

Disaster Information Seeking During Disaster: A Survey on How Public Use National Disaster Management Agency Malaysia's (NADMA) Social Media

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ABSTRACT

Social media tools provide the best opportunities to facilitate information dissemination to the public and access them during the disaster. During a disaster, the public keep seeking valuable information on social media from trusted sources to coordinate their actions. This paper presents a study that discovers how the public uses NADMA's social media to access information during a disaster. Hence, this study focuses on National Disaster Management Agency Malaysia (NADMA) regarding disaster situations on social media. This study utilised a quantitative research approach through a simple sampling technique. Besides, an online questionnaire survey was conducted, and 501 respondents were from the public on social media who follow the NADMA's official social media. The term of public's choice of social media and agencies technical were described. Otherwise, the frequency of the public seeking disaster information on social media was analysed. Types of information seeking by the public on social media were also explored. The results could guide the aspect of information management by disaster management teams on social media during disasters.

Keywords: Disaster Information, Disaster, Social Media, Information Seeking, Public Relation.

1. INTRODUCTION

Nowadays, the development of technologies allows people to send and receive information to interact with each other in multiple situations. Additionally, social media provides an effective platform to share various media types quickly and easily (Kaplan, 2010). The nature of social media makes them helpful tools for disaster management to create dialogues with the public, such as through Facebook or Twitter. The public also thinks more positively about organisations that keep maintaining a corporate blog by connecting in social media (Rowena, 2010). Despite the growing popularity of social media, it facilitates enhanced speed and breadth of information dissemination (Lindsay, 2011). Besides, in terms of disaster situations, social media enables communication to take place in real-time and extends engagement in online interactions.

Lessons learnt from disasters and emergencies that happened globally in back few years prove that social media tools may serve as an integral and significant component of crisis response (Simon, 2015). During disasters, social media has been used in different situations of emergencies, like after 9/11, ordinary communities created wikis to collect information about missing people during a disaster (Palen & Liu, 2007; Reuter & Spielhofer, 2016). Other than that, Ehnis and Bunker (2012) said that using Facebook can lead to effective disaster management

because a wide range of people can be reached on time during emergencies like disaster events. Even emergency service agencies have slowly started to adopt social media in the last few years in their work procedures (Ehnis & Bunker, 2012).

Most available studies are focused on how the public and authorities use these technologies in concrete events. Hence, this study explores how public use NADMA's social media to seek disaster information focusing on disaster situations.

2. LITERATURE REVIEW

Social media is increasingly being used to help to access information during disaster situations. At the same time, most American adults in 2009 started to put their trust in the Internet as their preferred source for information and the most dependable source for news during emergencies (Zogby, 2009). Additionally, The American Red Cross shows the use of social media by disaster management teams, its increase overall the impact of organisations and successfully achieving the strategic value of their organisations (Briones *et al.*, 2011). Instead, nowadays public expect more from disaster management teams to monitor and react to their social media posts during the disaster (Fraustino *et al.*, 2012). That showed that social media are used more than information seeking or sharing during a disaster. Besides, in emergencies, individual will use any of ways to make sure their get that updated information. In line with that, the public is searching for information for themselves to learn about current events, update their family and friend's location, and reduce their panic and uncertainty regarding what has happened (Mileti & Darlington, 1997; Simon *et al.*, 2015). The previous report also discussed how the public used social media during catastrophic events to understand these unpredictable events, such as Hurricane Katrina in 2005 and the 2010 Haitian earthquake (Duhé, 2007). During a disaster, the public naturally seeks information by using their social network (Palen & Liu, 2007), and if unsuccessful during that process, they will find the other alternative or preferred official sources of information (Stiegler *et al.*, 2011). However, during events that endanger the public's health, disseminating information needs to be clear and straightforward enough to make sure the public with high anxiety can define and comply appropriately (Wray *et al.*, 2008). Pass study also studied how the public use Twitter to choose which emergency organisation to coordinate activities during their response action and how the public and victims share information that they get during emergencies (Latonero & Shklovski, 2011). The findings strongly support the importance of disaster information on social media during a disaster. As can be seen from the discussion above, most researchers have generally studied how important disaster information is for public actions during a disaster. However, a minimum of previous studies has comprehensively studied how the public use disaster management agency's social media to seek information during a disaster, especially in Malaysia.

