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EVALUATION OF KAHRAMANMARAŞ CENTERED EARTHQUAKE IN TÜRKİYE IN TERMS OF DISASTER CRISIS MANAGEMENT: THE CASE OF AFAD X (TWITTER)

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Abstract

The study aims to measure the effectiveness of AFAD's X account and to determine the role of social media in providing accurate information and coordination. In the study, tweets sent by AFAD between 01 January 2023 and 05 March 2023 are divided into periods before and after the earthquake. The tweets sent before and after the earthquake were compared. After the earthquake on February 6, 2023, it was discovered that AFAD's official X account actively communicated information and warnings. It has been established that the content sharing covers examples of solidarity, search and rescue operations, the number of individuals missing, shelter requirements, and evacuation management. Active use of social media accounts is important in disaster management. AFAD's X account can contribute to obtaining more information on pre-disaster preparedness. Analysis of trending words in post-earthquake communication strategies can be used to provide necessary information for disaster management and response.

Keywords: Disaster, Disaster Management, Social Media in Disasters, Twitter, Use of Social Media
JEL Classification: H84, S54

TÜRKİYE'DE MEYDANA GELEN KAHRAMANMARAŞ MERKEZLİ DEPREMİN AFET KRİZ YÖNETİMİ AÇISINDAN DEĞERLENDİRİLMESİ: AFAD X (TWİTTER) ÖRNEĞİ

Öz

Bu çalışma, AFAD'ın X hesabının etkinliğini ölçmeyi ve sosyal medyanın doğru bilgi ve koordinasyon sağlamadaki rolünü belirlemeyi amaçlamaktadır. Çalışmada AFAD tarafından 01 Ocak 2023 ile 05 Mart 2023 tarihleri arasında gönderilen tweetler deprem öncesi ve sonrası olarak dönemlere ayrılmıştır. Deprem öncesi ve sonrasında atılan tweetler karşılaştırılmıştır. AFAD'ın resmi X hesabından 6 Şubat 2023'te meydana gelen depremin ardından aktif olarak bilgi ve uyarı paylaşımında bulunulduğu tespit edilmiştir. Paylaşılan içeriklerin dayanışma örnekleri, arama kurtarma çalışmaları, kayıp kişi sayısı, barınma ihtiyaçları ve tahliye yönetimini kapsadığı tespit edilmiştir. Afet yönetiminde sosyal medya hesaplarının aktif kullanımı önemlidir. AFAD'ın X hesabı afet öncesi hazırlık konusunda daha fazla bilgi edinilmesine katkı sağlayabilir. Deprem sonrası iletişim stratejilerinde trend kelimelerin analizi, afet yönetimi ve müdahalesi için gerekli bilgileri sağlamak için kullanılabilir.

Anahtar Kelimeler: Afet, Afet Yönetimi, Afetlerde Sosyal Medya, Twitter, Sosyal Medya Kullanımı
JEL Sınıflandırması: H84, S54

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1. INTRODUCTION

Social media platforms such as Facebook and Twitter (Twitter will be referred to as X in the following sections) have increased in popularity in recent years (Reuter & Spielhofer, 2017; Ristić Dedić et al., 2023; Zhang et al., 2019; Zhang et al., 2011)and are now used not only for personal use but also by organizations, governments, companies, and media organizations to share information and support corporate goals (Domalewska, 2019; Houston et al., 2015; Kannis-Dymand et al., 2015; Muniz-Rodriguez et al., 2020; Wright & Hinson, 2008). Additionally, social media tools can make significant contributions to interpersonal communication in disaster or extraordinary situations (Yıldız & Demirhan, 2016). Rapid and accurate dissemination of information is an important requirement in emergencies (Muniz-Rodriguez et al., 2020). In this context, X is among the social platforms that are frequently preferred in emergencies due to its direct and fast communication structure (Henríquez-Coronel et al., 2019; Mızrak, 2024; Reuter & Spielhofer, 2017; Yates & Paquette, 2011; C. Zhang et al., 2019). X has become an area that is used extensively in disasters (Saleem et al., 2014; Topno, 2016; Yates & Paquette, 2011). X is an online social network with more than 300 million monthly active users (Al-Qurishi et al., 2015; Jo Dixon, 2023). This platform offers a huge real-time source of user-generated content (Cagliero et al., 2013; Fajardo et al., 2014; Liu et al., 2017). It is also thought that tweets strengthen communication and solidarity in emergencies and stimulate social movements (Figueiredo & Jorge, 2019; Muralidharan et al., 2011). Another important feature of X is its real-time nature (Ramakrishnan et al., 2022; Xiao et al., 2015). For example, when there is an earthquake, people send many X posts about the earthquake, allowing the information that there is an earthquake to spread very quickly (Ranjit et al., 2020; Sakaki et al., 2010). In particular, research indicates that X can be valuable for quickly assessing damage during large-scale disasters such as natural disasters (Vieweg et al., 2010). X is of great importance in terms of disaster and crisis management (Gray et al., 2016; Seddighi et al., 2020). X can enable rapid information sharing (Li et al., 2018) and assessment of damage (Eshghi & Schmidtke, 2018) during emergencies (Martínez-Rojas et al., 2018; Seddighi et al., 2020). However, X sometimes relies on individual users as an unprofessional social media platform (Oldemburgo de Mello et al., 2024), which can lead to (Oh et al., 2010) misinformation (Saxena et al., 2023), rumors (Kumar & Sinha, 2021), and even propaganda (Guarino et al., 2020). For this reason, it is vital to obtain accurate information from reliable sources in disaster and crisis situations (Steelman et al., 2015). The sooner it is understood how society is affected by disaster and crisis situations and which needs to arise, the faster and more accurately the interventions, plans, and steps to be taken for disaster and crisis management can be carried out (Çanakçi et al., 2022). The Disaster and Emergency Management Presidency (AFAD) plans, directs, supports, coordinates, and implements activities for the purpose of preventing and mitigating disasters in Türkiye, responding, and completing post-disaster work quickly (AFAD, 2023).

The structure regarding disaster management in our country was determined by the "Law No. 5902 on the Organization and Duties of the Disaster and Emergency Management Presidency" enacted in 2009 (Law No: 5902). With this law, the Disaster and Emergency Presidency (AFAD) was established and authorities and responsibilities in disaster management were determined. With the transition to the presidential system in 2018, the Disaster and Emergency Presidency was connected to the Republic Türkiye Ministry of Interior. Its legal basis is the Presidential Decree No. 4 "On the Organization of Institutions and Organizations Affiliated, Related, Associated to Ministries and Other Institutions and Organizations" published in 2018 (Resmi Gazete, 2009, 2018). When looking at disaster management policies before 2009, it is seen that there were more reactive policies and that importance was given to crisis management. However, the steps taken when disasters occurred showed that disasters could not be managed by focusing on crisis management. With the Marmara earthquake in 1999, integrated disaster management gained its modern structure with the changing and developing policies from a reactive policy to a proactive understanding (AFAD, n.d.).

