The Role of Social Media in Enhancing Public Awareness and Response During Emergencies: A Literature Review

By

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Abstract

In recent years, the role of social media in emergency management has gained significant attention due to its potential to enhance public awareness and response during crises. This literature review synthesizes findings from various studies to explore how social media platforms—such as Twitter, Facebook, and Instagram—serve as vital tools for real-time communication, community engagement, and situational awareness. The review identifies key themes, including the dual-edged nature of social media, which can facilitate rapid information dissemination while also posing risks of misinformation. By integrating social media into emergency management strategies, agencies can bridge communication gaps between responders and the public, fostering a collaborative environment essential for effective crisis management. The findings highlight the importance of two-way communication, enabling community members to share experiences that enhance collective action during emergencies. However, challenges such as organizational resistance and the spread of false information must be addressed to maximize the effectiveness of social media in crisis situations. This paper concludes with best practices and policy recommendations to guide emergency management agencies in leveraging social media effectively, ensuring that it serves as a reliable resource for public safety and community resilience.

Keywords: *Social Media, Emergency Management, Public Awareness, Crisis Communication, Community Engagement*

1. Introduction

The role of social media in enhancing public awareness and response during emergencies has garnered increasing attention in recent years (Meier, 2015). Social media platforms are recognized for their impact across various stages of emergency management, including disaster response (Avvenuti et al., 2016) and emergency preparedness (Merchant et al., 2011). They serve critical functions in addressing emergencies of all scales, from large-scale disasters like earthquakes (Yates & Paquette, 2011) to smaller incidents such as wildfires (Slavkovikj et al., 2014). As a result, the public has come to expect timely and effective communication from emergency responders via these platforms (Lindsay, 2011).

Effective emergency response typically involves multiple actors, including police, firefighters, and medical personnel, who collaborate at the scene of an incident. Information shared on social media by one group, such as a police unit, is consumed by a diverse array of stakeholders, including other emergency responders and the general public. This dynamic underscores the necessity for a nuanced understanding of how emergency responders produce and interpret social media content within the context of situational awareness (SA). SA, a concept extensively studied in human factors research since the early 1990s (Endsley, 1995), refers to the ability to perceive and comprehend information, enabling effective decision-making in crisis situations (Yang et al., 2016). Situational awareness consists of three stages: perception, comprehension, and projection (Endsley, 1995). The perception stage involves data collection through various

sensory inputs, while comprehension pertains to the interpretation of that data. The final stage, projection, aims to anticipate possible outcomes based on the information gathered. Effective communication via social media can significantly enhance these stages by providing real-time data that informs decision-making processes among emergency responders.

Social media is an ever-evolving landscape that has expanded rapidly on a global scale. It allows users to instantaneously share events online, reaching a broad audience. The proliferation of platforms such as Instagram, Facebook, WhatsApp, Twitter, and TikTok facilitates rapid message transmission—enabling the sharing of videos, texts, and audio in real-time (Semple, 2009). This interconnectedness helps maintain communication even when traditional resources fail during crises, fostering resilience within communities.

However, the power of social media is a double-edged sword. While it serves as a vital tool for information dissemination, it also poses risks, such as the rapid spread of misinformation and harmful rumors that can undermine public trust and escalate emergencies (Semple, 2009). This literature review aims to synthesize existing research on the role of social media in enhancing public awareness and response during emergencies. By examining various studies, this paper seeks to identify key themes, challenges, and implications for future research and practice in the field of crisis communication.

2. Methodology

This literature review aims to systematically explore the role of social media in enhancing public awareness and response during emergencies. The methodology follows a structured approach to identify, analyze, and synthesize relevant literature in this field. The process is outlined as follows:

2.1. Literature Search Strategy

The literature search was conducted using multiple academic databases, including Google Scholar, Scopus, Web of Science, and PubMed. The search strategy involved a combination of keywords and phrases related to social media, emergency management, public awareness, and crisis communication. Specific search terms included:

- "social media and emergency response"
- "public awareness in disasters"
- "social media in crisis management"
- "emergency preparedness and social media"

The search was limited to peer-reviewed articles, conference papers, and reports published between 2000 and 2024 to ensure the inclusion of contemporary studies that reflect current trends and technologies in social media usage during emergencies.

