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APRIL 23, 2025 EARTHQUAKE NEWS REVIEW ON THE SCIENTIFICITY

TÜRKİYE'DE AFET HABERLERİNİN BİLİMSELLİĞİ: 23 NİSAN 2025 İSTANBUL DEPREMİ ÖRNEĞİ

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Abstract
The role of media in times of disasters is not only limited to conveying information but also assumes a critical function in terms of risk communication, crisis management and protection of public health. Science journalism, on the other hand, increases science literacy and the public's capacity to develop informed behavior by providing understandable, accurate and reliable scientific information in disaster journalism. In this study, 197 news article titles between April 23 and April 30, 2025 on the news websites of Sabah, Yeni Şafak, Sözcü and Cumhuriyet printed newspapers with different ideologies following the 6.2 magnitude earthquake that occurred in Istanbul on April 23, 2025 were analyzed. Content analysis method was used in the study; coding was made in line with the criteria of using scientific sources, including scientific terms, and opinions of scientists. The findings reveal the importance of science in disaster periods in terms of the public's understanding of the news, developing accurate risk perception and ensuring public safety; it also shows the development areas of disaster journalism in Turkey. The findings show that newspapers generally focus on the moment of the event and emotional elements in earthquake news and give limited coverage to scientific information. In particular, technical data, expert opinions and explanations for risk reduction were mostly presented superficially in the news, and critical issues such as pre-disaster preparation processes, building safety, ground surveys and psychological support were not sufficiently covered.

Keywords: Türkiye, Earthquake, Disaster Journalism, Science Journalism

Öz
Afet zamanlarında medyanın rolü sadece bilgi aktarmakla sınırlı kalmaz, aynı zamanda risk iletişimi, kriz yönetimi ve halk sağlığının korunması açısından da kritik bir işlev üstlenir. Bilim gazeteciliği ise afet gazeteciliğinde anlaşılır, doğru ve güvenilir bilimsel bilgiler sunarak bilim okuryazarlığını ve halkın bilinçli davranışlar sergileme kapasitesini artırır. Bu çalışmada, 23 Nisan 2025 tarihinde İstanbul'da meydana gelen 6,2 büyüklüğündeki depremin ardından, farklı ideolojilere sahip matbu olarak da basılan Sabah, Yeni Şafak, Sözcü ve Cumhuriyet gazetelerinin haber sitelerinin 23 Nisan-30 Nisan 2025 tarihleri arasında yayınlanan 197 haberin başlığı analiz edilmiştir. Çalışmada içerik analizi yöntemi kullanılmış, kodlama bilimsel terimler ve bilim insanlarının görüşlerinin dahil edilmesi, bilimsel kaynak kullanımı kriterlerine uygun olarak yapılmıştır. Bulgular, afet dönemlerinde bilimin halkın haberleri anlaması, doğru risk algısı geliştirmesi ve kamu güvenliğinin sağlanması açısından önemini ortaya koyarken, Türkiye'de afet gazeteciliğinin gelişmesi gereken alanları da göstermektedir. Bulgular, gazetelerin deprem haberlerinde genellikle olayın anına ve duygusal unsurlara odaklandığını ve bilimsel bilgilere sınırlı yer verdiğini göstermektedir. Özellikle teknik veriler, uzman görüşleri ve risk azaltma açıklamaları haberlerde çoğunlukla yüzeysel olarak sunulmuş, afet öncesi hazırlık süreçleri, bina güvenliği, zemin etüdleri ve psikolojik destek gibi kritik konular yeterince ele alınmamıştır.

Anahtar Kelimeler: Türkiye, Deprem, Afet Haberciliği, Bilim Gazeteciliği

INTRODUCTION

Disaster, in the most general sense, is a set of natural, technological or human-induced events that interrupt or completely stop the daily life of human communities, cause physical, economic and social losses, and have devastating consequences to the extent that the affected society cannot cope with its own resources and possibilities (Ergünay, 2009, p. 3). Disasters are natural, technological or man-made events that suddenly interrupt or completely stop the normal life order and human activities of societies, cause physical, economic and social losses, threaten human rights and require the coordinated intervention of many institutions. Events that occur in the ordinary course of nature such as earthquakes, floods, floods and volcanic eruptions are primarily defined as natural hazards. However, if these events cause negative consequences such as loss of life, injury, property damages and economic losses, they gain the quality of disaster (Şahin and Sipahioğlu, 2002, p. 15). According to Article 2/1 b of the Law No. 5902 on the Organization and Duties of the Disaster and Emergency Management Presidency, which was adopted on 29.05.2009 and repealed on 02.07.2018, disaster is defined as natural, technological or human-induced events that cause physical, economic and social losses for the whole or certain segments of the society, stopping or interrupting normal life and human activities.

Disasters are not only natural events that cause physical destruction, but also critical social processes that test the functioning of communication systems and media tools. In this context, disaster journalism plays a central role in strengthening social resilience, enabling the public to make informed decisions and managing the crisis. However, the quality and effectiveness of disaster reporting varies across countries; the political, institutional and cultural structure, media systems and press freedom conditions of each country directly affect this process.

Disaster periods are extraordinary times when societies need information the most and accurate information plays a life-saving role. Access to accurate, comprehensible and reliable information is of great importance for individuals and society to make quick and informed decisions in the face of unexpected events such as earthquakes, floods, fires and epidemics. At this point, the responsibility of the media, especially science journalism, goes far beyond the boundaries of news reporting. The accuracy of the information conveyed during disasters directly affects how well the public can participate in the disaster management process. While inaccurate, incomplete or exaggerated information paves the way for panic, confusion and wrong interventions, accurate and simplified scientific information positively affects the correct behavior and decision-making process (Quarantelli, 1991, p. 23).

One of the main functions of the media in times of disasters is to create news frames related to disasters. With the news content it presents, the media can contribute to the increase of public interest and aid activities towards the disaster area, but at the same time, it can also cause the disaster to fall off the agenda and decrease the support and solidarity towards the disaster area (Pantti, 2018, p. 2). Therefore, disaster news plays an important role in producing solutions by informing the public and authorities about all kinds of problems in the disaster area. Disaster news has become a more complex and strategic field with its functions of not only producing news, but also shaping the behavior of the society in times of crisis, managing risk perception and conveying scientific information to the public. In this framework, science journalism stands out as an indispensable element in disaster journalism in terms of ensuring that the public has access to reliable information, preventing speculation and panic and supporting the public to be prepared for disasters.