Integrated disaster management has been defined by the Disaster and Emergency Management Presidency as "a management process that takes into account all hazards in order to create a durable and resilient society that can cope with disasters, and that can carry out the work and precautions that need to be taken in the prevention, damage reduction, preparation, intervention and recovery stages of disaster management by using all the power and resources of the society; integrated disaster management" (AFAD, 2014). Integrated disaster management consists of disaster risk and crisis management processes that cover all processes before, during and after the disaster. In this context, integrated disaster management consists of mitigation, preparedness, response and recovery phases (Abid et al., 2021; Coppola, 2015, pp. 12–15). It is expected that the disaster management model will be within the framework of the participation, cooperation, coordination and ability to work together of all actors and stakeholders. "Disaster management", which constitutes the basic activity areas of the public administration, expects institutions and individuals to fulfill their responsibilities (Karaman, 2016; Özer, 2017).

In times of disasters such as earthquakes, AFAD can use social media for purposes such as responding to disasters, informing the public, and ensuring coordination. Social media is a very important tool to communicate with the citizens of the region where the disaster occurred, to determine the extent of the damage, and coordinating the disaster response teams. AFAD provides citizens with access to accurate information by sharing up-to-date information on social media platforms such as X, Facebook, and Instagram. In addition, AFAD also shares informative content on what citizens should do in an emergency. In this way, citizens can be more prepared in times of disaster by accessing the right information, and the recovery process after the disaster can be accelerated. In his research, Demirhan found that X (twitter) tags were effective in getting news from the earthquake region and information about the earthquake effects (Demirhan, 2024). In his research, Ata determined that the use of X (twitter) has the functions of informing, warning, taking precautions and requesting (Ata, 2023). On the other hand, Memiş and Babaoğlu state in their research that the use of technology in disasters and emergencies provides effective management opportunities (Memiş & Babaoğlu, 2020).

Within the scope of the study, X shares, content analysis, and interactions of AFAD in the earthquake that developed in Kahramanmaraş on February 6, 2023, and affected 11 provinces were examined, and an attempt was made to seek answers to the following questions.

1.What are the prominent issues in AFAD's informing the public through social media?

2.How much interaction did AFAD's X posts receive?

3.How can the role of AFAD be defined in informing the public before and after the earthquake?

The study aims to measure the effectiveness of AFAD's use of social media and to determine the role of social media in ensuring correct information and coordination. It has been observed that the studies examining the content of the posts made by the institutions-organizations responsible for the disaster management systems of the nations on their official social media accounts in disaster situations are limited. Therefore, it is accepted that this study is important in terms of filling the gap in the literature and preparing the ground for future studies, which increases the original value of the study.

2. METHODS

2.1. Population and Sample of the Study

Since the aim of the research was to evaluate the tweets sent during the earthquakes in Kahramanmaraş, the tweets taken from the one-month periods before and after the earthquake, using

the purposive sampling method, formed the sample of the study. It has been observed that the twitter account of the Disaster and Emergency Management Presidency was created in 2011 and contains many tweets. The X username of the AFAD account is as follows: @AFADBaskanlik. Purposive sampling enables in-depth research by selecting information-rich situations for a specific purpose of the research. This method is preferred when it is necessary to examine special cases with certain characteristics (Koç Başaran, 2017).

2.2. Validity and Reliability of the Study

Obtaining the data of the study from the official institution account is thought to increase the validity of the data. In this context, in qualitative research, reporting the obtained data in detail and explaining how the researcher obtained the results is considered an important criterion to ensure validity. The findings collected in the study were reported in detail and were carried out by two researchers together to have different coders encode the same text in the same way. Additionally the same coder recoded the data at different times. Categories were created by determining criteria for content analysis of tweets and these categories were created separately by researchers. Similar results were obtained by comparing the selected categories and the disagreements were resolved by consensus (Doğan & Tok, 2018). In the process of coding the data and creating the categories, the full participation of researchers and expert support are considered factors that increase reliability. In addition, it has been evaluated that the systematic implementation of the reporting process in accordance with scientific standards contributes to the validity of the study.

2.3. Data Collection and Analysis

The researchers completed the data collection phase by downloading the tweets shared between 01 January 2023 and 05 March 2023 from the Disaster and Emergency Management Presidency X account. The data obtained are divided into pre- and post-earthquake periods. In the study, the content analysis and interactions of AFAD's tweets before and after the earthquake, which developed in Kahramanmaraş on February 6, 2023, and affected 11 provinces, are examined. The tweets on the X account of the Disaster and Emergency Management Presidency in the two-month period between 01 January 2023 and 05 March 2023 were examined. A comparison and evaluation of the tweets sent in the one-month period before the earthquake and the one-month period after the earthquake were made. Content analysis technique was used to analyze the data obtained during the research process. Content analysis is a method used for qualitative data analysis and helps to understand concepts and relationships so that data can be explained. This method enables the development of a comprehensive understanding of the research topic through the systematic examination and interpretation of the data obtained (Yıldırım & Şimşek, 2016). The content analysis method is one of the qualitative research methods and it is a research technique that provides an objective, systematic, and quantitative description of written open content. This method is frequently preferred for the analysis of messages and media content, especially in communication studies (Berelson, 1971). There are studies in the literature that use content analysis of tweets during crises (Demirhan, 2021; Tan Gülcan & Bayram, 2021). Tweets were scanned and coded by researchers using manual coding, a content analysis method. The MAXQDA 2022 data analysis program was used to code the qualitative data. After the coding, categories and themes were finalized. These codings were cross-checked by two researchers. After the final decision on the codes was made, the categories were created and the category-creation process was carried out with the support of experts in qualitative research. After the categories were determined, the themes were derived and the data were interpreted and reported. In addition, a brief evaluation of the quantitative data was made within the scope of the study. The tweets obtained in this context; Frequency features such as number of retweets, number of likes and number of views, and significance levels before and after the earthquake were evaluated using the IBM SPSS 25.0 (Statistical Package for the Social Sciences) package program. The distribution of the tweets over time was analyzed with the Microsoft Excel program. In the analysis of qualitative data, the MAXQDA 2022 data analysis program was used. Since one dimension of the

research was designed in a qualitative design, research questions were created based on an inductive structure and analyses were made within this framework. Hypotheses for quantitative research data:

Hypothesis 1: The number of retweets increases in the post-disaster period compared to the pre-disaster period.

Hypothesis 2: The number of likes increases in the post-disaster period compared to the pre-disaster period.

Hypothesis 3: The number of views increases in the post-disaster period compared to the pre-disaster period.

2.4. Inclusion-Exclusion Criteria and Ethical Dimension for Research

The tweets sent between 6.02.2023 and 13.02.2023 regarding the earthquake that occurred on 6.02.2023 via AFAD's X account @AFADBaskanlik were evaluated. Only tweets posted by these accounts were included in the study. Comments and replies are excluded. The data used within the scope of the study has open access. The obtained data does not include personal information. The data set and its evaluation were examined by taking into account the Personal Data Protection Law. The study is not among the criteria requiring an ethics committee permit. Therefore, an ethics committee permit was not required.

2.5. Accessed Tweet Links

The data of the study was obtained from the account "@AFADBaskanlik: https://twitter.com/AFADBaskanlik".

