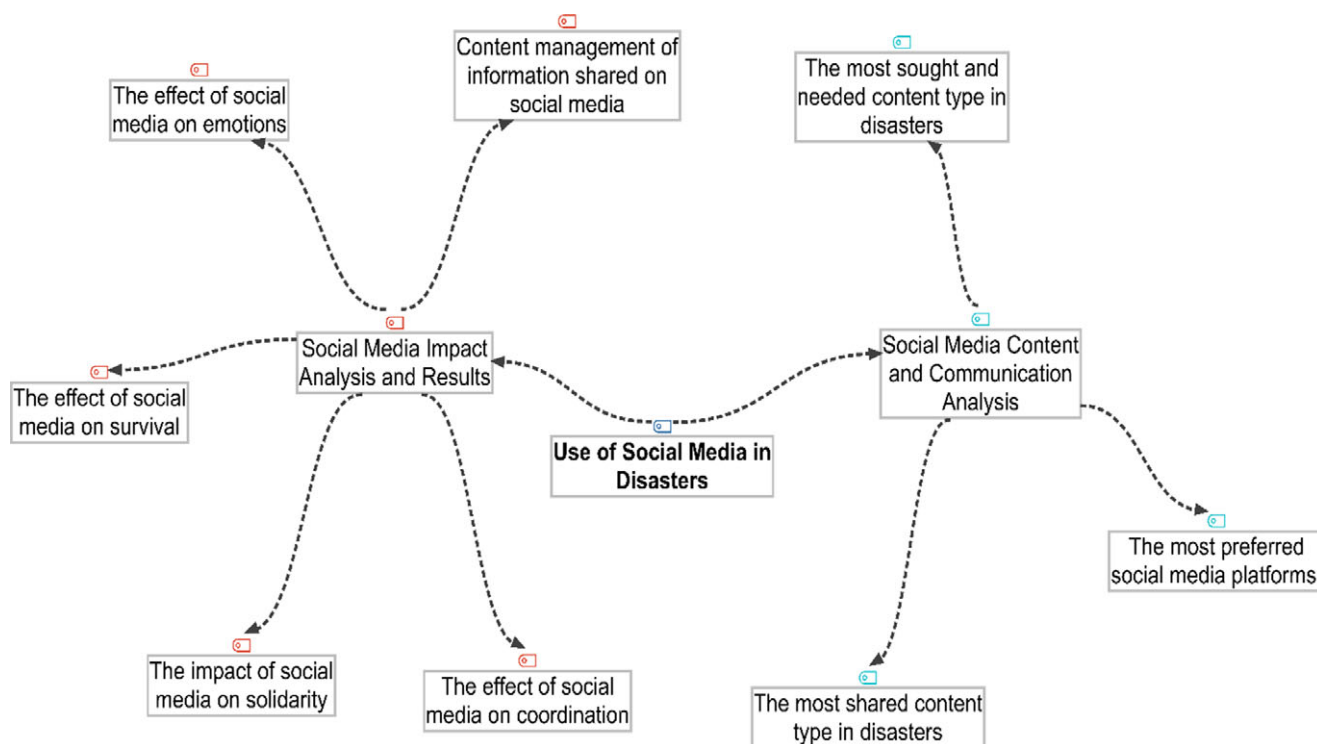


Figure 1. Themes and categories.

nutrition activities had the highest frequency. Some of the participant statements regarding this category are as follows:

P23 "Pretty much all of them. We share those who need help, those who are in a difficult situation, those who strive and help."

P17 "I've used all the social media tools as I recall. I was in constant communication with my friends and AFAD teams. According to the information received in WhatsApp groups, we sent food and drink with my friends and directed doctors or people who knew first aid to the places where they were needed."