The basis of disaster journalism is to emphasize the vulnerabilities of individuals and the risks they face by considering the public interest. However, in the 19th and 20th centuries, the news reports mainly focused on the devastation caused by disasters and the damages suffered by people and the environment rather than the causes of the disasters. Evaluations in this field point out that disaster reporting should take into account not only the information content of disasters but also the moral responsibility they carry (Zhang, 2015, p. 2125). Disaster journalism aims to highlight the risks and vulnerabilities of individuals by considering the public interest. However, in the historical process, the focus on the

destructive consequences of disasters rather than their causes has led to ignoring the ethical responsibility in this field.

The roles of journalists in the aftermath of natural disasters can sometimes overlap with strategic communication activities. The physical and emotional closeness between journalists and disaster-stricken communities paves the way for journalists to go beyond their identity as mere news transmitters and act on the basis of social solidarity and responsibility. This situation causes some journalists to prioritize their humanitarian and ethical responsibilities over their professional duties. Especially for journalists working in areas directly affected by disasters, this closeness can lead to a stronger bond of empathy with the effect of personal disaster experiences (Perreault, 2021, pp. 1292-1293). This situation reveals that the emotional bond and social responsibility in disaster journalism create an impact that goes beyond the professional role.

Extraordinary situations and the social crises caused by these situations play a decisive role in the emergence of the concept of disaster journalism. Journalism practiced during extraordinary events such as explosions, war, terrorism, earthquakes, collapses, epidemics, economic or political turmoil is called crisis journalism (Yıldırım, p. 2019). The basis of disaster journalism is to make extraordinary situations that deeply affect societies visible in the public sphere. In this context, journalistic activities carried out in times of crisis undertake the function of social guidance and awareness-raising beyond information transfer.

In disaster news, access to information sources is often limited due to the rapid development of events and extraordinary conditions. This situation makes it almost impossible to distinguish between accurate information and false data instantly. At this point, the opportunity of instant information sharing offered by social media provides a significant advantage for journalists. The interaction of users through the content they share and the use of hashtags allows them to become important news sources for reporters (Anar, 2021, p. 1129). In conclusion, when access to information is limited in disaster journalism, social media makes significant contributions to the news production process by creating an alternative and dynamic information network for both journalists and the public.

SCIENCE JOURNALISM IN NATURAL DISASTERS

The continuous change and development in science and technology profoundly affect individuals' behaviors, goals and perspectives on the world. In order to make sense of, interpret and adapt to these transformations, individuals need to develop their scientific literacy levels at the same pace. Only in this way can individuals both evaluate the events occurring in their environment in a healthy way and improve their quality of life by making informed decisions. In addition, it becomes possible for them to adopt a lifestyle that nurtures their scientific curiosity and encourages critical thinking (Anagün & Duban, 2016, p. 221).

According to researcher Bueno (2009), science journalism is considered as a special form of science communication. In this context, science journalism is an activity that focuses on science and technology-themed content and at the same time should be carried out by adhering to the basic principles and techniques of journalistic production processes. Qualities such as timeliness, reaching large audiences and serving the public interest are among the basic characteristics of science journalism. Therefore, this field carries both the institutional structure of the journalism discipline and the responsibility of conveying scientific information to the public in an accurate, understandable and accessible manner (Bueno, 2009, p. 170).

Today, science journalism has become one of the main elements of communication processes that improve the public's understanding of scientific issues and contribute to the wider public acceptance of science. With the realization of its educational, democratic and developmental potential, science journalism has become increasingly important and has been strongly supported by various international media networks and specialized organizations, notably the World Federation of Science Journalists (WFSJ). This support has enabled science journalism to be positioned not only as a news production

practice but also as a strategic field that contributes to the public circulation of scientific knowledge. Indeed, the role of science journalism in developing the public's ability to monitor, understand, utilize and critically evaluate scientific issues is becoming increasingly evident (UNESCO, 2013).

Science journalism has paved the way for scientific research to have a stronger impact not only on the public, but also on decision makers and policy makers. The circulation of scientific information through the media facilitates the development of science-based policies and supports decision-making processes based on the public interest. However, the role of science journalism has evolved over time. Especially with the rise of online media, the traditional function of science journalists as science interpreters or information gatekeepers has been replaced by a more interactive and participatory role. Today, science journalists are positioned not only as transmitters of scientific knowledge, but also as knowledge curators who select, structure and present this knowledge to the public. This transformation has made science journalism a more dynamic, multifaceted and open to social dialog (Fahy & Nispet, 2011, p. 180).

Science journalists are not only limited to conveying scientific developments to the public; they also assume a multifaceted responsibility involving various fields of expertise. In this context, science journalists are expected to have the skills to comprehend scientific facts correctly, to prevent possible misunderstandings and information errors, and to question and confirm the accuracy of scientific information. In addition, building reliable communication bridges between science and society, determining the methods to be followed in scientific communication processes and evaluating the effectiveness of these processes are among the main duties of science journalists. Therefore, science journalism stands out as an interdisciplinary specialization based on both understanding scientific knowledge and conveying this knowledge with the right strategies (Fischoff & Scheufele, 2019). Science journalism is an interdisciplinary specialization that is not only limited to reporting scientific developments but also aims to establish reliable communication between science and society, requiring accuracy, critical evaluation and strategic communication. Journalists in this field are expected to have the competence to understand and interpret scientific information correctly and to convey it to the public in an understandable way.

As in other fields of journalism, science journalism is undergoing a significant transformation process. The forms of interaction between science and society, the rapid development of digital technologies and easier access to information accelerate this transformation process. Today, scientific content can be disseminated rapidly, especially through social media platforms, without being checked for accuracy and reliability. This situation both raises issues of trust in scientific information and makes the role of science journalists more critical (Küçükvardar, 2020, p.180). Therefore, journalism, which has undergone a significant transformation process with digitalization and easy access to information, facilitates the uncontrolled dissemination of scientific information, increasing trust issues and making the responsibility of journalists even more critical.