2.6. Limitations of the Study

This study was carried out on the data between 01 January 2023 and 05 March 2023. However, it has been taken into account that data taken in different time periods or periods may affect the results. This situation was considered as the limitation of the study.

3. RESULTS

When the frequencies of the number of retweets, likes and images on AFAD's official X address are analyzed in a certain time period, the Retweet numbers between 4-42733 values with an average of 1519.89±3900.32, the number of likes with an average of 4429.66±7897.28 between 32-62170 values and it is seen that the number of views varies between 8775-12443051 values with an average of 722456.29±1376894.85 (Table 1).

Table 1. AFAD X page frequency distribution characteristics (Source: Created by the authors)

	Mean	Min.	Max.	sd
Number of Retweets	1519.89	4	42733	3900.32
Number of Likes	4429.66	32	62170	7897.28
Views	722456.29	8775	12443051	1376894.85

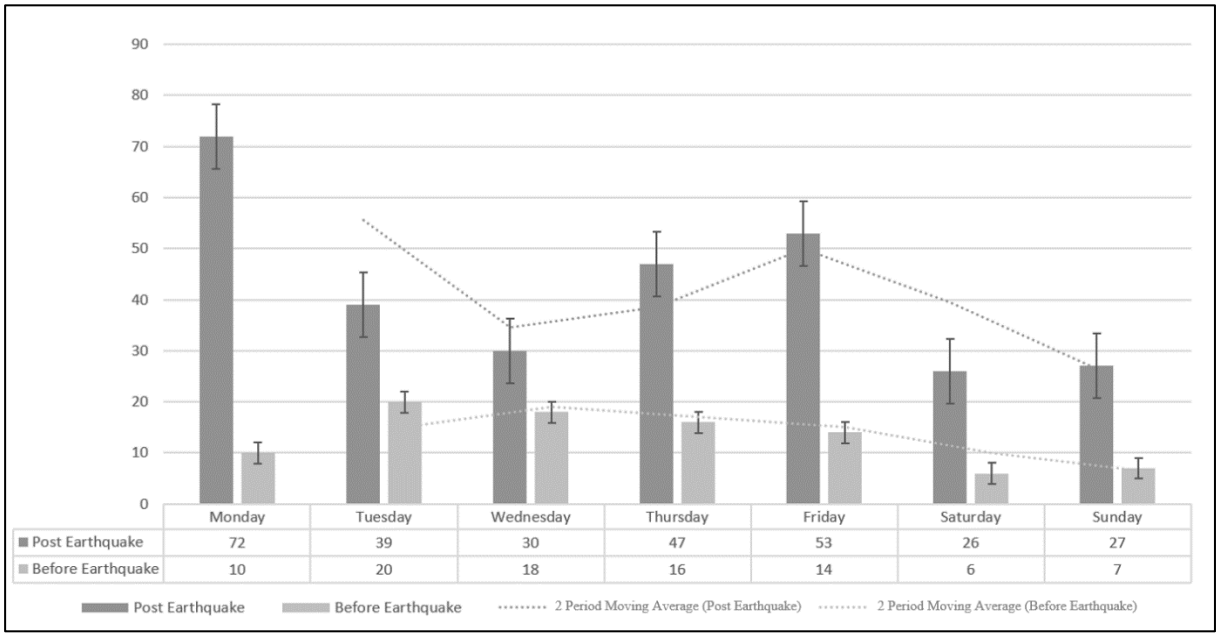
There was a statistically significant difference between the groups (before/after the earthquake) in terms of the number of retweets ($p<0.05$). After the earthquake, the number of retweets is significantly higher. There is a statistically significant difference between the groups (before/after the earthquake) in terms of the number of ratings ($p<0.05$). After the earthquake, the number of likes is significantly higher. There was a statistically significant difference between the groups (before/after the earthquake) in terms of the number of images ($p<0.05$). After the earthquake, the number of images is significantly higher (Table 2).

Table 2. Differentiation between groups (Source: Created by the authors)

		Group		t-test	
		Mean	sd	t	*p*
Number of Retweets	After the Earthquake	1747.47	3845.12	1.94	0.043*
	Before the Earthquake	871.27	4002.34		
Number of Likes	After the Earthquake	5413.01	8201.98	4.815	0.001*
	Before the Earthquake	1627.13	6181.26		
Views	After the Earthquake	851418.35	1433673.83	3.138	0.002*
	Before the Earthquake	354914.41	1128216.08		

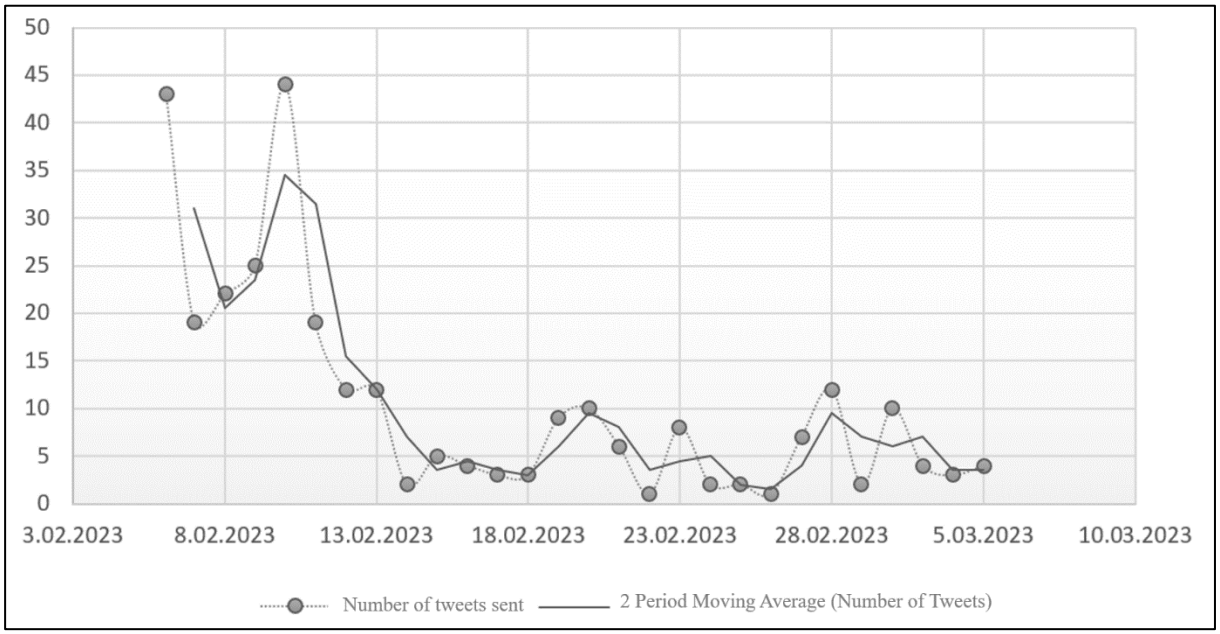
*$p<0.05$

When Graph 1 is examined, it is seen that most tweets were posted on Tuesday before the earthquake, and most tweets were posted on Monday after the earthquake. When all days are evaluated, it has been determined that the number of tweets before the earthquake is always lower than the number of tweets after the earthquake.