2.2. Inclusion and Exclusion Criteria

To refine the search results, specific inclusion and exclusion criteria were established:

2.2.1. Inclusion Criteria

- Studies that examine the use of social media in various types of emergencies (e.g., natural disasters, public health crises).
- Research discussing the impact of social media on public awareness and emergency response.
- Articles that provide empirical data, case studies, or theoretical frameworks related to social media in emergency contexts.

2.2.2. Exclusion Criteria

- Articles not focusing specifically on social media or its role in emergencies.
- Publications that lack empirical evidence or theoretical contributions.
- Non-English language articles, as the review is conducted in English.

2.3. Data Extraction and Analysis

Once the relevant literature was identified, key information was extracted from each study. This included:

- Authors and year of publication
- Study location and context
- Research objectives and questions
- Key findings related to social media's role in emergencies
- Theoretical frameworks employed

A data extraction matrix was created to organize the information systematically and facilitate comparison across studies.

2.4. Thematic Synthesis

The extracted data was analyzed using thematic synthesis to identify recurring themes and patterns. This involved:

- Coding the data according to emerging themes, such as communication strategies, public engagement, misinformation, and the effectiveness of different social media platforms.
- Grouping related studies to provide insights into specific aspects of social media usage in emergency contexts.

2.5. Quality Assessment

To ensure the reliability and validity of the included studies, a quality assessment was conducted. This involved evaluating each article based on criteria such as:

- The clarity of research objectives and questions
- The robustness of the research design and methodology
- The relevance and significance of findings
- The transparency of data analysis and interpretation

2.6. Limitations

While this methodology aims to provide a comprehensive overview of the literature, certain limitations should be noted. The review is limited to studies published in English, which may exclude relevant research from non-English-speaking countries. Additionally, the rapidly evolving nature of social

media may mean that some emerging trends are not fully captured in the existing literature.

3. Literature Review

The integration of social media into emergency management has transformed how information is disseminated and how communities respond to crises. This literature review synthesizes findings from 23 pivotal studies, highlighting the multifaceted role of social media in enhancing public awareness and response during emergencies and connecting their insights to illustrate a cohesive understanding of the subject.

Houston et al. (2014) developed a functional framework for the use of social media in disaster planning, response, and research. Their study emphasizes the necessity of integrating social media into all stages of emergency management, from preparedness to recovery. They identified key functions such as information dissemination, community engagement, and situational awareness. By establishing clear roles for various social media platforms, the authors argue that agencies can leverage these tools to enhance communication and collaboration with the public. This framework serves as a foundation for subsequent research, highlighting how effective social media use can bridge communication gaps between authorities and affected communities, ultimately leading to improved crisis response and recovery efforts.

Alexander (2013) explored the applications of social media in disaster risk reduction and crisis management. His research outlines how platforms like Twitter and Facebook can be used for real-time communication and information sharing. Alexander argues that social media not only serves as a channel for disseminating official messages but also enables community members to share their experiences and insights during emergencies. This two-way communication fosters a sense of community and collective action, which is vital during crises. By integrating social media into disaster management strategies, authorities can enhance public awareness and engagement, ensuring that individuals are better prepared for potential disasters. Alexander's findings connect with the framework established by Houston et al., underscoring the importance of proactive communication in emergency management.

Finch et al. (2016) conducted a scoping review focusing on the public health implications of social media during natural disasters and environmental concerns. Their research revealed that social media facilitates timely sharing of critical information, which is essential for effective public health responses. The authors analyzed various studies to identify how social media can be utilized to disseminate health alerts, gather public sentiment, and monitor community needs during crises. They found that social media platforms allow public health officials to engage directly with communities, providing real-time updates and resources. This engagement not only helps in disseminating important information but also in understanding public perceptions and behaviors. Finch et al.'s findings connect with those of Houston et al. and Alexander by emphasizing the role of social media in enhancing situational awareness and public health preparedness during emergencies.

Plotnick and Hiltz (2016) examined barriers to social media use in homeland security and emergency management. They identified several challenges that hinder effective social media utilization, including organizational resistance, lack of training, and insufficient integration into existing communication strategies. The authors argue that while social media holds immense potential for improving disaster communication, these barriers must be addressed to fully leverage its capabilities. They recommend that agencies invest in training and develop clear policies for social media use during emergencies. This study complements Finch et al.'s findings by highlighting the systemic obstacles that can impede effective public health communication. By addressing these challenges, emergency management agencies can enhance their ability to engage with the public and improve overall crisis response.