For this reason, the training of science journalists is of great importance in terms of conveying scientific information accurately and responsibly. In the media, scientific success stories are often featured; developments such as the moon landing, fast computers or effective medicines are emphasized. However, for every success, there are many failures and unexpected results. Journalists who do not adequately grasp this aspect of the scientific process may mislead the public by sensationalizing failed results. Therefore, science journalists should be trained not only in reporting skills but also in understanding the scientific method and critical evaluation processes (Classen, 2013, p. 120). It is imperative for science journalists to be trained to comprehend the nature of the scientific process and the principles of critical evaluation in order to convey information accurately and responsibly. Otherwise, especially failures and uncertainties may be misrepresented in a false or sensationalized manner, misleading the public's perception of science.

One of the main goals for science journalists is to make their news stories unique and enrich them with details that readers can both understand and remember. Qualified science journalists, who are not content

with merely conveying scientific data, should also include narrative elements to keep the reader's attention while explaining complex scientific events. In this context, a storytelling approach that emphasizes not only the basic facts but also the plot, context and narrative has become an indispensable part of effective science journalism. The elements of suspense, curiosity and dramatic structure included in the narrative contribute to the reader's stronger connection with the scientific topic (Lutz, Popp, Emmerik, Gleeson, Kalaugher, & Möbius, 2018, p. 3591). In conclusion, effective science journalism is based not only on conveying information, but also on making scientific content comprehensible and memorable through narrative elements that sustain the reader's interest. Therefore, science journalism using storytelling techniques offers a form of communication that both preserves scientific accuracy and increases social impact.

Moreover, the use of expert opinions in scientific news about disasters increases the reliability of information and contributes to the development of habits of thinking based on scientific knowledge. As people listen to scientists' explanations, they tend to approach events not only from an emotional but also from a rational and critical perspective. This strengthens evidence-based thinking, one of the key elements of scientific literacy.

In addition, science journalism involves scientists in the communication process while explaining technical issues such as the causes and possible impacts of disasters, risk maps and precautions to the public. This allows scientific expertise to gain visibility in the media and build public trust. This makes it possible for scientific explanations to resonate not only in academic circles but also among the general public. While this contributes to the development of scientific literacy, it also strengthens social preparedness against disasters. On the other hand, the effectiveness of science journalism during disasters is not limited to conveying information. It also plays a critical role in drawing public attention to long-term scientific strategies and raising awareness on issues such as climate change-related risks and urban planning. Therefore, science journalism during disasters is a holistic information and awareness-raising practice that covers not only the moments of crisis but also the pre- and post-crisis processes.

When disaster news is prepared in a way that includes not only the severity and effects of the event, but also the mechanism of the event, its scientific causes and expert opinions, it enables individuals to come into direct contact with scientific knowledge. Such news content increases public awareness of scientific concepts. For example, including concepts such as the structure of fault lines, movements of the earth's crust or seismic waves in a news article published after an earthquake enables the reader to become acquainted with these concepts and make sense of them in the context of daily life.

Although emotional language, sensational headlines and dramatic narratives come to the forefront in disaster journalism in order to attract attention, the public can be prevented from panicking through science journalism, knowledge-based and balanced news production. In addition, the responsibility of communicating with scientific authorities, including expert opinions and objectively conveying the guidance of public authorities are factors that strengthen the functionality of science journalism in times of disasters. In this framework, the quality of science journalism in times of disasters directly affects not only the success of information, but also the resilience and adaptation capacity of the society in times of crisis. The most fundamental tasks of journalism in times of disasters include directing the public to be cautious, conveying what happened clearly and accurately, and reporting the situations that develop after the disaster. Mass media plays a critical role in both pre-disaster warning processes and post-disaster information and guidance activities. In this context, conveying disaster-related information to the public in an accurate, timely and comprehensible manner is among the most important responsibilities of journalists and media organizations.

There are various structural and environmental obstacles to healthy, effective and objective disaster reporting. These obstacles include insufficient human resources and technical equipment, disruptions in energy supply, interruptions in communication infrastructure, risk of exposure to infectious diseases and difficulties in meeting basic needs. These limitations have a direct negative impact on news production

processes during disasters. However, it is also important to note that while working in disaster areas, journalists not only witness traumatic events but also become victims of the disaster themselves. This situation both complicates the fulfillment of professional responsibilities and creates additional psychosocial pressure on journalists ((Puente et al., 2013, p. 1898).

Science journalism, as a field that aims to present scientific information in a way that can be understood and applied by a wide audience, assumes an even more vital function in times of disaster. From how an earthquake occurs to the nature of aftershocks, from building resilience to risk management strategies, many complex concepts suddenly and intensely enter the public agenda. Science journalists are responsible for simplifying these complex issues and presenting them to the public without compromising accuracy. In addition, being able to articulate scientific uncertainties and using a communication language that balances the public's perception of risk are among the main tasks of science journalism.

SCIENCE JOURNALISM IN EARTHQUAKE NEWS IN TURKEY

Turkey is one of the countries that has been severely affected by many natural hazards such as earthquakes, floods, landslides, rock and avalanche falls and erosion throughout its thousands of years of history. Although this fact is known by large segments of the society, it has not been sufficiently taken into account for many years, especially by responsible individuals and institutions. The fact that the press, media and even research organizations only pay attention to these issues as long as the events remain topical can be considered as one of the main reasons for the severe consequences we face today. In order to prevent similar or more severe losses in the future, it is imperative that all responsible persons and institutions learn the necessary lessons from the recent disasters, understand the importance of legal, administrative and technical measures to be taken before disasters occur and shape their preparation processes in line with this understanding (Ergünay, 2000, p,3). In order to carry out an effective fight against natural disasters in Turkey, preventive measures to be taken not only at the time of the disaster but also before it should be put into practice. In this respect, it is vital that the media, public institutions and all relevant actors act with a sense of responsibility, keep disaster risks on the agenda and base their preparation processes on scientific, legal and administrative foundations.

There are various obstacles to healthy, effective and impartial disaster reporting. Technical and environmental factors such as insufficient personnel and equipment, limited energy resources, interruptions in communication infrastructure, health threats and food supply difficulties can be prioritized among these obstacles. In addition, journalists working in disaster-stricken areas are not only witnesses to tragic events but also sometimes become direct victims of disasters. This situation causes journalists to face serious physical and psychological risks while fulfilling their professional responsibilities (Puente, Pellegrini, & Grassau, 2013, p. 1898). The healthy sustainability of disaster reporting is directly related not only to the adequacy of technical infrastructure and resources but also to the physical and psychological safety of journalists. Therefore, it is of great importance to develop special support mechanisms for members of the press working in disaster areas and to implement policies to increase professional resilience.