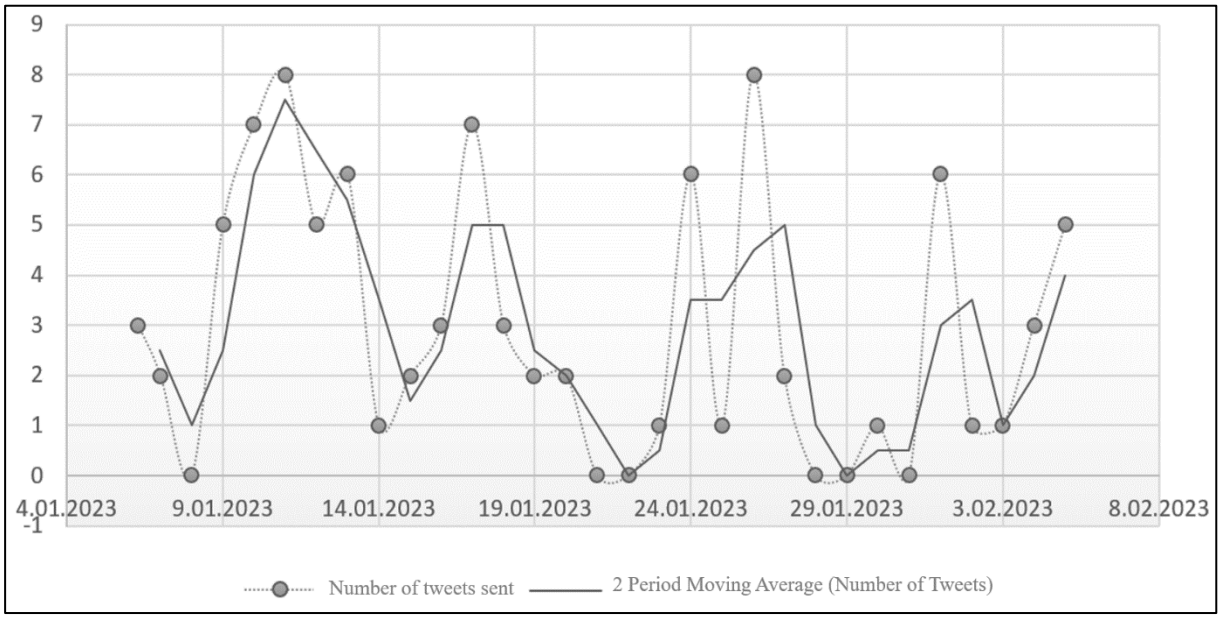
Graph 1. Distribution of tweets posted before and after the earthquake by days (Source: Created by the authors)

When Graph 2 is examined, it is seen that most tweets were posted between 06-13.02.2023 after the earthquake. It was observed that 44 tweets were sent on 10.02.2023, followed by 06.02.2023 (n=43) and 09.02.2023 (n=25), respectively. It was observed that the tweet density was high in the first week of the earthquake.



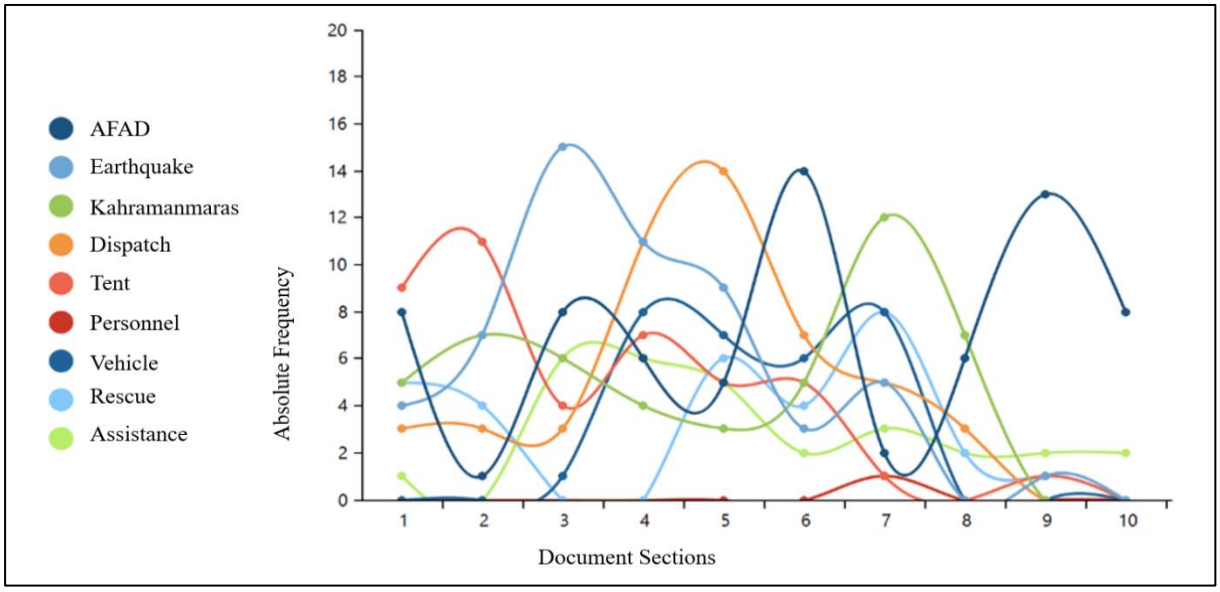
Graph 2. Historical distribution of tweets posted after the earthquake (Source: Created by the authors)

When Graph 3 is examined; it was observed that the most tweets were posted on 26.01.2023 (n=8) before the earthquake, followed by 10.01.2023 (n=7) and 17.01.2023 (n=7), respectively.



Graph 3. Historical distribution of tweets posted before the earthquake (Source: Created by the authors)

When Graph 4 is examined, it is seen that the words "AFAD, Earthquake, Kahramanmaraş, Dispatch, Tent, Personnel, Vehicle, Rescue, and Assistance" are the most trending words in terms of additives, respectively. In terms of document sections, it can be evaluated that the word earthquake is in the third part, the word dispatch is in the fifth part, and the word AFAD is trending in the sixth part.



Graph 4. Word trend for tweet contents (Source: Created by the authors)

3.1. Findings Related to Content Analysis of Tweets Posted Before and After the Earthquake

It has been observed that a large number of tweets were sent from the official X account of the Disaster and Emergency Management Presidency, provided that the contents were different in general before and after the earthquake. The themes created as a result of examining the tweet contents before and after the earthquake are given in Fig. 1.