Wong et al. (2018) explored the incorporation of social media into emergency supply and demand frameworks during disasters. Their study highlights how social media can facilitate better coordination among agencies and the public, ultimately improving resource allocation during crises. Wong et al. argue that social media platforms enable real-time communication about available resources, needs, and support mechanisms, allowing for a more efficient response to emergencies. By analyzing case studies, the authors demonstrate that engaging the public through social media can lead to increased volunteerism and resource sharing, which is critical during emergencies. This perspective aligns with Alexander's findings on community engagement, suggesting that social media can play a pivotal role in mobilizing community resources and enhancing collaborative efforts in disaster response.

Jin et al. (2011) provided a comprehensive communications review that highlights how social media shapes public discourse during emergencies. The authors argue that social media platforms serve as critical spaces for dialogue and information exchange among community members and authorities. By analyzing various case studies, Jin et al. illustrate the power of social media not just as a communication tool, but as a mechanism for mobilizing community resources and responses. Their findings emphasize the importance of understanding public sentiment and the dynamics of information sharing during crises. This study connects with Houston et al.'s framework by demonstrating that effective communication strategies must consider the unique characteristics of social media platforms to enhance public engagement and crisis response.

Chewning (2014) analyzed BP's organizational responses during the Deepwater Horizon oil spill, showcasing how social media can be used for effective crisis communication and reputation management. Chewning's case study illustrates how BP utilized social media to disseminate information about the spill and its response efforts while attempting to manage public perception and mitigate backlash. The findings

indicate that proactive engagement on social media can help organizations maintain credibility and transparency during crises. This study resonates with the frameworks established by Houston et al. and Alexander, as it highlights the critical role of timely and transparent communication in restoring public trust and enhancing organizational resilience during emergencies.

Muralidharan et al. (2011) focused on monitoring public perception and response to corporate crises via social media. Their study found that social media provides real-time feedback, which is crucial for organizations to adapt their communication strategies effectively. By analyzing social media interactions during a corporate crisis, the authors demonstrated how public sentiment can shift rapidly and how companies need to respond accordingly to maintain their reputation. This research reinforces Jin et al.'s findings about the dynamic nature of social media communication during emergencies. Muralidharan et al. emphasize that organizations should not only use social media for broadcasting information but also actively listen to public concerns and adjust their strategies to address these issues.

Middleton et al. (2014) studied real-time crisis mapping using social media during Hurricane Sandy. Their research concluded that social media data can provide accurate insights into disaster impacts, enhancing situational awareness among responders. By analyzing tweets and other social media content, the authors demonstrated how crowdsourced information could complement official reports and improve the overall understanding of the disaster's scope. This study connects back to Houston et al.'s framework, which emphasizes the importance of real-time information in effective disaster management. Middleton et al. advocate for integrating social media into traditional data collection methods to create a more comprehensive picture of crisis situations.

Kent and Capello (2013) employed spatial analytical techniques to assess community contributions to situational awareness during the Horsethief Canyon fire. Their findings indicated that social media could enhance local engagement in disaster response by allowing community members to share information about the fire's spread and available resources. This study supports Wong et al.'s arguments about the importance of community involvement in emergency management. By providing a platform for residents to inform each other and coordinate responses, social media fosters a sense of collective action and empowerment, which is crucial in mitigating disaster impacts.

Sutton et al. (2015) examined health-related warning messages sent via Twitter during the Boulder floods. Their analysis revealed that timely communication significantly influenced public awareness and safety behaviors. By assessing the content and timing of tweets from public health agencies, the authors found that social media can effectively convey critical information and alerts. This study supports Finch et al.'s assertions about the importance of social media for public health responses during emergencies. Sutton et al.

emphasize that agencies must prioritize clear and concise messaging to ensure that the public receives and understands vital information during crises.

Chatfield et al. (2013) explored tsunami early warnings via Twitter in Indonesia, demonstrating that government engagement on social media can effectively mobilize public participation in disaster preparedness. Their study highlights the importance of timely and accurate communication in encouraging community action and preparedness measures. By analyzing the impact of government tweets on public behavior, the authors found that active engagement on social media can lead to higher levels of public awareness and readiness. This finding aligns with Houston et al.'s emphasis on the need for effective communication strategies in disaster management, particularly in fostering public trust and cooperation.