Theme 2. Social Media Impact Analysis and Results

Category 1. The effect of social media on survival

Participants mentioned that the use of social media during earthquake times had an impact on people's survival. It was determined that people share information through social media platforms or location applications and call for help. Therefore, search-and-rescue teams reached the people more quickly and started relief efforts in light of confirmed and reliable information. The use of location-based apps, in particular, was found to be effective in helping search and rescue teams locate disaster victims. In conclusion, it can be stated that the use of social media platforms or communication tools has an effect on the survival of disaster victims if the correct information flow is ensured. However, it was reported that the spread of false news leads to information pollution and causes search-and-rescue teams or relevant persons to encounter negative situations. Some of the participant statements regarding this category are as follows:

P17 "I think we were able to get there more quickly. There was a communication between us."

P19 "...because false reports both delay aid and put the lives of disaster victims waiting for help at risk."

P21 "When a relative or acquaintance is helpless under the rubble or outside, I can direct the teams in the field with the necessary information."

Category 2. The effect of social media on coordination

It was concluded that social media tools and their usage affect the coordination of aid organizations in disasters. Participants reported that it was possible to communicate quickly with people in and out of the earthquake zone and that the lists of needs determined for the earthquake zone were shared. It was stated that rescue teams react and attempt to coordinate based on the need lists shared on social media platforms. Participants stated that if the information is transmitted safely and accurately, the use of social media will contribute to the coordination of rescue teams, otherwise, it may cause negativity. It was stated that the transfer and dissemination of false information will have negative effects on coordination. In this category, as in other categories, participants emphasized that undesirable situations may occur as a result of the spread of false information. It was concluded that social media tools are more effective in the aid management of volunteer teams. Some of the participant statements regarding this category are as follows:

P2 "I think that if a good system is established, it will not have a negative impact on coordination and will benefit greatly."

P14 "In situations such as search and rescue and location reporting, aid organizations verify the accuracy of this information before proceeding to the scene."

P23 "Coordination can be disrupted by a post shared on social media."

Category 3. The effect of social media on solidarity

It was concluded that social media tools and their use in disasters affect solidarity and cooperation. Interaction on social media in

times of earthquakes affects the efforts of cooperation and sharing. It was reported that the most called area in disasters is humanitarian aid. It was mentioned that the basic needs of people who survived or hoped to survive after the earthquake should be met. Therefore, emphasis was placed on social solidarity and cooperation to meet the identified needs. In addition, it was stated that it affects the sharing of the pain and emotions experienced by the disaster victims, that is, the ability of other people to empathize. In short, it can be stated that social media tools and their use are effective from the collection and distribution of aid to social sharing. Some of the participant statements regarding this category are as follows:

P5 "It strengthens interpersonal bonding, enables the sharing of suffering, and increases empathy."

P9 "It provides a communication network by informing people; through shared calls for help, aid is delivered to people."

P14 "One of the most common calls is for humanitarian aid. I believe that after the hope of live rescue diminishes in disasters, it is very effective in meeting the needs of disaster victims such as tents and food."

P22 "It is at these times that solidarity and cooperation are most needed. The most common call for help is for food and clothing. In general, calls are answered via social media. It affects cooperation."

Category 4. The effect of social media on emotions

Posts about the event in times of disaster affect people positively or negatively. It was concluded that sharing the images of those who came out alive from under the rubble is promising and motivates people. It has been reported that individuals or official institutions sharing posts indicating that they are with disaster victims instills trust and hope in the disaster victims. It was concluded that the sharing of social solidarity messages and interactions leads to positive feelings both among the disaster victims and other members of the society. It can be stated that the dedicated efforts in earthquake-affected areas, the news about the rescue of life from under the debris, and the heroic actions have a positive emotional impact on people. However, it was observed that sharing tragic images, sharing about those who lost their lives, or sharing images of ruins negatively affects people emotionally. Some of the participant statements regarding this category are as follows:

P1 "For each life that reaches help, it is positively affected, while the appearance of irreversible damage has negative effects."