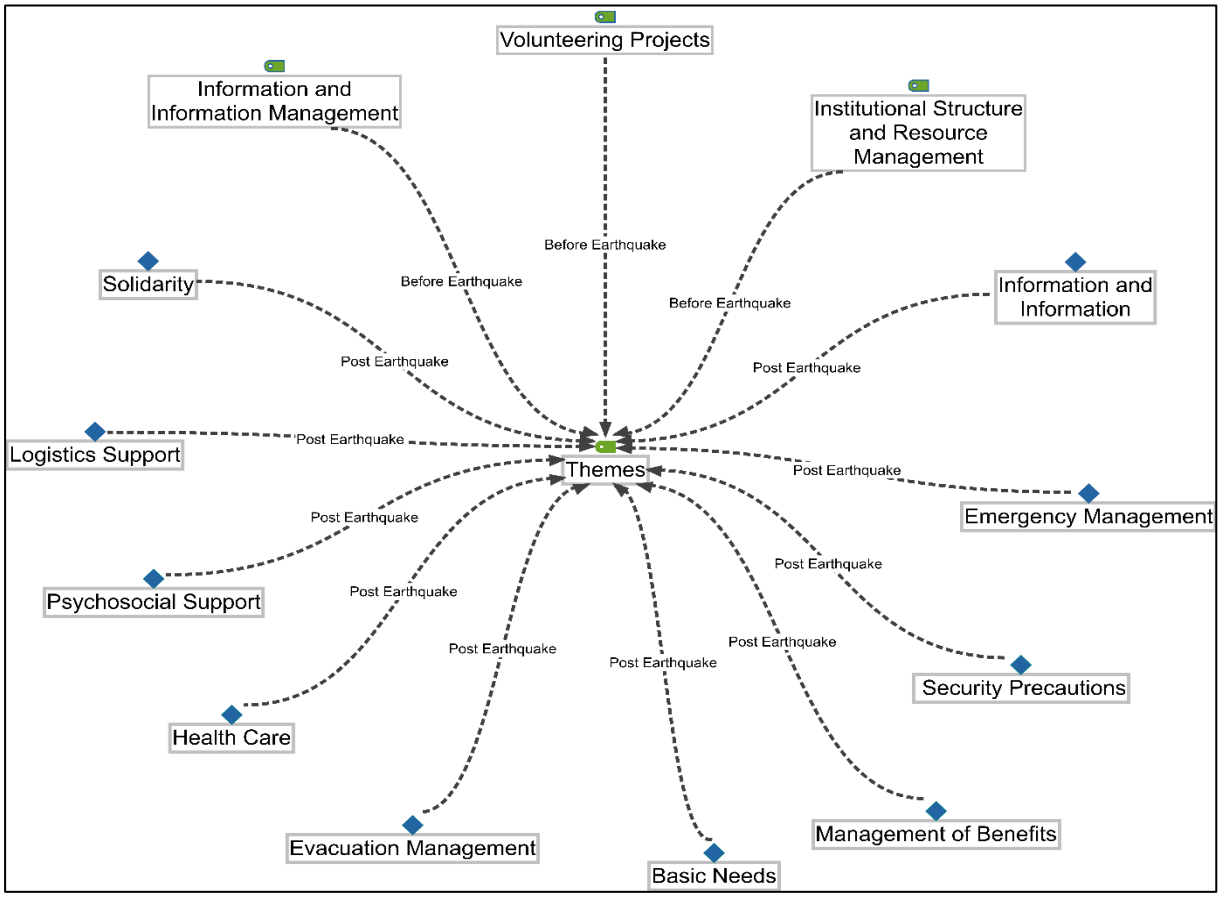


Fig.1. Themes created for tweet contents (Source: Created by the authors)

3.2. General Evaluation of the Contents of Tweets Shared After the Earthquake

The Disaster and Emergency Management Presidency shared content intensively on its official X account after the earthquakes that occurred on February 6, 2023. It has been evaluated that these shares are made for general information and warning purposes. The intensity of the shared content includes the number of search and rescue personnel, the number of those who lost their lives, the number of injured, the status of the efforts to meet the shelter needs, examples of solidarity, aid announcements, evacuation management, explanations regarding the dissemination of false information, damage assessment studies, communication and coordination issues, psychosocial support services, nutrition, hygiene, food, safety, number of debris and transportation. It has been seen that these posts are very important in terms of directly meeting the needs of the disaster victims, eliminating uncertainties, informing the public correctly, and preventing the infodemic. In addition, it was evaluated that sharing the right information in disaster situations creates trust in society and contributes to the managers taking the right decisions. This content analysis can be used as a guide on which actions should be prioritized at which stages in similar disasters. Informative content identified may contribute to the preparation of emergency response teams in similar disaster situations in the future. As a result, the content sharing of the Disaster and Emergency Management Presidency on social media accounts is very important in terms of raising awareness about the management and response of disasters, informing society correctly, and providing confidence in cases of chaos. These posts have the potential to serve as a guide for similar disasters in the future and may contribute to the preparations for the emergency response teams and society. As a result of the analysis of the tweets posted after the earthquake, ten themes were created:

"Emergency Management, Security Measures, Information and Information Management, Aid Management, Basic Needs, Solidarity, Evacuation Management, Health Service, Psychosocial Support, Logistics Support".

3.2.1. Theme 1. Emergency Management

After the earthquake, it was seen that many volunteer search and rescue teams, especially national and international professional teams, took charge in the region. It has been evaluated that a large number of construction equipment and other necessary vehicles have been sent to the region to support search and rescue activities. It is stated that search and rescue teams were sent to the region by air, land, and sea. It has been determined that AFAD provides daily briefings on the work of search and rescue activities. Here are some selected tweet examples for this theme:

"*The search and rescue efforts of our teams in earthquake areas continue uninterruptedly."*

"*The search and rescue efforts of our #AFAD teams in Trabzon, Gümüşhane, Rize, Giresun, Bayburt, Uşak, Ordu, Tunceli, and our PAK, JAK, @AFAD_gonullu, UMKE, fire brigade, and NGO teams continue non-stop."*

"*All Provincial AFAD Directorates have been put on alert and all teams, especially search and rescue, have been sent to the region."*

3.2.2. Theme 2. Security Precautions

After the earthquake, it was seen that law enforcement officers were assigned to the region in order to close the general security gap and take the necessary precautions. In addition, it was evaluated that warnings were made by the authorities about taking individual security measures. It has been determined that announcements have been made that people should stay away from risky buildings. Here are some selected tweet examples for this theme:

"*In the region, teams of Mardin and Şanlıurfa province AFAD, security forces, UMKE, and non-governmental organizations continue their search and rescue efforts in the wreckage."*

"*Do not enter the damaged structures in the post-earthquake area."*

"*Don't be around risky buildings."*

3.2.3. Theme 3. Information and Information Management

It was seen that many informative tweets were shared by AFAD after the earthquake. It was observed that content was shared on many subjects such as evacuation, shelter, nutrition, search and rescue, and transfer of correct information. It has been determined that clear and easily understandable information is presented in the form of questions and answers under the title of the frequently asked question. In addition, it was evaluated that explanatory tweets were made against untrue information by warning that unfounded information could cause negative effects on society. Here are some selected tweet examples for this theme:

"*It is of great importance for our citizens not to give credence to unfounded information shared intentionally or unintentionally in various media, especially on social media, and to follow official sources for accurate information."*

"*After the aftershock with a magnitude of 5.0 that occurred in the Onikisubat district of Kahramanmaraş province, there is no negative situation as of now. Field scanning studies are*

continuing. We extend our best wishes to our affected citizens. We are following the developments."

