PDC2023
Vienna, Austria

IAA-PDC-23-10-04

DEBUNKING THE PANIC MYTH AND WHAT IT MEANS FOR NEO COMMUNICATION STRATEGIES

Alex KARL(1)
(1)*IAF TC on PD and NEOs, Alsembersesteenweg 804, 1180 Ukkel, Belgium, +32476601431, alexanderkarl@hotmail.com*

Keywords: *panic, disaster warning response, communication, strategy*

ABSTRACT

It is a common assumption, both depicted in Hollywood movies as well as described in scientific papers, that the public would react to the news of an impending asteroid impact with panic, causing chaos and civil unrest, aggravating the situation.

Research in fields such as social psychology and psychiatry studying the responses of people during past disasters and associated warnings concluded that this assumption is largely false. Panic is quite rare and limited to certain situations for a brief time.

This paper summarizes the current models predicting how people will react and respond to disasters and their warnings and discusses what it means for communication strategies related to warnings and updates of potential asteroid impacts and their consequences as well as any associated disaster management efforts, concluding with some recommendations.

1. Introduction

Who has not seen a Hollywood blockbuster movie depicting a cosmic disaster such as an asteroid or comet heading to earth, threatening our very existence? What mental image first comes to mind? Masses of people running for their lives in sheer panic, looting, chaos and mayhem.

This image has found its way into the academic literature. Emanuelli et al. are using the word ‘panic’ 10 times in their 2014 IAC paper about an effective public NEO communication strategy, stressing that it needs to be avoided.[1] They are not the only ones, see [13,14,15], to name just a few.

The media has also picked up on this and titles headlines of many asteroid close fly-bys with the words “Don’t panic”, suggesting it is a normal response to this kind of news.

Perhaps not surprisingly it has also found its way into the heads of decision makers, who may be reluctant to issue warnings, or delay doing so and implementing evacuation procedures, for fear of causing panic. [2,3,4].

But is this really true?

2. Research

2.1 Panic

Panic infers irrationality, however people fleeing from danger is a very rational behavior. For instance, rushing for the exits in a structural fire may be the only rational course of action to take. Hence, the decision to label instances of collective flight as panic is arbitrary. [2,5,6]

Panic is a very rare form of human behavior. [4,6,7] It only occurs when four conditions are present. First, people are in a confined space like in a closed-in room or in a theater. Second, escape routes are present. Third, people are convinced that death is certain if they do not traverse the escape routes to safety. But convincing people that death is certain is almost impossible before an event has happened. Most people must see others dying in situ to believe that they too might die. When these conditions exist, people sometimes “panic” to compete with each other to traverse the available escape routes to preserve their own life. But panic is actually rare even when these four necessary but not sufficient conditions for it to occur exist.[6]

While mass panic (and/or violence) and self-preservation are often assumed to be the natural response to physical danger and perceived entrapment, the literature indicates that is not the case and the research showed that the supposed panic reaction of the population was almost exclusively a mass media creation.[2,5,8]

Researchers have pointed out the huge discrepancy between the actual frequency of panics in any sense of the term, and the exaggerated interest in and widespread use of the word not only in popular culture but also especially among social scientists who have not researched the phenomena.[5]

The often feared accompanying chaos and looting is rather an indication of social issues. Social psychologists accept both that looting is criminal behaviour, and that it is natural when the forces of law and order disappear. They distinguish different types of looting, including[9]:

- Looting of goods needed for survival
- Opportunistic theft of good such as TV sets
- Collective action, conditioned by the political environment.

Mass outbreaks of looting can follow precise patterns, which express the community's sense of right and wrong.[9] Fear of widespread looting has its own consequences such as refusing to evacuate, disruption of traffic and diverting law-enforcement personnel. [7]

2.2 Disasters

The typical response to a variety of threats and disasters is not to flee or attack but rather affiliation, that is, to seek the proximity of familiar persons and places; moreover, separation from attachment figures is a greater stressor than physical danger.

Studies of collective behavior in disasters thus show that fear tends to be minimal and expressions of mutual aid predominate. On the negative side, however, people in groups of familiars are generally slow to react to initial warnings, slow to leave work areas, and wait to assemble with their primary group before evacuating. Thus, evacuation may be so delayed that survival is threatened. In certain situations, such as structural fires, the tendency to seek the familiar in the face of imminent physical danger can have disastrous consequences in terms of increasing the risk of severe injury or death.