Kongthon et al. (2012) analyzed Twitter use during the 2011 Thai floods, revealing that social media served as an effective tool for real-time information dissemination among citizens. Their study highlighted how individuals turned to Twitter to share updates and seek assistance during the crisis, demonstrating the platform's role in facilitating community support and information sharing. This research complements Sutton et al.'s findings by illustrating how social media can enhance situational awareness and mobilize community responses during emergencies. Kongthon et al. argue that the participatory nature of social media allows for a more dynamic and responsive approach to disaster management.

Cassa et al. (2013) characterized the early social media response to the Boston Marathon explosions. Their analysis focused on how social media facilitated rapid information sharing, enabling public safety responses in real-time. The authors found that social media played a crucial role in disseminating information about the incident and coordinating emergency responses. This study underscores the importance of real-time communication strategies, as outlined by Houston et al. and Middleton et al. By demonstrating how social media can serve as a vital tool for crisis communication, Cassa et al. reinforce the need for emergency management agencies to integrate social media into their response plans.

Rogstadius et al. (2013) evaluated CrisisTracker, a social media curation tool, during the Syrian civil war. Their findings indicated that such tools improve the sensitivity and specificity of information collection, ensuring that critical data is obtained swiftly. By analyzing the effectiveness of CrisisTracker in identifying significant events, the authors highlighted the potential of social media to enhance situational awareness during crises. This supports the conclusions drawn by Alexander about the need for real-time information and community engagement in disaster management. Rogstadius et al. advocate for the continued development of tools that enable better analysis and utilization of social media data in crisis situations.

Zielinski (2013) investigated a framework for detecting natural disaster events on Twitter across languages. The study demonstrated how social media can be leveraged to monitor

and respond to disasters globally, emphasizing its applicability in diverse contexts. Zielinski's findings highlight the importance of adaptable communication strategies, which resonate with the ideas presented by Houston et al. regarding the need for effective information dissemination across different demographics and languages. The research reinforces the notion that social media can serve as a valuable tool for international disaster response efforts, allowing for quicker and more coordinated actions.

Hjorth and Kim (2011) emphasized the role of social media in maintaining relationships during emergencies, which is crucial for community resilience. Their study highlights how social media can foster connections among residents, enabling them to share information and support each other during crises. This finding aligns with Wong et al.'s conclusions about the importance of community engagement in disaster response. Hjorth and Kim argue that social media not only facilitates communication but also strengthens social ties, which can enhance community resilience and recovery efforts during and after disasters.

Dong et al. (2013) studied public perceptions of information received through social media during Hurricane Sandy. They found a correlation between social media engagement and evacuation intentions, indicating that effective communication through social media can significantly influence public behavior during emergencies. This research supports Finch et al.'s assertions about the impact of social media on public health and safety behaviors. Dong et al. emphasize that emergency management agencies must leverage social media to convey clear and actionable information to encourage appropriate responses from the public.

Werts et al. (2012) developed a WebGIS framework for promoting soil and water conservation through social media, illustrating how community-generated content can enhance environmental awareness and engagement. Their study highlights the potential of social media to drive collective action and foster a sense of responsibility among community members. This connects back to the findings of Martinello and Donelle regarding the mobilization of collective actions through social media. Werts et al. argue that by utilizing social media effectively, organizations can increase public participation in environmental initiatives, which is especially important during emergencies.

Aulov and Halem (2012) incorporated social media data into environmental monitoring efforts during the BP oil spill, showing how citizen-generated content can enhance data collection and improve situational awareness. Their study illustrates the value of integrating social media into traditional monitoring methods, allowing for a more comprehensive understanding of environmental impacts during disasters. This supports the conclusions drawn by Middleton et al. about the importance of real-time data in crisis management. Aulov and Halem advocate for the continued use of social media as a tool for enhancing environmental monitoring and public engagement during crises.

Martinello and Donelle (2012) found that discussions within Facebook groups mobilized collective actions for environmental awareness, emphasizing social media's role in community engagement. Their study highlights how social media can serve as a platform for organizing community efforts and raising awareness about environmental issues. This research resonates with Wong et al. and Kent and Capello's studies on enhancing local involvement in emergency responses. Martinello and Donelle argue that by fostering discussions and facilitating information sharing, social media can empower communities to take action during emergencies and promote resilience.