3.2.4. Theme 4. Aid Management

After the earthquake, it was evaluated that aid materials and teams were sent to the region by many institutions and organizations, especially official institutions. It has been determined that volunteers are also an important stakeholder in aid efforts. It has been determined that aid activities are carried out in a wide range from shelter to nutrition and cash aid campaigns are organized. In addition, it has been determined that there is information about the cash support provided to the disaster victims. Here are some selected tweet examples for this theme:

"*Per Household Support Payment of 10.000 TL for our citizens affected by the earthquake; 1,025,204 earthquake victims have been transferred to our family accounts."*

"*All of Türkiye, we have become one heart, we are bandaging together the wounds… Our shelter, nutrition, and psychosocial support works in the earthquake-affected areas; it continues uninterruptedly with the support of all our relevant institutions, NGOs, and our beloved Nation."*

"*396 of the 10,000 life containers planned to be sent to the earthquake zone by the friendly and brotherly country #Qatar have arrived at Iskenderun Port. We would like to thank the benevolent people of Qatar for their support after the disaster of the century."*

3.2.5. Theme 5. Basic Needs

After the earthquake, there are data showing that activities were carried out to meet the basic needs of the disaster victims, and within this scope, needs such as food, dry food, blankets, tents, containers, hygiene materials, and bread were met. In addition, it has been seen that there are content sharings on the creation of social markets to meet the needs of the disaster victims, the distribution of tents, the creation of tent cities, and the container city process. Here are some selected tweet examples for this theme:

"*With the **Sosyal Market** we have created in Kahramanmaraş Container city areas, we meet all market needs such as food and hygiene products of our citizens, free of charge. We stand by our citizens with all our means…"*

"*We stand by our nation with all the means of our state… In the container cities we have established, we continue to create living spaces in line with the needs of our citizens, from nutrition services to health, from education to social facilities."*

3.2.6. Theme 6. Solidarity

After the earthquake, it was observed that various content was shared on social solidarity. Various aid campaigns and donation calls were made in order to heal the wounds of the earthquake together. Hopeful messages were given that the wounds would be healed with Türkiye's solidarity. Here are some selected tweet examples for this theme:

"*At AFAD Help Market, your support reaches the victims with one click; The wounds of the earthquake are being healed with the solidarity of Türkiye. Our support is in the basket, our hearts are in the disaster area…"*

"*Altogether the wounds of the earthquake; We embrace with solidarity... with cooperation... with unity of heart."*

3.2.7. Theme 7. Evacuation Management

After the earthquake, it was seen that various informative tweets were sent to evacuate the earthquake victims. In the tweets, topics such as how and how earthquake victims should be evacuated from the area, safe evacuation routes and issues to be considered in evacuation procedures were included. In addition, information was given on whether there would be any loss of rights in the event that individuals leave the region individually. Here are some selected tweet examples for this theme:

"*Our evacuations from the disaster area continue under the coordination of #AFAD. The total number of people who were evacuated by the gendarmerie and registered by applying to the Governor's Office and District Governorate in the province where they were evacuated by their own means; 1.971.589"*

"*Our 158.165 citizens in the earthquake zone were evacuated to other provinces."*

"*There is no loss of rights for our citizens who were evacuated from the earthquake zones by their own means or under the coordination of AFAD."*

3.2.8. Theme 8. Healthcare

Field hospitals established after the earthquake are temporary health facilities established to provide emergency health services to earthquake victims. It has been observed that information on the provision of health services in the field hospitals established after the earthquake was included. Here are some selected tweet examples for this theme:

"*With the field hospital established in the garden of Antakya Training and Research Hospital in cooperation with Hatay #AFAD @saglikbakanligi, we continue to provide health services to our citizens who survived the earthquake with injuries."*

"*4,212 personnel and 407 vehicles from our AFAD, Gendarmerie, Police, Ministry of Health, Fire Brigade, and Non-Governmental Organizations were assigned to participate in search and rescue efforts."*

3.2.9. Theme 9. Psychosocial Support

After the earthquake, it is extremely important to provide psychosocial support services to the people affected by the earthquake, especially the earthquake victims. In this context, it has been seen that explanatory information such as how many personnel and vehicles were sent to the region in order to provide psychosocial support services to earthquake victims, especially earthquake victims. Here are some selected tweet examples for this theme:

"*2,552 personnel and 384 vehicles were sent to the region for psychosocial support services."*

"*1.366 personnel and 106 vehicles were sent to the region for psychosocial support services."*

3.2.10. Theme 10. Logistics Support

Logistics services are of great importance in disasters, because logistics services are important in many vital issues such as delivering aid to disaster victims, providing necessary materials, and evacuating. In this context, it has been seen that informative content is shared in various ways from the official X account of AFAD. Here are some selected tweet examples for this theme:

"*Kahramanmaraş • Under the coordination of Elbistan #AFAD, we continue to deliver tents and aid materials to the earthquake-affected areas in cooperation with @gendarmerie. Türkiye all together!"*

"*We are increasing our AFAD logistics warehouse network, which includes basic shelter and living materials, for faster response to disasters, in order to meet the temporary shelter needs that may arise after disasters as soon as possible."*

3.3. General Evaluation of the Content of the Tweets Shared Before the Earthquake

In the one-month period before and on February 05, 2023, natural disasters in Türkiye and preparations for disasters, risk reduction activities, rescue and aid activities, AFAD volunteering projects, newly established union directorates, strengthening of institutional structures, and visits by authorities There have been many tweets about it. It has been stated that intervention studies are carried out in situations such as floods, flooding, roof flying, and tree falling, especially caused by excessive precipitation. It was reminded that citizens should be careful and cautious against natural disasters. It can be said that these tweets emphasize the importance of the work done against natural disasters and contribute to the awareness of citizens on this issue. As a result of the analysis of the tweets posted before the earthquake, three themes were created: "Information and Information Management, Institutional Structure and Resource Management, and Volunteering Projects".

3.3.1. Theme 1. Information and Information Management

Before the earthquake, it was seen that many informative tweets were sent on topics such as earthquakes, floods, floods, and weather conditions. Information activities carried out before natural disasters such as earthquakes, floods, floods, and weather conditions can ensure that people are prepared and protected from possible risks. Here are some selected tweet examples for this theme:

"*We strongly remind our citizens to be careful against negativities such as disruptions in transportation, icing, and frost in high areas, and snowfall in the form of snow with strong winds."*

"*Heavy snowfall is expected in the provinces of Adıyaman, Batman, Bingöl, Bitlis, Diyarbakır, Elazığ, Erzincan, Erzurum, Hakkari, Malatya, Muş, Siirt, Şırnak, Tunceli, and Van."*

"*The #earthquake that occurred in our Sivrice district of Elazığ province was felt in Malatya and surrounding provinces, especially in Elazığ, and there were no negative reports in the field scans. We extend our best wishes to our affected citizens once again."*