Thus, from a public health or safety point of view, the problem in disasters is not that people tend to panic and act precipitously in response to danger, but that people typically delay or fail to take appropriate evasive action when it is needed.[2,7]

The way danger and evacuations are communicated during a disaster is crucial. One study highlights the importance of issuing prompt instructions to the public, explaining what is happening, what to do and why, if a successful evacuation is to be achieved.[10] Similarly, another report recommends to trust the public with information which leads to increased compliance when evacuating.[11]

2.3 Disaster Warnings

Disaster warnings are always associated with some degree of uncertainty. The initial reactions to this may be low compliance, but not panic, chaos and looting. For example, amid the uncertainty of the Y2K period, some Americans stocked up on food, water and guns in anticipation of a computer-induced apocalypse [12], which is in line with authorities general recommendation to stockpile supplies for emergencies.

Issuing disaster warnings is more complex than just communicating scientific facts. Warnings also have to take into account different specific events, nations, and cultures as different groups can react differently to the same warnings. [4,6]

People learn about disaster risks and how to adjust to them as much via informal networks as via official risk communications. Trust is a crucial factor that underpins adjustment adoption. High trust will motivate people to adopt adjustments. Low trust will dampen this motivation.
Risk knowledge circulating through social networks can lead to a sense of responsibility for adjusting to the risk. However, this is contingent on having the right knowledge, and a sense that one can reduce risk. Drivers of adjustment are: Risk perception, knowledge, responsibility, trust and control. In sum, risk perception is not driven by scientific estimates of physical hazard. Instead, psychological and social factors shape risk perceptions, on both the conscious and subconscious levels. Sensing risk is in itself not enough to motivate adjustment behaviours. Risk must be socialised and made visible through both formal and informal communicative

networks. Peer influence and norms motivate feelings of social responsibility. Yet responsibilities will not easily be acted on unless people have both a sense of trust and a sense of control.[8]

3. Disaster Communication Strategies

The research in the field of public disaster response is extensive. Dennis Mileti summarizes it well in his white paper[6]:

There is elaborate research-based empirical evidence on the topic of what it takes for warnings to help people to shed their safety perceptions and then take timely and effective protective actions. Here is what has been learned. People do not immediately respond to early warnings because they first “search” for additional information to “confirm” that they are really at risk. This search response happens despite the technology used to give warnings. Searching is a social phenomenon. It involves talking things over with others and seeking to hear the same warning over and over and from different sources before safety perceptions are relinquished. Warned people turn to friends, relatives, and strangers to determine if they agree that risk is present and if protective actions are warranted. This process--constructing new perceptions of risk out of existing perceptions of safety--adds time before protective actions are taken, it is fundamental to human beings worldwide, and it simply is not going to change. Public warnings work best when they facilitate the process and speed it along. Ignoring this basic human element in providing public disaster warnings has and will continue to cost human lives.[6]

What is said and not said in a public warning message has a profound effect on what people think and then do in response to hearing that warning message. Research evidence, accumulated and replicated over decades, can be summarized as follows. Three topics are vital to address in a public warning message to maximize the odds that the endangered public takes timely and effective actions. These are: source, content, and style.[6]

Source: The idea of a single credible spokesperson for emergency warning is faulty. There are three reasons why. First, different people in the public have different ideas about who is and who is not credible. Second, people’s ideas about credibility change over time. Third, spokesperson credibility and warning message belief are different, and the former does not guarantee the latter. The most credible early warning source is not a single spokesperson at all. It is a group of different people and organizations. Creating a mixed panel to be the source of public warnings requires that many agree to partner to be a warning co-source long before a particular event occurs. Consequently, it falls into the domain of pre-event emergency planning.[6]

Content: Research also documents the need for four additional items to be in a warning to facilitate public protective action taking. First, and most important, is to give people “guidance about exactly what they should do” using words that paint the picture of what their response should look like. Second, warning messages should tell people about “the timing” of their actions. Warnings have a higher probability of being followed by appropriate public response it they tell people when they should start and by when they should complete the recommended protective action.Third,

warnings tend to work better when they tell people “who does and who does not have to take the protective action” and also explain why. People in harm’s way need to clearly understand that you are talking to them. And people who are safe need to be told so. Last, people are more apt to take protective actions if the warning informs them about the pending hazard’s “consequences and how the protective action will cut their pending losses”. But research does not conclude that warnings should provide people with a science lecture about the phenomenon that is about to occur. It does conclude that the basis for protective action recommendations should be clear to the people being warned.[6]