Goncalves et al. (2014) discussed the use of crowdsourcing via smartphone applications for public safety, highlighting how social media can facilitate real-time hazard reporting. Their study emphasizes the importance of citizen engagement in disaster response and situational awareness. By leveraging social media for crowdsourcing, emergency management agencies can gather critical information about hazards and needs in real-time, leading to more effective responses. This study complements the findings of Houston et al. and Alexander, reinforcing the necessity of integrating social media into formal disaster management frameworks to enhance community engagement and responsiveness.

Keim and Noji (2011) articulated the importance of social media in enabling communities to adapt and respond to disasters, arguing for its integration into existing disaster management frameworks. Their research highlights how social media can serve as a tool for information dissemination, community engagement, and situational awareness. By emphasizing the need for systematic approaches to incorporating social media into emergency management protocols, Keim and Noji provide a comprehensive perspective on the role of social media in enhancing public awareness and response during emergencies. Their findings encapsulate the overarching theme of this literature review, emphasizing that while social media presents significant opportunities, it must be strategically integrated to maximize its effectiveness in protecting public health and safety.

Collectively, these studies illustrate that social media is an indispensable tool in enhancing public awareness and response during emergencies. Its ability to facilitate real-time communication, promote community engagement, and provide critical information makes it vital in modern disaster management strategies.

4. Results

The analysis of the previous studies reveals several key findings regarding the role of social media in enhancing public awareness and response during emergencies. These findings are categorized into thematic areas that highlight the multifaceted impact of social media on crisis communication, situational awareness, community engagement, public health implications, and the challenges associated with its use.

4.1. Crisis Communication

Social media platforms serve as vital tools for disseminating information during emergencies. Studies consistently demonstrate that platforms like Twitter, Facebook, and Instagram facilitate rapid communication and information sharing. For instance, Houston et al. (2014) emphasized that effective use of social media can bridge communication gaps between emergency responders and the public. Similarly, Alexander (2013) found that these platforms enable two-way communication, allowing community members to share experiences and insights, which fosters collective action. Cassa et al. (2013) further illustrated how social media facilitated rapid information sharing during the Boston Marathon explosions, highlighting its critical role in crisis communication.

4.2. Situational Awareness

The integration of social media into emergency management significantly enhances situational awareness (SA). Middleton et al. (2014) highlighted that social media data provides real-time insights into disaster impacts, complementing traditional data sources. This perspective is supported by Jin et al. (2011), who noted that social media platforms are critical spaces for dialogue and information exchange, enhancing the understanding of public sentiment during crises. Finch et al. (2016) emphasized that social media facilitates timely sharing of critical information, which is essential for effective public health responses, thereby improving SA among emergency responders.

4.3. Community Engagement

Social media plays a crucial role in mobilizing community resources and fostering engagement. Wong et al. (2018) found that social media facilitates better coordination among agencies and the public, improving resource allocation during crises. Additionally, Kent and Capello (2013) demonstrated that social media enhances local engagement, allowing residents to share critical information, which is essential for effective disaster response. Martinello and Donelle (2012) confirmed that discussions within social media groups can mobilize collective actions, emphasizing the platform's potential for community empowerment.

4.4. Public Health Implications

The studies reveal a significant impact of social media on public health communication during emergencies. Sutton et al. (2015) showed that timely health-related warnings disseminated via social media significantly influence public awareness and safety behaviors. Finch et al. (2016) also noted that social media enables public health officials to engage directly with communities, sharing vital health alerts and monitoring community needs effectively. This aligns with Dong et al. (2013), who found that social media engagement correlated with evacuation intentions during Hurricane Sandy, underscoring its importance in public health crisis management.

4.5. Challenges and Barriers

Despite the benefits, the studies identify several challenges associated with the use of social media in emergency management. Plotnick and Hiltz (2016) discussed barriers such as organizational resistance and lack of training, which hinder effective utilization. These challenges emphasize the need for emergency management agencies to invest in training and develop clear policies for social media use, as highlighted by Muralidharan et al. (2011), who stress the importance of adapting communication strategies based on public feedback. Keim and Noji (2011) also articulated the necessity of integrating social media into existing disaster management frameworks to address these challenges.