In situations where journalists are in direct contact with disaster victims, it is common for them to share unconfirmed information in the heat of the moment in order to convey information quickly from the field. The test of objectivity of media organizations is not only limited to such unconfirmed information; it is also shaped by the extent to which they make their ideological tendencies and political orientations visible in moments of crisis that affect all segments of society such as disasters. Although the presence of ideological or political orientations alone does not completely eliminate objectivity, manipulations in the way news is presented and the preference for methods such as cover-up or distortion are among the factors that seriously undermine the principle of objectivity (Yalçın, 2023, p. 200).

In the case of Turkey, despite being a country located in an earthquake zone, it is seen that there is insufficient preparation for both earthquake journalism and disaster journalism in general. On February 6, 2023, following the Kahramanmaraş earthquake, an Earthquake Journalism Guide consisting of thirty

articles was prepared under the leadership of Prof. Dr. Süleyman İrvan, Head of the Department of Journalism at Üsküdar University. As emphasized in this guide, special attention should be paid to knowing the correct meaning of technical concepts in earthquake journalism and using them meticulously. According to Süleyman İrvan, when it comes to earthquake journalism, it is of great importance to know the correct meaning of technical concepts specific to this field and to use them meticulously in news texts. In Turkey, however, there is a serious problem of conceptual ambiguity and misuse. Just as a journalist reporting on economics is expected to understand basic economic terms such as inflation and devaluation correctly and use them appropriately, it is a requirement of professional responsibility for a journalist reporting on earthquakes to distinguish between concepts with different technical meanings such as earthquake intensity and earthquake magnitude and use them in the correct context. This is of critical importance in terms of both informing the public correctly and maintaining scientific credibility (Maden, 2023, p. 408).

In Koç Akgül's (2017) study on communication and journalism in the context of extraordinary situations, earthquake journalism is specifically mentioned. In the study, which examines the printed media through the earthquakes in Erzincan, Gölcük and Düzce, it is stated that the media primarily undertook the function of reporting, especially immediately after the earthquake. While basic information and developments of the earthquake were reported in the first days of the earthquake, it is observed that in the following days, news content mainly focused on rescue and relief efforts, the government's crisis management processes and the economic repercussions of the disaster. The research also reveals how the socioeconomic and political transformation that Turkey underwent after 1923 is reflected in the media representation of disasters at the ideological level. After the 1939 Erzincan Earthquake, the discourse of state-nation hand in hand aid mobilization was prominent in the media, while after the 1999 Gölcük Earthquake, critical and accusatory expressions such as betrayal, misery and murderers appeared in the headlines. While the impact of the political and social structure of the single-party era and the dependence of media organizations on the government can be felt in this differentiation, it is understood that the media gained relative autonomy and adopted a more critical journalism approach as of 1999, when multi-party political life became dominant. As a matter of fact, in this period, the media went beyond being merely a tool that conveys news and also fulfilled the functions undertaken by non-governmental organizations (Akgül, 2017, p.33).

According to Süleyman İrvan, earthquake journalism can be considered as a sub-branch of science journalism because earthquake is a phenomenon that is handled within the scope of geology. Therefore, it is not possible for journalists preparing earthquake news to make accurate and meaningful interpretations without understanding basic concepts such as magnitude and intensity and the differences between them. For example, in order to comprehend what is meant by the expression 7.6 magnitude earthquake or the similes such as energy equivalent to five thousand atomic bombs, which are frequently encountered in news texts, it is necessary to have conceptual knowledge. Just as economic reporters have to understand and use terms such as inflation and devaluation correctly, earthquake reporters are obliged to know the content of geological concepts such as magnitude, intensity and similar terms. For this reason, it is of great importance for earthquake journalists to have conceptual and basic scientific knowledge, even if not at the level of technical expertise, in order to create accurate news content that serves the public interest (Maden, 2023, p.408).

Disaster journalism should not be limited to the reporting of events that occur at the time of the disaster; it should be considered as a holistic communication practice that also covers the period before and after the disaster. This approach requires a journalistic approach that includes not only the hot developments reported from the disaster area, but also questions the causes of the disaster, the people and institutions that bear responsibility, and suggests solutions that will contribute to preventing the recurrence of social disasters. In this respect, while assuming a warning function against reporting tendencies that only convey current developments superficially or ignore problems, it should also play an encouraging and incentive role for journalists to fulfill their professional responsibilities (Disaster Reporting Guide, 2023).

In times of disasters, the media not only undertakes informative, preventive, detective and remedial functions on a national scale, but also plays a role of providing communication and encouraging cooperation on an international level. The visibility of disasters through the media can influence foreign political agendas depending on the scope of the event; it paves the way for international public attention to be directed towards disaster areas and for humanitarian aid appeals to be answered. In this context, the function of the media is not only limited to conveying information, but also becomes a diplomatic instrument as a means of mobilizing international solidarity. Considering that many actors from local governments to central administration, from public institutions to non-governmental organizations play an active role in the field, especially in post-disaster processes, the media comes to the fore as a strategic communication tool that strengthens the coordination of this multi-stakeholder structure and informs the international public opinion (Yalçın, 2023). The multidimensional role of the media in times of disaster is of critical importance not only at the national but also at the international level. Beyond information transfer, media has become an effective diplomatic tool that promotes international cooperation and solidarity by increasing the visibility of disasters. In this way, it contributes to strengthening multi-stakeholder coordination in disaster management and accelerating humanitarian aid processes. Therefore, media is positioned as an indispensable strategic communication element in the management of disasters on both local and global scales.

The 1999 Marmara Earthquake represented the beginning of a new era in disaster journalism and created an important transformation that led scientists to become more visible in the media environment. In the aftermath of this earthquake, scientists specialized in earthquakes began to appear more frequently in newspapers and on television; thus, the phenomenon of earthquake scientists, who are accepted as popular figures in the public opinion, emerged (Koç Akgül, 2017, p.33). Problematic journalistic practices such as dramatization, emotional discourses and mediatization that emerged after the Marmara Earthquake have gained a permanent form over time. Disaster journalism in Turkey has become standardized by shaping around certain patterns. Moreover, the increase in the visibility of scientists in the media, which started with the 1999 earthquake, has continued, but the lack of reporters specialized in science journalism and disaster reporting has not been overcome to a great extent. On the other hand, the post-disaster journalism of some opposition newspapers was designed as an extension of their general editorial policies; however, it was observed that examples of qualified and in-depth disaster journalism remained limited in these channels (Ayan and Keten, 2023 p. 124).