3.3.2. Theme 2. Institutional Structure and Resource Management

It was seen that some of the tweets posted by AFAD before the earthquake were related to the measures to be taken and the methods to be applied within the scope of combating natural disasters. In these tweets, it was determined that issues such as resource management and coordination in disasters, the establishment of union directorates, and fulfilling legal responsibilities were mentioned. In addition, the workshop topics regarding the steps to be followed in order to minimize the possible damages in disasters are also emphasized in the tweets. Here are some selected tweet examples for this theme:

"*With Disaster and Emergency Centers, which provide speed and efficiency in disaster management processes, resources are used much more efficiently and economically. Within the scope of the workshop, many topics such as the duties and authorities of the Centers and the distribution of authority among institutions will be evaluated."*

"*We are even stronger with our newly established Union Directorates for rapid and effective response in case of disaster. Our President Mr. @Yunus_Sezer_ visited our Rize Provincial Directorate and got information about the ongoing works; met with our newly recruited staff."*

"*The EU Civil Protection Mechanism, of which our country is a member, "Lessons Learned from the 2022 Forest Fire Season Workshop" was held online."*

3.3.3. Theme 3. Volunteering Projects

It has been seen that tweets related to volunteering projects were sent as thin as the tweets posted by AFAD. AFAD volunteer projects make an important contribution to preparedness activities against natural disasters. These projects enable citizens to be prepared for natural disasters and acquire the necessary knowledge and skills to mitigate the effects of natural disasters. Here are some selected tweet examples for this theme:

"*Do something, let it be good But always have good things… With our AFAD Volunteers, who have reached 623,281 people, we continue to touch lives and make life beautiful. Now be an AFAD Volunteer, volunteer for goodness!"*

The "*Muhtars Become Support AFAD Volunteers" project, is aimed to increase AFAD Volunteering in 81 provinces and to receive the support of headmen in disasters.*

"*Completing online and field pieces of training with the participation of district governors from 18 districts; Certificates were presented to 203 Support AFAD Volunteers and 273 Muhtars."*

4. DISCUSSION AND CONCLUSION

In disasters and emergencies, it has been observed that institutions and citizens frequently use social media networks and mass media in order to obtain information, collect aid and provide access(Demirhan, 2024; Tarakçı, 2023). In the study carried out in this context, the findings of the tweets posted from the X account of the Disaster and Emergency Management Presidency regarding the earthquakes dated 06 February 2023 were discussed.

In the study, when the frequencies of the number of retweets, likes and images of the AFAD official X account are examined, the average number of retweets is between 1519.89±3900.32, the average number of likes is between 4429.66±7897.28, and the number of views is 722456.29±1376894 on average. In the study, it was seen that the interaction in AFAD's official account (X) was greater after the earthquake. This shows that AFAD uses its social media account effectively in extraordinary situations. It was evaluated that the highest interaction was on Tuesday before the earthquake, and on Monday after the earthquake. It was determined that the tweet density was high in the first week. It has been determined that the date of the most intense tweets on AFAD's official X account was 26.01.2023 before the earthquake, followed by 10.01.2023 and 17.01.2023, respectively. In a study on the Izmir earthquake, it was stated that the density of tweets posted immediately after the earthquake was higher, and therefore, the highest amount of information flow occurred right after the earthquake [45].In a study, it was stated that approximately 150 thousand tweets were sent in a short period of about 10 hours after the earthquake in California (Kebabcı, 2015). In a study conducted in Türkiye, it was determined that 1818 different authors made 3758 posts with the hashtags #ManavgatYaniyor, #MarmarisYaniyor or #MilasYaniyor within 1 hour (Doğuç, 2022). It has been evaluated that the tweets of AFAD's X account are actively followed by the people, and the shares are of great interest. In this case, it can be said that

it highlights the importance of social media in disasters and the social impact of rapid information flow. Twitter hashtags, retweets and likes are considered important in creating and gathering calls for help in the post-disaster period (Demirhan, 2024, p. 442). It has been seen that it is important for disaster managers and relevant units to actively use their social media accounts and to inform the public accurately and quickly. However, in our study, it can be stated that the difference in the days of the most intense tweets before and after the earthquake may be under the influence of various factors. It has been observed that AFAD tweeted intensively in the pre-earthquake period. This situation is considered to indicate that AFAD aims to raise awareness about disasters and inform the public. It is thought that determining the factors affecting the use of social media can play an important role in the creation of AFAD's social media strategies. In addition, it can be stated that regular follow-up of AFAD's X account can contribute to obtaining more information on pre-disaster preparedness issues.

In the study, it was determined that the words such as AFAD, earthquake, Kahramanmaraş, dispatch, tent, personnel, vehicle, rescue, and assistance were trending among the analyzed tweets. In addition to these, it was seen that the word earthquake in the third part, the word dispatch in the fifth part, and the word AFAD in the sixth part were trending. In a study about the earthquake that occurred in Izmir; In the word cloud created by the researchers, it was stated that the phrase "get well soon" constitutes the most frequently used binary word group, and the phrase "get well soon Izmir" constitutes the most frequently used triple word group (Ağrali et al., 2023). It was stated that the ten most frequently used words among the high-priority tweets tagged in the Nepal earthquake were “people, injured, least, killed, trapped, avalanche, Everest, dead, hits, breaking” (Kebabcı, 2015). In a study conducted in Türkiye, it was evaluated that the tags for calls for help, declaration of a state of emergency, and disaster zones were among the most frequently used tags in the statistical distribution of tweets (Mendoza et al., 2019). It is considered important to determine the trending words in the post-earthquake communication strategies of the Disaster and Emergency Management Presidency. It can be argued that trending words can inform about the resources and tools needed for disaster management and response.

In the study, the Disaster and Emergency Management Presidency shared content intensively on its official X account after the earthquakes that occurred on February 6, 2023. Shares have been made for general information and warning purposes. Among the shared contents are the number of search and rescue personnel, the number of those who lost their lives, the number of injured, the status of the efforts to meet the shelter needs, examples of solidarity, aid announcements, evacuation management, explanations regarding the dissemination of false information, damage assessment studies, communication and coordination issues, psychosocial support services, nutrition, hygiene, food, safety, number of debris and transportation. In the study; it was seen that AFAD's official X account made many tweets in the one-month period before and on February 05, 2023, to emphasize the importance of the work done against natural disasters. It was stated that intervention works were carried out in situations such as flooding, flooding, roof blowing, and tree falling caused by excessive precipitation, and it was reminded that citizens should be careful and cautious. In a study conducted in China, X is used as an effective news source during disasters and major events. However as X use increases during disasters, some questions arise about providing accurate information. Questions such as whether only disaster news is shared on X, and how to be sure of the accuracy of the information are important (Oh et al., 2010). According to a study conducted in 2010, there was evidence of a relationship between the number of tweets and the intensity of the earthquake (Mendoza et al., 2019). In a study dealing with the Tohoku Earthquake, it was determined that there was a high correlation between the number of tweets sent during the earthquake in Tohoku in 2011 and the regions where the earthquake was intense (Doan et al., 2012). In a study on the COVID-19 pandemic; it has been mentioned that the posts of the Minister of

Health during the COVID-19 pandemic process play an active role in reaching many people with high interactions, therefore, the importance of creating an environment of trust by using social media effectively on the basis of the obligation of the public administration to provide information (Bilgiç et al., 2020). In a study dealing with the Izmir earthquake; it has been stated that the posts made by the Izmir mayor on X for the repair of the damages caused by the Samos earthquake were effective in the collection of aid in a short time (Renci, 2022). In a study about the Aegean Sea Earthquake; it was emphasized that after the Samos earthquake that took place in Izmir, AFAD sent informative tweets about the need for shelter and shared warning tweets about not entering damaged houses and that the public authority aimed to create an environment of trust with these tweets (Dearstyne, 2005). In a study on the use of social media in disaster and crisis management, it was stated that after the Elazig earthquake, AFAD informed the public using X to ensure that crisis communication could be uninterrupted and sustainable, and citizens shared information through different social media applications (Çanakçi et al., 2022). In his research, Aşan emphasizes that the use of social media is an important tool in disaster management, but it should be used in a controlled manner (Aşan, 2024).