P5 "Cooperation, survival. Support news has a positive impact. It's promising. But the tragic images are even more distressing. It pushes you to pessimism."

P19 "Messages of support and the willingness of citizens who are not in the disaster area to help, expressing their desire to volunteer and stating that they are there for the disaster victims, even from afar, motivate the disaster victims. This reminds the disaster victims that they are not alone, that they are not forgotten, that our nation is always united no matter what, and enables the disaster victims to hold on to life again."

P25 "While posts like heroism and success make people proud, negative posts and content that is not right to share can negatively affect people."

Category 5. Content management of information shared on social media

It was observed that negative information is shared as well as positive information sharing on social media in times of disaster. It was concluded that producing or serving unreliable information can adversely affect the work. Participants mentioned that to serve accurate information, it is necessary to confirm the source or content of the information. It was stated that unfounded news/information negatively affects the efforts, creates a waste of time,

and causes problems in reaching those in need. It was stated that the failure to present the information correctly caused the rescue and intervention efforts to be disrupted. In short, it was concluded that the production and sharing of accurate information in times of disaster will positively affect the relief efforts. It can be stated that one of the most significant risks is the possibility of producing and serving false information thus causing undesirable consequences for society. Therefore, it can be stated that infodemic management is essential in extraordinary situations, especially earthquakes. It can be stated that in times of disaster, it is important to follow the websites of official institutions or to comply with the posts made from accounts that are accepted as reliable by society. Some of the participant statements regarding this category are as follows:

P5 "Benefit can be derived from users who share trustworthy content and users with a high number of followers in platforms."

P16 "As long as there are reliable news pages, I trust them, but some people make malicious and false news. It's bad in that respect and people can believe it and make the wrong decisions."

P19 "I think I can get accurate information from news published by non-governmental organizations that have been proven to be reliable by the state or by state-affiliated search and rescue teams. The effect of false information on social media will create an environment of great chaos as it will shake the trust of the people in the state, which will cause great panic in the event of a disaster."

P21 "Some of the information is inaccurate, which can lead to disruptions of rescue and response efforts."

P24 "I don't trust the information that's in text form. Video or audio recording seems more reliable to me."

P28 "Late intervention and confusion are increasing due to misinformation. Accurate information is obtained through confirmations."

Discussion

The discussion of the themes created in this study, in which the opinions of volunteers working in earthquakes on the use of social media during the disasters are analyzed in depth, are as follows.

Social Media Content and Communication Analysis

In this study, it was found that for information seeking, information sharing, or interaction disasters, Twitter, Instagram, and WhatsApp were the most preferred social media platforms, respectively. Various studies reveal that social media users especially prefer Twitter disasters.^{40–43} The advantages of Twitter, such as sharing individuals' expressions of thoughts and feelings, having a chat and dialogue feature, sharing someone else's shares, using hashtags, and determining the agenda about the most talked about topics instantly,⁴⁴ can explain the fact that it is one of the most preferred social media platforms during a disaster.

In this study, it was determined that the types of content that the participants searched the most on Twitter during or after the disaster focused on obtaining the gathering area information, learning the region most affected by the earthquake, determining safe places, asking for help, obtaining information, providing instant news tracking, communication, obtaining transportation and traffic information, and conducting needs analysis. During natural and man-made disasters, people use social media platforms like Twitter to report updates on injured or deceased individuals, infrastructure damage, and information about missing or found persons.^{42,45,46} The results we obtained for the use of Twitter in disasters are similar to the literature data. In a study examining the role of social media in disaster crisis management in the October 30, 2020, Izmir Earthquake, it was emphasized that the public used

social media extensively to get information.⁴⁶ In another study conducted to identify the purposes of Twitter usage during disasters in Asia and the Pacific in 2014 and 2015, users mentioned that they effectively used Twitter for purposes such as providing information about their location and status, requesting help, coordinating aid, offering psychological support, discussing the causes of the disaster, and communicating with missing relatives.⁴⁷ Based on the earthquake examples mentioned above and the results obtained from this study, sharing on Twitter, including one-click actions like replies and retweets, contributes to information gathering, requesting help, and activating emergency response systems during crisis periods by enabling direct interaction between institutions and the public.^{48–51} The use of social media tools, especially Twitter, in disasters can contribute to the successful continuation of the disaster management process.