In conclusion, online news sites have a significant potential both in terms of their technical infrastructure and preventive journalism capacity. Therefore, presenting news content related to earthquake risk in a way to raise public awareness before the disaster occurs should be seen as a social responsibility. A fundamental step towards a more effective and responsible journalism approach would be for online media to reconsider their news production processes focused on risk communication to cover all types of risks, not just earthquakes. The findings of the research reveal that media organizations operating in this field should first increase their level of consciousness about reporting on earthquake risk. With the development of this level of awareness, it should be accepted that preventive journalism is a risk communication tool and a continuous, in-depth and follow-up journalism approach should be adopted in this direction. In particular, it should not be forgotten that intellectual follow-up is one of the basic elements of professional responsibility (B. Taşkıran, Türkoğlu, Sarı, Maral, Keskin, Koparan, Yüncüoğlu, Gülnar, Şahin, Ünlü, Ağca, 2022, p.20). The technical infrastructure and preventive journalism capacity of online news sites offer a great potential for pre-disaster risk communication. It is a part of social responsibility to regularly and comprehensively present news about earthquakes and other risks in a way to raise public awareness before the disaster occurs. Increasing awareness of media organizations in this area and adopting a continuous and follow-up journalism approach that focuses on risk communication will form the basis of effective and responsible journalism. The importance of intellectual follow-up, especially within the scope of professional responsibility, should not be ignored, so that preventive journalism will be able to fulfill its function of both transferring information and raising social awareness in a strong way.

April 23, 2025 Earthquake News Review on the Scientificity

Turkey is a country that has been exposed to many devastating earthquakes throughout history due to its location on active tectonic belts. In particular, the Marmara Region carries a high seismic risk due to its location at the western end of the North Anatolian Fault Line, and Istanbul, the center of the region, stands out as the metropolis that will be most affected by this risk. With its dense population, old building stock and strategic importance, Istanbul is one of the most vulnerable regions against a possible major earthquake.

In this context, the 6.2 magnitude earthquake that struck Istanbul on April 23, 2025 has brought concerns about the long-awaited Marmara earthquake back to the agenda. Although this earthquake did not cause large-scale destruction, it served as an important warning, especially in terms of building safety, urban planning, disaster management and public awareness. Post-earthquake geological and seismological analyses have once again revealed the extent of seismic threats facing Istanbul. This study aims to evaluate the effects of the 6.2 magnitude earthquake that occurred on April 23, 2025 in the context of historical and current earthquakes in Istanbul and to provide a critical perspective in terms of the management of urban risks and the transfer of scientific knowledge to society.

Methodology

In this section of the study, tables showing the conclusions drawn regarding the scientific nature of earthquake news headlines analysed in the Sabah and Yeni Şafak newspapers, which support the conservative right wing, and the Sözcü and Cumhuriyet newspapers, which support the opposition and left wing, are provided below in terms of the scientific nature of all earthquake news analysed regarding the earthquakes of 23 April 2025. The time frame of the study was selected as a one-week period, from 23 to 30 April 2025, when the topic would be most widely discussed. The study involved coding based on headlines rather than the content of the news. This is because headlines are important in attracting people's attention. According to Yapar Gönenç (2002), headlines are more important than the text. The headline draws the reader to the text, and its purpose is to summarise the news. According to Berelson (1952), content analysis is an objective and quantitative approach that aims to produce scientific information about social structures, values, tendencies and communication processes by systematically analyzing a specific communication content. This approach allows for valid, reliable and reproducible results when analyzing media content. According to Krippendorff (2004), content analysis is not just a superficial data collection method, but a process of generating, interpreting and contextualizing meaning**.** This approach makes content analysis not only a quantitative method but also a multi-layered and interpretive scientific research methodology**.** In this sense, our study aims to produce meaning by identifying the content related to the April 23rd earthquake. In the study, answers to the following questions were sought in the data collected to analyze scientific journalism in earthquake news:

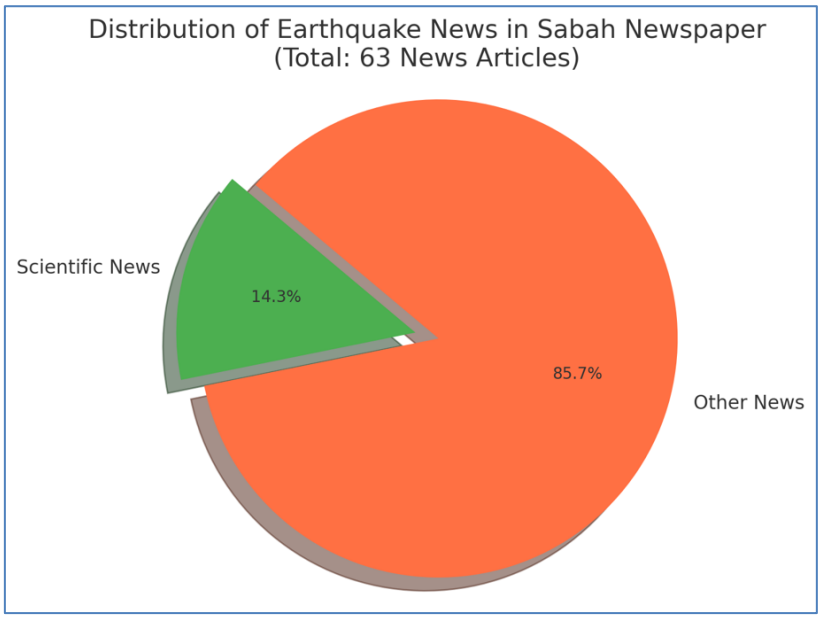
1. Are scientific sources used in earthquake news?
2. Are scientific terms used in earthquake news?
3. Are the statements of scientists included in earthquake news?

For this purpose, the results regarding the scientificity of the earthquake news analyzed are presented in tables.

Findings and Analysis

In this part of the study, the tables of the conclusions drawn on the scientificity of all earthquake news analyzed in Sabah, Yeni Şafak, Sözcü and Cumhuriyet newspapers in terms of the scientificity of all earthquake news analyzed about the April 23, 2025 earthquakes are given below.