3. METHODS

A quantitative approach has been used to achieve the objectives of the study. The study consisted of identifying social media use by the public during a disaster. In this study, the researchers focus on National Disaster Management Agency Malaysia (NADMA) aspects, an emergency management agency of the Malaysian government. Simple random sampling was utilised in this study for a simple group from a larger population. This technique was chosen entirely by chance, and each member of the population has an equal chance of being included to be selected (Ary, 2010). Every possible sample of a given size has the same chance of selection, and then it helps decrease the lack of bias when each individual in a large population set has the same probability to be selected. This study also involves a population of users in social media and focuses on a large target group of the public on social media who follow the NADMA's official social media.

Respondents consisted of 501 students, of which 61.9% were female students, and the rest were 38.1% male students.

4. RESULTS AND DISCUSSION

During a disaster, social media allows interaction between agencies and the public to keep engaging by participating in, commenting on, and creating content on the same platform. Social media provides multi-channel to drive valuable disaster information for those affected in a disaster area and includes unaffected public seeking updates feeds. Here, social media use refers to how the public uses NADMA's social media to seek disaster information during a disaster situation. Overall, the result showed that the public keeps engaging with NADMA's social media to get information from trusted organisations during a disaster.

In the following sections, the researcher presents the results of the survey. First, presented results regarding the frequency of public seeking disaster information on NADMA's social media (Table 1). Then, this study elaborated the results on the public's choice of social media during a disaster (Table 2). While Table 3 shows the responses on the type of disaster information seeking by the public on NADMA's social media during disaster situations. Finally, this study presents the public's choices of NADMA's specialised agencies that help them to access disaster information (Table 4).

4.1 Frequency of Public Seeking Disaster Information on NADMA's Social Media

Initially, respondents were asked about their frequency of seeking disaster information on NADMA's social media during disaster situations. The results show that most public seeking disaster information is less than five times per day (73%). However, the minority public does not seek any disaster information during disaster situations (11.4%). Besides, only 15.6 % of the public prefer to seek disaster information more than five times per day during a disaster. Finally, the result can state that the public consistently seeks disaster information on NADMA's social media during emergencies.

Table 1 Frequency Public Seeking Disaster Information on NADMA's Social Media

Frequency seeking for disaster information (n=501)	Percentage	Percent
Not seeking at all	57	11.4
Less than five times per day	366	73.0
More than five times per day	78	15.6

4.2 Public's Choice of Social Media

Besides, respondents were asked about their choice of social media to access disaster information during a disaster. The results show that most respondents prefer to use NADMA's Facebook to get disaster information (57.7% answered yes). However, another 42.3% does not prefer to use NADMA's Facebook to choose during the disaster. On the other hand, a public that chooses NADMA's Twitter as a medium to get disaster information only at 22% and conversely, another 78% of the public answered no. A public that chooses NADMA's Instagram showed only 21.6% and another 78.4%.

Most respondents also choose Facebook does not belong to NADMA as they choices to get disaster information during a disaster (45.1%). Conversely, another 54.9% of the public agreed that Facebook does not belong to NADMA were not of their social media choice during a disaster.

However, the public choosing Twitter that does not belong to NADMA showed 19.8%, and 80.2% were from the public who did not choose them. 17.4% were from those who looked for disaster information by using other than NADMA's Instagram, and 82.6% were conversely. Lastly, a minimum of respondents has chosen YouTube, which does not belong to NADMA (15.6%), and others have shown in Table 2 (84.4%). Finally, the result can analyse that Facebook's NADMA is still relevant to be one of the public's choices to get information during disaster situations.

Table 2 Public's Choice of Social Media

Choice of Social Media (n=501)	Percentage		Percent	
	No	Yes	No	Yes
NADMA's Facebook	212	289	42.3	57.7
NADMA's Twitter	391	110	78.0	22.0
NADMA's Instagram	393	108	78.4	21.6
Facebook does not belong to NADMA	275	226	54.9	45.1
Twitter does not belong to NADMA	402	99	80.2	19.8
Instagram does not belong to NADMA	414	87	82.6	17.4
Youtube does not belong to NADMA	423	78	84.4	15.6

4.3 Type of Disaster Information Seeking by the Public from NADMA's Social Media

When asked whether they have used social media to find out information from specialized agencies in disaster situations, 56.5% of the general public agreed with that statement, and 43.5% were from conversely. Of those who had looked for information on social media relating to the warning (49.1%), news (45.7%), guidelines (37.7%) and infographics (40.7%). Other than that, many participants are also searching for awareness (41.7%), agency's reports (36.7%), frequency asked questions (FAQ) (36.5%) and digital posters (42.1%) on social media during a disaster situation. Some also used social media to find out information about simulations (39.9%) and donations (34.3%) relating to the disaster.