Social Media Impact Analysis and Results

In this study, the participants stated that the use of social media in disasters had an impact on the survival of people and that they shared information and called for help by using social media platforms or location applications. Thanks to the location notification feature of social media applications, individuals can increase their survival by sharing location notifications in disasters and emergencies.⁵² As an example of the functional outcomes provided by social media, during the 2011 Van Earthquake, a citizen who was trapped under the rubble used Twitter to send their address information to a nationally broadcasted program at that moment, and after the delivery of this information to the search and rescue teams, the lives of those individuals were indeed saved.⁵³ The use of location-determining applications, in particular, was assessed as effective in search and rescue teams reaching disaster victims. In conclusion, it can be stated that the use of social media platforms or communication tools affects the survival of disaster victims if the correct information flow is ensured.

In this study, the participants stated that the rescue teams reacted and tried to coordinate according to the needs lists shared on social media tools so that they experienced a more successful disaster management process. During a disaster, the fast and accurate transmission of information shared instantly by individuals and institutions via social media to the disaster coordination center can benefit the disaster management process.⁵⁴ Requests such as blood donation, nutrition, and shelter can be shared on Twitter, and the relevant people or organizations can be offered the opportunity to make the right resource and aid planning.⁵⁵ After the earthquake in Haiti on January 12, 2010, people raised \$8 million in donations in a very short period by posting a large number of texts and photos describing their personal experiences through social media.⁵⁶ After the earthquake in Van in 2011, aid was collected for earthquake victims with posts made on Twitter with the hashtags #van, #vanicintekyurek (full unity for Van), #EvimEvindirVan (my home is your home), and #kardeslikzamani (brotherhood time).⁴⁴ Thus, Twitter posts made for the needs of the disaster area can mediate the needs of disaster survivors such as food, water, and shelter, and ensure the organized distribution of aid in the disaster area.^{57,58} It can be stated that the correct use of social media tools in many areas, from meeting the basic needs of people in disasters to other activities, helps disaster relief workers and disaster managers.

This study concluded that the use of social media tools in disasters affected solidarity and cooperation. Due to its ease of use and instant information sharing,⁵⁹ Twitter can increase disaster resilience role by helping help-seeking people to be noticed by other

users during disasters. Thus, Twitter can coordinate resources so that more help goes to more individuals. It can also serve as protection by acting as an early warning against possible disasters.⁶⁰ It can be stated that in extraordinary situations where social assistance is needed the most, solidarity interactions through social networks are of great importance. By taking advantage of the active and fast nature of social media, a sense of social solidarity can be activated.

In this study, participants mentioned that posts related to disaster during times of disasters have an impact on their emotions. Participants stated that sharing images of individuals being rescued from under the rubble was hopeful and motivating while sharing tragic images, posts about those who lost their lives, or images of destruction had a negative emotional effect. Studies on earthquakes have indicated that Twitter posts⁶¹ can portray individuals as victims, helpless, and hopeless objects, disturbing images can affect the psychology of the entire community, and continuous exposure to these images can slow down the recovery process for disaster victims,¹⁹ while users provide emotional support to each other by sharing their sadness and grief.^{62–64} Photographic information on social media in times of disaster can have positive or negative effects on people and ensure that the disaster is engraved in memory.^{65,66}

In this study, participants stated that during disasters, both positive and negative information is shared on social media. Participants mentioned that to serve accurate information, it is necessary to confirm the source or content of the information. It was stated that unfounded news/information negatively affects the efforts, creates a waste of time, and causes problems in reaching those in need. While social media provides advantages such as instant communication, providing real-time information, and supporting search and rescue efforts,^{67,68} it also provides disadvantages in terms of presenting unverified information, spreading unfounded rumors, and uncertainty of shared data and information.^{69,70} Therefore, it can be stated that infodemic management is essential in extraordinary situations, especially earthquakes. It can be stated that in times of disaster, it is important to follow the websites of official institutions or to comply with the posts made from accounts that are accepted as reliable by society.