In another study, it was stated that sharing inaccurate or incomplete information in disaster situations may cause undesirable results . In a study on tweets shared during Hurricane Sandy, it was evaluated that early detection of the spread of false or malicious content in disaster situations can be a very difficult process (Gupta et al., 2013). In a study conducted in Nepal, it was stated that the majority of tweets sent about a week after the disaster was related to confirming or denying the accuracy of the news or rumors on social networks (Radianti et al., 2016). It has been determined that informative tweets covering topics such as natural disasters and disaster preparedness, risk reduction, rescue and relief activities, and strengthening institutional structures are regularly shared on AFAD's X account. Social media accounts of the Disaster and Emergency Management Presidency have been evaluated as an important tool in raising awareness and being prepared for disasters. It has been seen that the sharings are valuable in presenting accurate information by raising awareness about disaster management and response. It can be said that the data of our study are similar to the literature studies on disaster and emergency management. It can be stated that this situation increases the validity of your study and contributes to the results of the research.

In order to accurately and rapidly inform the public, disaster management, and pertinent units must frequently utilize their social media accounts. Individuals can follow AFAD on X on a daily basis to learn more about issues related to pre-disaster preparedness. Information about the tools and resources required for disaster management and response can be provided by analyzing trending phrases in order to decide on post-earthquake communication plans. The development of AFAD's social media strategies can benefit from identifying the elements influencing the use of social media. The social media profiles of AFAD are regarded as a crucial instrument for increasing public awareness and disaster preparedness. AFAD can include social media platforms such as X (Twitter) in its crisis communication protocols and develop strategic partnerships with these platforms.

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F G(%25): Methodology, Formal analysis, Investigation, Writing – review & editing.

E A(%20): Methodology, Formal analysis, Investigation, Writing – review & editing.

K T(%20): Methodology, Formal analysis, Investigation, Writing – review & editing.

E B(%20): Methodology, Formal analysis, Investigation, Writing – review & editing.

G U(%15): Methodology, Formal analysis, Investigation, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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Extended Abstract

Evaluation Of Kahramanmaraş Centered Earthquake in Türkiye in Terms Of Disaster Crisis Management: The Case Of AFAD X (Twitter)

Aim

The study aims to measure the effectiveness of AFAD's use of social media and to determine the role of social media in ensuring correct information and coordination. It has been observed that the studies examining the content of the posts made by the institutions-organizations responsible for the disaster management systems of the nations on their official social media accounts in disaster situations are limited. Therefore, it is accepted that this study is important in terms of filling the gap in the literature and preparing the ground for future studies, which increases the original value of the study.

Method

Since the aim of the research was to evaluate the tweets sent during the earthquakes in Kahramanmaraş, the tweets taken from the one-month periods before and after the earthquake, using the purposive sampling method, formed the sample of the study. The data of the study was obtained from the account "@AFADBaskanlik: https://twitter.com/AFADBaskanlik". Only tweets posted by these accounts were included in the study. Comments and replies are excluded. In the research process, document analysis was used as a data collection technique. Document analysis is a qualitative research method used to systematically examine the content of written documents. Content analysis technique was used to analyze the data obtained during the research process. Content analysis is a method used for qualitative data analysis and helps to understand concepts and relationships so that data can be explained. Tweets were scanned and coded by researchers using manual coding, a content analysis method. These codings were cross-checked by two researchers. After the final decision on the codes was made, the categories were created and the category-creation process was carried out with the support of experts in qualitative research. After the categories were determined, the themes were derived and the data were interpreted and reported. In addition, a brief evaluation of the quantitative data was made within the scope of the study. The tweets obtained in this context; Frequency features such as number of retweets, number of likes and number of views, and significance levels before and after the earthquake were evaluated using the IBM SPSS 25.0 (Statistical Package for the Social Sciences) package program. The distribution of the tweets over time was analyzed with the Microsoft Excel program. In the analysis of qualitative data, the MAXQDA 2022 data analysis program was used.

Findings

In disasters and emergencies, it has been observed that institutions and citizens frequently use social media networks and mass media in order to obtain information, collect aid and provide access. In the study, when the frequencies of the number of retweets, likes and images of the AFAD official X account are examined, the average number of retweets is between 1519.89±3900.32, the average number of likes is between 4429.66±7897.28, and the number of views is 722456.29±1376894 on average. In the study, it was seen that the interaction in AFAD's official account (X) was greater after the earthquake. This shows that AFAD uses its social media account effectively in extraordinary situations. It was evaluated that the highest interaction was on Tuesday before the earthquake, and on Monday after the earthquake. It was determined that the tweet density was high in the first week. It has been determined that the date of the most intense tweets on AFAD's official X account was 26.01.2023 before the earthquake, followed by 10.01.2023 and 17.01.2023, respectively. In the study, it was determined that the words such as AFAD, earthquake, Kahramanmaraş, dispatch, tent, personnel, vehicle, rescue, and assistance were trending among the analyzed tweets. In addition to these, it was seen that the word earthquake in the third part, the word dispatch in the fifth part, and the word AFAD in the sixth part were trending. In the study, the Disaster and Emergency Management Presidency shared content intensively on its official X account after the earthquakes that occurred on February 6, 2023. Shares have been made for general information and warning purposes. Among the shared contents are the number of search and rescue personnel, the number of those who lost their lives, the number of injured, the status of the efforts to meet the shelter needs, examples of solidarity, aid announcements, evacuation management, explanations regarding the dissemination of false information, damage assessment studies, communication and coordination issues, psychosocial support services, nutrition, hygiene, food, safety, number of debris and transportation. In the study; it was seen that AFAD's official X account made many tweets in the one-month period before and on February 05, 2023, to emphasize the importance of the work done against natural disasters.

Conclusion

After the earthquake on February 6, 2023, it was discovered that AFAD's official X account actively communicated information and warnings. It has been established that the content sharing covers examples of solidarity, search and rescue operations, the number of individuals missing, shelter requirements, and evacuation management. Active use of social media accounts is important in disaster management. AFAD's X account can contribute to obtaining more information on pre-disaster preparedness. Analysis of trending words in post-earthquake communication strategies can be used to provide necessary information for disaster management and response. AFAD's social media profiles are seen as an important tool for increasing public awareness and disaster preparedness.