4.6. Misinformation and Trust Issues

The rapid spread of misinformation on social media is a significant concern that can undermine public trust and escalate emergencies. Semple (2009) noted the dual-edged nature of social media, where its capability to disseminate information can also facilitate the rapid spread of harmful rumors. Chewning (2014) demonstrated how proactive engagement on social media can help organizations maintain credibility during crises, while Rogstadius et al. (2013) highlighted the potential of social media curation tools to enhance situational awareness by filtering critical information from noise.

Thus, the findings from these studies underscore the indispensable role of social media in enhancing public awareness and response during emergencies. Its ability to facilitate real-time communication, promote community engagement, and provide critical information makes it vital in modern disaster management strategies.

5. Framework for Best Practices

To maximize the effectiveness of social media in emergency management, the following best practices are recommended for agencies:

- Agencies should create a comprehensive social media strategy that outlines objectives, target audiences, and key messages. This strategy should be adaptable to different types of emergencies.
- Regular training programs should be established for emergency responders and public information officers on effective social media use. This includes training on content creation, audience engagement, and crisis communication.
- Define roles and responsibilities for social media management during emergencies. Clear guidelines should be established for what information to share, when to share it, and how to engage with the public.
- Encourage interactive communication by responding to public queries and feedback. This helps build trust and fosters community engagement.
- Use analytics tools to monitor social media engagement and public sentiment. This data can inform strategies and help agencies adjust their communication in real time.
- Implement strategies to identify and address misinformation quickly. Establish a rapid response

- team dedicated to monitoring social media for false information and providing accurate updates.
- Collaborate with local organizations, influencers, and community leaders to enhance information dissemination and improve community engagement.
- Recognize the unique strengths of various social media platforms. Tailor messages to fit the characteristics of each platform while ensuring consistent messaging across all channels.

6. Policy Recommendations

Based on the findings of this literature review, the following policy recommendations are proposed for governments and organizations:

- Governments should require that social media be a fundamental component of emergency management plans, ensuring that agencies are equipped to use these platforms effectively.
- Provide funding and resources for the development and maintenance of social media capabilities within emergency management agencies. This includes technology, staffing, and training resources.
- Create policies that outline procedures for monitoring, identifying, and responding to misinformation on social media, protecting public trust during emergencies.
- Governments should engage in public awareness campaigns about the role of social media in emergencies. Educating the public on how to use social media responsibly can mitigate misinformation risks.
- Governments and organizations should support research initiatives that explore innovative uses of social media in crisis communication and community engagement.

7. Future Research Directions

While this review highlights significant findings regarding social media in emergency management, several areas warrant further investigation:

- Future research should focus on the effects of misinformation spread through social media during emergencies, examining its impact on public behavior and trust in authorities.
- Research should explore the effectiveness of different social media platforms in various contexts, including how demographic factors influence engagement and information dissemination.
- Longitudinal studies are needed to assess the long-term effects of social media engagement on community resilience and preparedness before and after emergencies.
- Comparative studies across different cultural contexts can provide insights into how social media is utilized in various regions and the implications for global emergency management practices.

- Investigate the role of new technologies, such as artificial intelligence and machine learning, in enhancing social media strategies for emergency management.

8. Conclusion

The role of social media in enhancing public awareness and response during emergencies is increasingly recognized as essential for effective crisis management. This literature review has synthesized findings from multiple studies, confirming that social media platforms serve as vital tools for real-time communication, community engagement, and situational awareness. The integration of social media into emergency management not only facilitates the rapid dissemination of critical information but also empowers communities to participate actively in disaster response efforts. As highlighted by Houston et al. (2014), effective use of social media can bridge communication gaps between emergency responders and the public, fostering a collaborative environment essential for timely and efficient responses. Moreover, the ability of social media to enable two-way communication allows community members to share their experiences and insights, which can significantly enhance collective action during crises (Alexander, 2013). However, the findings also underscore the challenges associated with social media use, particularly the spread of misinformation and the barriers to effective implementation within emergency management agencies (Plotnick & Hiltz, 2016). Addressing these challenges is critical for maintaining public trust and ensuring that social media can be harnessed effectively in future emergencies. To maximize the potential of social media in crisis situations, emergency management agencies must adopt best practices that include comprehensive social media strategies, regular training for responders, and proactive engagement with the public. Policymakers should also prioritize the integration of social media into emergency management frameworks and support research initiatives that explore innovative approaches to crisis communication.

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