Table 1. Scientificity of April 23rd Earthquake News in Sabah Newspaper



The data in the graph reveals that only 9 out of 63 earthquake news items (14.3%) published in Sabah were of a scientific nature. The vast majority of the remaining 85.7% of the remaining 85.7% is directed towards more superficial or event-based content such as the direct effects of the disaster, the moment of the event, damages, rescue efforts or social/political reactions.

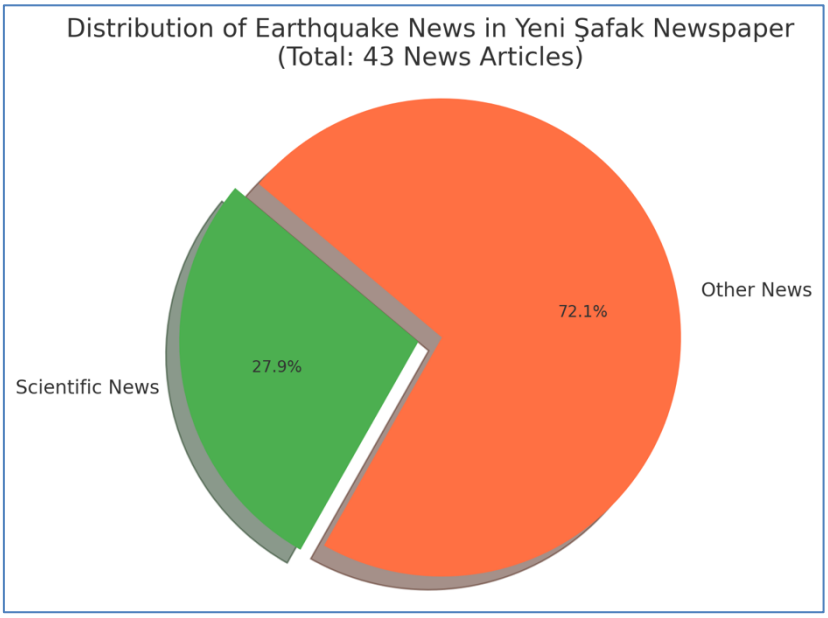
Table 2. The scientific nature of the news on April 23rd earthquake in Yeni Şafak newspaper

MORNING NEWSPAPER EARTHQUAKE HEADLINES	HISTORY
Sound of 6.2 earthquake in Istanbul recorded!	23.04.2025
Prof. Dr. Aksoy warned after the 6.2 earthquake in Istanbul! The real danger is in that region...	24.04.2025
US Geological Survey announced: Here is the intensity of the earthquake felt district by district in Istanbul!	24.04.2025
GTU's statement on Istanbul earthquake! Is a critical fault segment in Marmara on the move?	25.04.2025
Will there be a tsunami in Istanbul and Marmara coast? Here is the tsumani risk map!	25.04.2025
BREAKING NEWS: Is the Marmara earthquake over or is 7.2 imminent? Experts confused after Istanbul earthquake	25.04.2025
Scientific earthquake chaos! Confused: Which scientist can we trust?	25.04.2025
New statement from Kandilli: There were 445 aftershocks in Istanbul! Here is where the aftershocks are concentrated	25.04.2025
Will there be a big earthquake in Istanbul? Earthquake Expert Prof. Dr. Şener Üşümezsoy put the last point on A Haber	28.04.2025
The earthquake has passed, the feeling of tremor remains: Beware of phantom earthquake perception!	28.04.2025

The earthquake news headlines in Sabah newspaper show that the media partially includes scientific information in disaster-oriented news production, but also frequently uses elements of uncertainty and fear. A significant portion of the headlines refer to the opinions of scientists, technical terms and statements of scientific institutions in an effort to provide the reader with information about the

earthquake risk. On the other hand, some headlines emphasize uncertainty and panic, which may lead to a negative impact on the public's perception of risk.

Table 3. Yeni Şafak newspaper's earthquake-related scientific news headlines



It is seen that 12 (27.9%) of the 43 earthquake news items published in Yeni Şafak newspaper were **of** a scientific nature, while the remaining 31 (72.1%) news items (72.1%) were of a type that did not include scientific content such as event, damage, rescue, political explanation.

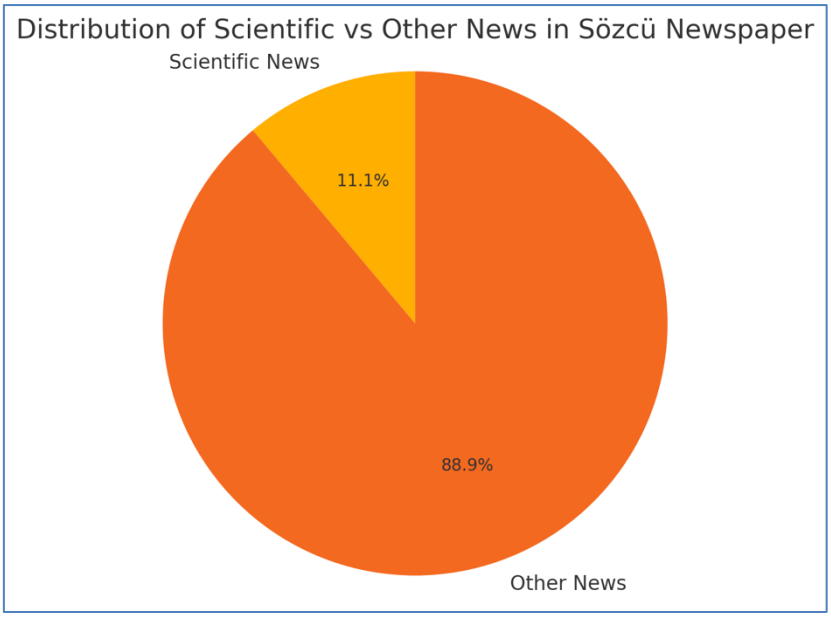
Table 4. Scientific earthquake headlines in Yeni Şafak newspaper