Limitations and Strengths

The study has some limitations. First, the fact that the data collection process was conducted online may prevent researchers from fully observing the participants' natural behaviors and emotions. This may affect the reflection of unrecognized effects on responses. The fact that the study was conducted immediately after the earthquake may have caused the participants' emotional trauma to continue, which may lead to limitations in their responses. Despite the existing limitations, there are also strengths. The fact that the participants have both disaster response experience and social media usage experience is considered as a strength. The fact that the study was conducted in the qualitative dimension immediately after an earthquake affecting a large region was considered as another strength.

Conclusion and Recommendations

It was determined that the production and sharing of accurate information in times of earthquake will positively affect the relief efforts. For information accuracy, it is essential to follow official institutions and reliable accounts on social media. It is considered

that the statements made by official institutions and organizations during earthquake times create a sense of trust in society and prevent the spread of false information. It was concluded that the most shared, sought, and needed type of information is related to meeting basic needs and rescue efforts. It was determined that the proper use and correct management of social media tools in times of earthquakes affect coordination and relief efforts. It was concluded that the type of content shared during earthquake times affects both disaster victims and other individuals of the society positively or negatively. During disasters, social media tools can be developed to ensure that volunteers are in contact with other teams working in the disaster area and to share accurate information during disasters so that important information can be followed up-to-date.

Data availability statement. The data created within the scope of the study can be accessed from the authors upon appropriate request, provided that legal and ethical rules are respected.

Funding statement. No support received.

Competing interests. No conflict of interest has been declared.

Ethical standard. Ethical approval The Helsinki guidelines were followed during the study's execution. Participants participated in the study voluntarily and with their consent. Informed consent was obtained from each participant. Permission was obtained from Artvin Coruh University Scientific Research and Publication Ethics Committee before the study started (Approval Number: E-18457941-050.99-87301-4.4.2023).

References

1. Rautela P. Redefining disaster: need for managing accidents as disasters. *Disaster Prev Manage.* 2006;15(5):799–809.
2. AFAD. Açıklamalı Afet Yönetimi Terimleri Sözlüğü. Published Accessed August 6, 2023. <https://www.afad.gov.tr/aciklamali-afet-yonetimi-terimleri-sozlugu>.
3. Pathirage C, Seneviratne K, Amaratunga D, et al. Managing disaster knowledge: Identification of knowledge factors and challenges. *Int J Disaster Resil Built Environ.* 2012;3(3):237–252.
4. Luras M, Benaben F, Truptil S, et al. Event-cloud platform to support decision-making in emergency management. *Inf Syst Front.* 2015;17(4):857–869.
5. Shandrasekaran A, Kulatunga U. Social media for disaster management: The Sri Lankan context. *Int J Constr Manag.* 2023;23(4):648–655.
6. Kim K, Jung K, Chilton K. Strategies of social media use in disaster management: Lessons in resilience from Seoul, South Korea. *Int J Emerg Serv.* 2016;5(2):110–125.
7. Chik A. Digital gaming and social networking: English teachers' perceptions, attitudes and experiences. *Pedag.* 2011;6(2):154–166.
8. Ogie RI, Clarke RJ, Forehead H, et al. Crowdsourced social media data for disaster management: Lessons from the PetaJakarta.org project. *Comput Environ Urban Syst.* 2019;73:108–117.
9. Yigitcanlar T, Regona M, Kankanamge N, et al. Detecting natural hazard-related disaster impacts with social media analytics: The case of Australian states and territories. *Sustainability.* 2022;14(2):810.
10. Dutta R, Basnayake S. Gap assessment towards strengthening early warning systems. *Int J Disaster Resil Built Environ.* 2018;9(2):198–215.
11. Reuter C, Hughes AL, Kaufhold MA. Social media in crisis management: An evaluation and analysis of crisis informatics research. *Int J Hum Comput Interact.* 2018;34(4):280–294.
12. Zhang C, Fan C, Yao W, et al. Social media for intelligent public information and warning in disasters: An interdisciplinary review. *Int J Inf Manage.* 2019;49:190–207.
13. Xiao Y, Huang Q, Wu K. Understanding social media data for disaster management. *Nat Hazards.* 2015;79(3):1663–1679.
14. Kryvasheyev Y, Chen H, Obradovich N, et al. Rapid assessment of disaster damage using social media activity. *Sci Adv.* 2016;2(3):e1500779.