In contrast, there also some of the respondents were not looked for information relating to warnings (49.1%), news (45.7%), guidelines (37.7%), infographics (40.7%). Many respondents also reported that had they used social media were not searching for awareness (41.7%), agency's reports (36.7%), frequency asked questions (FAQ) (36.5%), digital posters (42.1%). More than that, some respondents also do not prefer to find out about simulations (39.9%) and donations (34.3%) on social media during a disaster. Overall, this study can conclude that specialized agencies' information was the most information that the public looked for from NADMA's social media.

Table 3 Type of Disaster Information Seeking by the Public from NADMA's Social Media

Type of Disaster Information (n=501)	Percentage		Percent	
	No	Yes	No	Yes
Information from Technical Agencies	218	283	43.5	56.5
Warnings	255	246	50.9	49.1
News	272	229	54.3	45.7
Guidelines	312	189	62.3	37.7
Infographics	297	204	59.3	40.7
Awareness	292	209	58.3	41.7
Agency's Reports	317	184	63.3	36.7
Frequency Asked Questions (FAQ)	318	183	63.5	36.5
Digital Posters	290	211	57.9	42.1
Simulations	301	200	60.1	39.9
Donations	329	172	65.7	34.3

4.4 Public's Choice of NADMA's Specialized Agencies

Furthermore, this section discussed the public's choice of NADMA's specialized agencies during disasters on social media. Here, specialized agencies refer to government organizations that help disaster management agencies achieve objectives well using their skills and experience. Initially, respondents were asked about their choice of NADMA's specialized agencies to help them search for disaster information.

The results showed that most respondents agreed that the Malaysian Ministry of Health was the best choice among other technical agencies to help them search for disaster information (83.2%), and another 16.8% think conversely. For World Health Organization, the result reported that only 31.7% chose them, and 68.3% were from the public that answered no. More than half (65.7%) of respondents indicated that the Malaysian Meteorological Department was one of the specialized agencies that help them seek disaster information on social media, and another 34.3% think differently. Those who had looked for information from the Department of Environment on social media showed 46.1% and conversely reported more than half (53.9%).

As can be seen in Table 4, the public who choose the Department of Irrigation and Drainage and Department of Social Welfare Malaysia social media as their platform to get disaster information were 20.8% and 26.1%, respectively. In contrast, most respondents do not choose them due to 73.9% and 76.0% each. Furthermore, the number of respondents who choose the Malaysian Public Works Department is only 24%, and another 76% prefer disparity. Finally, the Department of Survey and Mapping Malaysia showed the minimum values (7.8%) from respondents that choose them and another public contrasted with those statements (92.2%).

Table 4 Public's Choices of NADMA's Specialised Agencies

Choice of Technical Agencies (n=501)	Percentage		Percent	
	No	Yes	No	Yes
Malaysian Ministry of Health	84	417	16.8	83.2
World Health Organization	342	159	68.3	31.7
Malaysian Meteorological Department	172	329	34.3	65.7
Department of Environment	270	231	53.9	46.1
Department of Irrigation and Drainage	397	104	79.2	20.8
Department of Social Welfare Malaysia	370	131	73.9	26.1
Malaysian Public Works Department	381	462	76.0	24.0
Department of Survey and Mapping Malaysia	120	39	92.2	7.8

5. CONCLUSION

The study revealed that the public still uses NADMA's social media, especially Facebook, to access information during disasters. Measuring how the public uses NADMA's social media to seek disaster information reveals that the disaster management agency in Malaysia is still relevant for the public nowadays. It is also shown that the public still chooses trusted sources like disaster management agents to extend their engagement about real-time emergency events. Additionally, this study also realises that the public keeps searching for information from specialised agencies on NADMA's social media during a disaster. During a disaster, NADMA's specialised agencies help disaster management using their skill and experiences.

In terms of that, they allow the public to retrieve multiple types of information based on each specialised agency on social media. In line with that, the study showed that the Malaysian Ministry of Health is one of the selected technical agencies. To improve the effectiveness of disaster management on social media, NADMA has to prepare valuable and up-to-date information for the public consistently. Based on the results, this study facilitates an understanding of how the public use NADMA's social media to seek disaster information during a disaster. However, this project had multiples limitations. Our data collection approach was based on the limits of respondents. Future research is essential to focus on information seeking during a disaster for the public with disabilities or unique healthcare. Finally, to extend this study, the researcher can focus on how NADMA's specialised agencies impact information seeking by the public during a disaster.

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