NEW DAWN NEWSPAPER EARTHQUAKE HEADLINES	HISTORY
1 Week Caution	24.april.25
Earthquakes that destroyed Istanbul	27.Apr.25
Did the aftershocks trigger the Great Istanbul Earthquake? New statement by earthquake expert Övgün Ahmet Ercan	26.april.25
New disaster signal on live broadcast: Prof. Dr. Şener Üşümezsoy warned: 'I expect another 6.2 earthquake at the same spot in Istanbul'	25.Apr.25
445 aftershocks after Istanbul earthquake: New report published	26.Apr.25
Prof. Dr. Şükrü Ersoy's critical earthquake warning: It is very dangerous to say 'earthquakes are over in Istanbul'	26.april.25
New disaster signal on live broadcast: Prof. Dr. Şener Üşümezsoy warned: 'I expect another 6.2 earthquake at the same spot in Istanbul'	27.Apr.25
Alarming statement by Japanese earthquake expert: In two months...	26.april.25
Şener Üşümezsoy explained one by one: Here are the places at risk of major earthquakes	29.Apr.25
Şener Üşümezsoy's heartwarming 'great Istanbul earthquake' statement	28.Apr.25
There were 12 thousand 124 earthquakes in Turkey in 4 months: Here are the provinces with the most earthquakes	30.april.25
Earthquake, science and anxiety	29.Apr.25

Yeni Şafak's earthquake news headlines aim to contribute to raising public awareness about earthquake risks by giving wide coverage to expert statements and scientific information. However, the dramatic and alarming language used in the headlines may overshadow risk communication and trigger a sense

of fear and uncertainty in the public. It is critical for media organizations to use **a calmer, explanatory and guiding language** instead of attention-grabbing headlines on sensitive issues such as earthquakes in order to strengthen disaster literacy.

Table 5. The scientific nature of Sözcü Newspaper's April 23, 2025 earthquake news



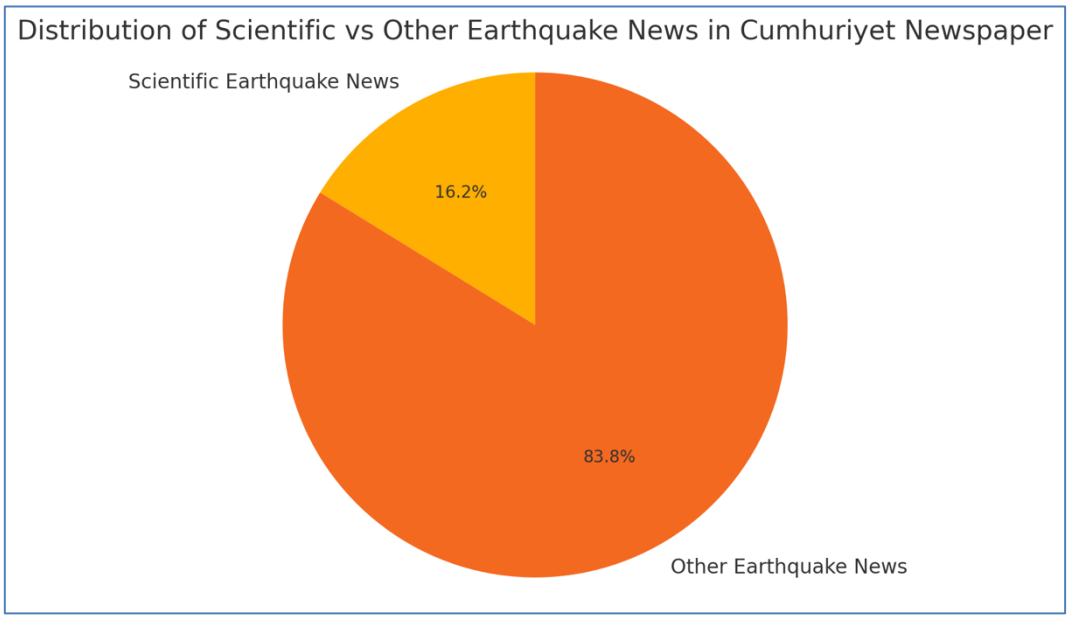
Only 6 out of 54 news items analyzed in Sözcü newspaper are scientific in nature**;** this constitutes **11.1% of** the total number of news items. The remaining 48 news items (approximately 88.9%) are non-scientific or on different topics.

Table 6. Sözcü newspaper's scientific earthquake headlines

SÖZCÜ NEWSPAPER EARTHQUAKE HEADLINES	HISTORY
Experts Warned Thus	24.april.25
Şener Üşümezsoy, who knows the last earthquake in Istanbul, points to two places and announces his prediction	24.april.25
Will the last earthquake trigger the big Istanbul earthquake, is the April 23 earthquake a precursor earthquake?	23.Apr.25
Critical warning from Naci Görür for Istanbul earthquake! He put the last point to the discussions	26.Apr.25
Istanbul earthquake statement from Kandilli Observatory	26.Apr.25
Ahmet Ercan gives two dates: 'I expect 7.2 earthquake here'	24.Apr.25

Sözcü newspaper's headlines about the earthquake show that it tries to emphasize expert statements and scientific predictions in disaster reporting. All of the headlines focus on the warnings and predictions of competent names such as Prof. Dr. Naci Görür, Prof. Şener Üşümezsoy and Prof. Övgün Ahmet Ercan; this reflects a journalistic approach that aims to provide the reader with information about earthquake risk from the perspective of scientists. However, headlines frequently use uncertainty, prediction and risk-oriented expressions such as pioneer earthquake, will it trigger, announced its prediction, critical warning, expecting a 7.2 earthquake.