15. **Palen L, Vieweg S, Liu SB**, et al. Crisis in a networked World: features of computer-mediated communication in the April 16, 2007, *Virginia Tech Event*. *Soc Sci Comput Rev*. 2009;27(4):467–480.
16. **Sharp EN, Carter H**. Examination of how social media can inform the management of volunteers during a flood disaster. *J Flood Risk Manag*. 2020;13(4):e12665
17. **Kankanamge N, Yigitcanlar T, Goonetilleke A**. How engaging are disaster management related social media channels? The case of Australian state emergency organisations. *Int J Disaster Risk Reduct*. 2020;48:101571.
18. **Memiş L, Babaoğlu C**. Acil durum ve afet yönetiminde süreç yaklaşımı ve teknoloji. *Omer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*. 2020;13(4):776–791.
19. **Usta E, Yükseler M**. Afetlerde sosyal medya kullanımı ve etik ikilemler: İzmir Seferihisar depremi örneği. *J Disaster Risk*. 2021;4(2):249–269.
20. **Granell C, Ostermann FO**. Beyond data collection: objectives and methods of research using VGI and geo-social media for disaster management. *Comput Environ Urban Syst*. 2016;59:231–243.
21. **Liu BF, Fraustino JD, Jin Y**. Social media use during disasters: How information form and source influence intended behavioral responses. *Commun Res*. 2016;43(5):626–646.
22. **Nahkur O, Orru K, Hansson S**, et al. The engagement of informal volunteers in disaster management in Europe. *Int J Disaster Risk Reduct*. 2022;83:103413.
23. **Alexander DE**. Social media in disaster risk reduction and crisis management. *Sci Eng Ethics*. 2014;20(3):717–733.
24. **Kavaklı N**. Üniversite öğrencilerinin arasında internet teyit/ doğrulama platformlarının kullanımı. *J Soc Sci*. 2019;18(69):398–411.
25. **Soğukdere Ş, Öztunç M**. Sosyal medyada koronavirüs dezenformasyonu. *Kastamonu İletişim Araştırmaları Dergisi*. 2020;5:59–85.
26. **İri R**. 2023 Türkiye deprem sürecinde yaşanan ve gelişen olaylarda sosyal medya kullanımının önemi: Niğde ve yöresi sosyal medya kullanıcılarına yönelik bir araştırma. *Uşak Üniversitesi Uygulamalı Bilimler Fakültesi Dergisi*. 2023;3(1):44–66.
27. **Tuohy D, Cooney A, Dowling M**, et al. An overview of interpretive phenomenology as a research methodology. *Nurse Res*. 2013;20(6):17–20.
28. **Dupin CM, Larsson M, Dariel O**, et al. Conceptions of learning research: Variations amongst French and Swedish nurses. A phenomenographic study. *Nurse Educ Today*. 2015;35(1):73–79.
29. **Creswell JW, Poth CN**. *Qualitative Inquiry and research design: Choosing among five approaches*. Sage Publications; 2016.
30. **Moustakas C**. *Phenomenological research methods*. Sage Publications; 1994.
31. **Braun V, Clarke V**. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101.
32. **Creswell JW**. *Nitel araştırma yöntemleri: Beş yaklaşıma göre nitel araştırma ve araştırma deseni*. Ankara: Siyasal Kitabevi; 2018.
33. **Johnson B, Christiansen L**. *Eğitim araştırmaları nicel, nitel ve karma yaklaşımlar*. Ankara: Eğiten Kitap; 2014.
34. **Patton MQ**. *Qualitative Evaluation and Research Methods*. Sage Publications; 1990.