Table 7. The scientific nature of Cumhuriyet newspaper's April 23rd earthquake news



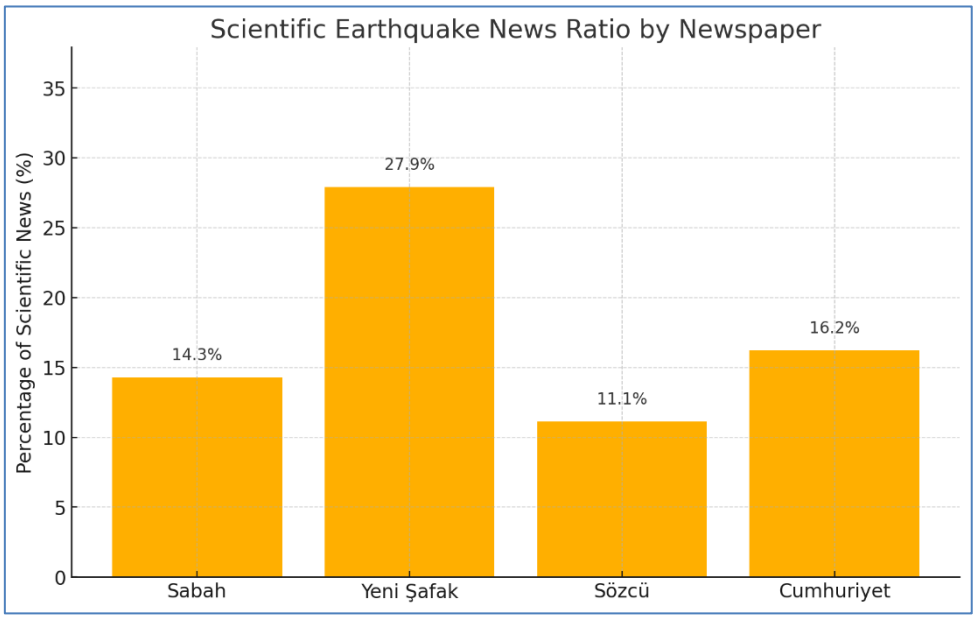
Of the 37 earthquake news items analyzed in Cumhuriyet, 6 of them have scientific content**,** which corresponds to approximately 16.2% of the total. The remaining 31 news items (83.8%) consist of other earthquake-related news items that do not carry a scientific perspective (e.g. disaster news, social impacts, rescue efforts, etc.).

Table 8. Cumhuriyet Newspaper Scientific Earthquake Headlines

REPUBLIC NEWSPAPER EARTHQUAKE HEADLINES	HISTORY
Statement by Kandilli Observatory about the earthquake in the Marmara Sea	26.april.25
Scary earthquake in Istanbul, Kütahya and the Black Sea: Are the 3 earthquakes connected?	25.Apr.25
'Earthquake' row between Şener Üşümezsoy and Celal Şengör grows: 'Celal is not a teacher...'	25.Apr.25
'Share it so that everyone can benefit' he said... Prof. Dr. Övgün Ahmet Ercan took an 'earthquake' x-ray of Istanbul: Which ground is your house on?	30.april.25
Professors Divided	24.april.25
Do Not Channel	27.Apr.25

Cumhuriyet's earthquake headlines show **that the newspaper emphasizes** not only technical and scientific information but also **disagreements among scientists and social debates** in disaster reporting. It is seen that the news items cover **scientific and technical issues** such as the official statements of Kandilli Observatory, whether there is a connection between earthquakes in different cities, and the ground conditions of Istanbul.

Table 9. Scientificity in All Earthquake News for April 23, 2025



This study is based on the results of a survey conducted in four mainstream newspapers in Turkey on the scientific content of news about the April 23, 2025 Istanbul earthquake. In this context, 197 earthquake news were analyzed and the rate of each newspaper's coverage of scientific content was calculated. According to the findings:

- Yeni Şafak Newspaper has the highest rate of scientific content in the sample we analyzed, with 12 out of 43 news items (27.9%) being scientific in nature. This shows that Yeni Şafak offers relatively more scientific perspectives in news items on earthquakes.
- Cumhuriyet Newspaper included scientific content in 6 out of 37 news items with a rate of 16.2%. This rate is higher than Sözcü, but behind Yeni Şafak.
- Sabah Newspaper presented scientific information in 9 out of 63 news items and remained in the middle level with a rate of 14.3%.
- Sözcü Newspaper, on the other hand, has a rate of 11.1% with only 6 scientific news items out of 54 news items; this rate is the lowest value measured in the research.

CONCLUSION

The 6.2 magnitude earthquake that occurred in Istanbul on April 23, 2025, both drew public attention to the reality of earthquakes once again and set an important example in terms of evaluating the scientific quality of media content . This study aims to reveal the level of scientific quality of disaster reporting by analyzing the news headlines of four national newspapers (Sabah, Yeni Şafak, Sözcü and Cumhuriyet) with different ideological positions.

The findings show that newspapers generally focus on the moment of the event and emotional elements in earthquake news, while scientific information is given limited coverage. In particular, technical data, expert opinions and explanations on risk mitigation were mostly presented superficially, and critical issues such as pre-disaster preparation processes, building safety, ground surveys and psychological support were not covered sufficiently. Sözcü newspaper had the lowest rate of scientific content with 11.1%, while Yeni Şafak newspaper showed the highest rate of science-based journalism with 27.9%. However, when evaluated in terms of all newspapers, it is seen that the language of scientific journalism is still weak.

This situation reveals that disaster journalism in Turkey adopts a sensational, panic-inducing and event-centered approach. However, science journalism should fulfill the functions of not only conveying information but also managing the public's perception of risk, encouraging critical thinking and strengthening social preparedness. It is critical for media organizations to work in cooperation with experts and inform the public with simple, clear and verifiable information, especially in situations that require scientific knowledge such as disasters.

The findings of this study show that disaster reporting in Turkey mostly focuses on the moment of the event and dramatic elements, while scientific content remains quite limited. In order to prevent this situation, it is of great importance for media organizations to adopt a science-based journalism approach that includes not only short-term developments such as destruction and rescue, but also earthquake insurance, building safety, ground survey, disaster psychology and social resilience. Especially in order to raise public awareness about pre-disaster preparedness and post-disaster recovery processes, these issues should be covered more frequently and in a qualified manner based on scientific data and supported by expert opinions.

In addition, media organs should assume a role not only as news transmitters, but also as educators and guides; they should fulfill their function of informing the public about the precautions that can be taken against earthquake risk more effectively. In this direction, the media's adoption of a broadcasting policy that will support the production of scientific knowledge before and after disasters as well as during disasters will directly contribute to the development of scientific literacy. Keeping technical, psychological and social aspects such as building inspection, urban planning, insurance systems and psychological resilience on the agenda through the media is of strategic importance in terms of shaping public perception of risk. Therefore, the media should adopt a scientific journalism approach and become a medium that provides not only information but also confidence and direction.

Adopting scientific journalism principles more in earthquake news will contribute to both increasing the level of scientific literacy of the society and strengthening the capacity to combat disasters. Considering that the media should not only inform but also guide, educate and prepare, the analysis and findings of this study once again reveal the strategic importance of scientific journalism in the context of disaster management.

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