35. **Polit DF, Beck CTB**. *Nursing research: Generating and assessing evidence for nursing practice*. Lippincott Williams & Wilkins; 2008.
36. **Yıldırım A, Şimşek H**. *Sosyal bilimlerde nitel araştırma yöntemleri. Genişletilmiş 9. Baskı*. Ankara: Seçkin Yayıncılık; 2013.
37. **Tong A, Sainsbury P, Craig J**. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349–357.
38. **Merriam BS, Tisdell JE**. *Qualitative research: A Guide to design and implementation*. John Wiley & Sons; 2016.
39. **Guba EG, Lincoln YS**. Paradigmatic controversies, contradictions, and emerging confluences. In: Denzin NK, Lincoln YS, eds, *The Sage Handbook of Qualitative Research*. Sage Publications; 2005:191–215.
40. **Valenzuela S, Puente S, Flores PM**. Comparing disaster news on twitter and television: An intermedia agenda setting perspective. *J Broadcast Electron Media*. 2017;61(4):615–637.
41. **Takahashi B, Tandoc EC, Carmichael C**. Communicating on twitter during a disaster: An analysis of tweets during Typhoon Haiyan in the Philippines. *Comput Human Behav*. 2015;50:392–398.
42. **Alam F, Ofli F, Imran M**. CrisisMMD: Multimodal twitter datasets from natural disasters. *Proceedings of the International AAAI Conference on Web and Social Media*. 2018;12(1):465–473.
43. **Mendoza M, Poblete B, Castillo C**. Twitter under crisis: Can we trust what we RT? *SOMA 2010 - Proceedings of the 1st Workshop on Social Media Analytics*. 2010:71–79.
44. **Çanakçı M, Şaşmazlar C, Öztürk S**. Afet ve kriz yönetiminde sosyal medyanın kullanımı üzerine bir araştırma: Twitter örneği. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi*. 2022;11(3):882–897.
45. **Sallan Gül S, Kahya Nizam Ö**. Doğal afetlerde sosyal medya kullanımı: 2023 Kahramanmaraş depremi özelinde twitter örneği. *İnsanat Sanat Tasarım ve Mimarlık Araştırmaları Dergisi*. 2023;3(1):140–165.
46. **Mavi EE**. Afet kriz yönetiminde medya: 30 Ekim 2020 İzmir depremi. *Karadeniz Teknik Üniversitesi İletişim Araştırmaları Dergisi*. 2020;10(2):31–53.
47. **Kusumasari B, Prabowo NPA**. Scraping social media data for disaster communication: How the pattern of Twitter users affects disasters in Asia and the Pacific. *Nat Hazards*. 2020;103(3):3415–3435.
48. **Marwick AE, Boyd D**. I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media Soc*. 2010;13(1):114–133.
49. **Burnap P, Rana OF, Avis N**, et al. Detecting tension in online communities with computational Twitter analysis. *Technol Forecast Soc Change*. 2015;95:96–108.
50. **Jung K, Park HW**. Tracing interorganizational information networks during emergency response period: A webometric approach to the 2012 Gumi chemical spill in South Korea. *Gov Inf Q*. 2016;33(1):133–141.
51. **Panagiotopoulos P, Barnett J, Bigdeli AZ**, et al. Social media in emergency management: Twitter as a tool for communicating risks to the public. *Technol Forecast Soc Change*. 2016;111:86–96.
52. **Dwarakanath L, Kamsin A, Rasheed RA**, et al. Automated machine learning approaches for emergency response and coordination via social media in the aftermath of a disaster: A Review. *IEEE Access*. 2021;9:68917–68931.
53. **Zincir O, Yazıcı S**. Kriz yönetimi ve afetlerde sosyal medya kullanımı. *İstanbul Üniversitesi Siyasal Bilgiler Fakültesi Dergisi*. 2013;49:65–82.
54. **Doğuş O**. Twitter verisi ile doğal afet müdahale süreci için karar destek uygulaması. *J Disaster Risk*. 2022;5(2):408–419.
55. **Zeimpekis V, Ichoua S, Minis I**. *Humanitarian and relief logistics: Research issues, case studies and future trends*. Springer; 2013.
56. **Gao H, Barbier G, Goolsby R**. Harnessing the crowdsourcing power of social media for disaster relief. *IEEE Intell Syst*. 2011;26(3):10–14.
57. **Cameron MA, Power R, Robinson B**, et al. Emergency situation awareness from twitter for crisis management. *WWW'12 - Proceedings of the 21st Annual Conference on World Wide Web Companion*. 2012:695–698.
58. **Ullah I, Khan S, Imran M**, et al. RweetMiner: automatic identification and categorization of help requests on twitter during disasters. *Expert Syst Appl*. 2021;176:114787.
59. **Simon T, Goldberg A, Adini B**. Socializing in emergencies—a review of the use of social media in emergency situations. *Int J Inf Manage*. 2015;35(5):609–619.
60. **Martínez-Rojas M, Pardo-Ferreira M del C, Rubio-Romero JC**. Twitter as a tool for the management and analysis of emergency situations: A systematic literature review. *Int J Inf Manage*. 2018;43:196–208.
61. **Karmegam D, Ramamoorthy T, Mappillairajan B**. A Systematic review of techniques employed for determining mental health using social media in psychological surveillance during disasters. *Disaster Med Public Health Prep*. 2020;14(2):265–272.
62. **MacIsaac W, Hilyard K, Freimuth V**. Blog functions as risk and crisis communication during hurricane Katrina. *J Comput Mediat Commun*. 2009;15(1):1–31.
63. **Qu Y, Huang C, Zhang P**, et al. Microblogging after a major disaster in China. *Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW*. 2011:25–34.
64. **Neubauer G, Rösner L, Rosenthal-Von Der Pütten AM**, et al. Psychosocial functions of social media usage in a disaster situation: a multi-methodological approach. *Comput Human Behav*. 2014;34:28–38.

65. **Vevea NN, Littlefield RS, Fudge J**, et al. Portrayals of Dominance: Local newspaper coverage of a natural disaster. *Visual Communication Quarterly*. 2011;**18**(2):84–99.
66. **Mortensen TM, Hull K, Boling KS**. Really social disaster: An examination of photo sharing on twitter during the #SCFlood. *Vis Commun Q*. 2017;**24**(4):219–229.
67. **Aladwani AM**. Facilitators, characteristics, and impacts of Twitter use: Theoretical analysis and empirical illustration. *Int J Inf Manage*. 2015;**35**(1):15–25.
68. **Landwehr PM, Wei W, Kowalchuck M**, et al. Using tweets to support disaster planning, warning and response. *Saf Sci*. 2016;**90**:33–47.
69. **Carley KM, Malik M, Landwehr PM**, et al. Crowd sourcing disaster management: The complex nature of Twitter usage in Padang Indonesia. *Saf Sci*. 2016;**90**:48–61.
70. **Laylavi F, Rajabifard A, Kalantari M**. Event relatedness assessment of twitter messages for emergency response. *Inf Process Manag*. 2017;**53**(1): 266–280.