The public will be starving for information. Thus the more proper information the authorities can provide mitigates the information vacuum before rumours, myths, misinformation, and ultimately hoaxes can take their course.[4]

Style: Warning message style is about how the warning is “worded and spoken” and it too influences public response. Research documents five style elements to use. The first is “clarity.” Research clearly documents that simply worded messages work best. Jargon should never be used. A good rule of thumb to use in wording a public warning is that you should say it another way if your grandmother could not understand it. The second important style element is to be “specific.” Warning information that is precise and non-ambiguous works best. A third style element to include is “certainty”. This means provide authoritative and confident language about what you tell people. One may wonder how to be certain about the uncertain disaster forecasts that so often come from scientists. Here is how you do it. Tell people “we cannot know if the tsunami will actually reach our coastline or exactly how high it may be if it does, but all the experts agree that it’s likely enough that everyone should evacuate now. “Accuracy” is the fourth warning style element to affect public response. The people you warn need to think that they are being given accurate information. Inaccurate information or errors in information confuse people and their response. Information accuracy means telling people the truth. But it also means thinking about how people will interpret what you say. The final warning style element is “consistency.” Consistent information works best. Inconsistent information can leave people with too much choice about the risk and protective action-taking. And given the choice, most people prefer selecting information that says they are safe and not at risk. Consistency is applicable to a single message itself, and also applies across messages. Changes from past messages should be explained in subsequent messages. Why what you are saying is different from what others have said also needs to be explained. And inconsistencies inside a message should be removed.[6]

How warning messages are delivered to the public also influences public action-taking because the delivery method impacts the amount of time it takes people in the public to convert pre-warning “perceptions of safety” into “perceptions of risk”. Research documents three message delivery factors that impact people’s warning response. These are the number of communication channels used, the type of channels used, and the frequency with which the warning message is communicated to the public. Put simply, the more different channels of communication are used to communicate the warning message to the same public the better. As the number of times that people hear the same warning message increases, the more likely they are to become convinced that they are at risk and then take a protective action. In

fact, the more a warning is heard over and over the better. This key research finding is easily converted into warning plans: repeat the warning, then repeat the warning again and again, and do not stop repeating it.[6]

Mileti further addresses three public warning response myths and refutes them: panic has never resulted from issuing disaster warnings, short warnings can actually be harmful as people are “information starved” and want to know as much as they can, and cry wolf situations will not happen as long as the “false alarm” is explained to the public.[6]

Nonetheless, panic theories continue to exert a powerful influence on popular representations of disaster/emergency behaviour, on policy planning and decision-making, as well as on the sciences.[5] Those who write the warning messages that are actually issued to the public rarely, if ever, have a working knowledge of the science-based research findings in the social sciences about public warning response and the factors that direct it. This results in less effective warning messages being issued to the public than is possible.[6]

4. Conclusion and Recommendations for NEO communication strategies

The research shows that fears about causing panic and chaos when issuing warnings about potential or confirmed asteroid impacts are unfounded. Rather than fearing communicating with the public too early, we should be concerned about communicating too late.

Another key element identified is trust. People respond better to warnings and instructions when they trust the source and are entrusted with information. Building trust with the public is thus another key part of preparing warning messages about asteroid hazards.

It is crucial to educate the planetary defense community and especially the decision makers and disaster managers to take the existing social science research into account and ideally to collaborate with experts in the field to improve warnings and communications with the public.

References

[1] Emanuelli, M. et. al., (2014). The near earth object threat: An effective public communication strategy. IAC-14.E5.5.5, 65th IAC, Toronto, Canada.

[2] Mawson, A. R. (2005). Understanding Mass Panic and Other Collective Responses to Threat and Disaster. Psychiatry 68(2) Summer 2005 (pp. 95-112)

[3] Sime, J. D. (1980). The concept of panic. In D. Canter (ed.). Fires and human behavior (1st ed.), (pp. 63–81). Chichester, UK: John Wiley.

[4] Lea, M., Rogers, P., (2005). Psychological and Behavioural Responses to CBRN Disasters

[5] Quarantelli, E. L., (2001). The Sociology of panic, Smelser and Baltes (eds) International Encyclopedia of the Social and Behavioral Sciences

[6] Mileti, D. S., (2012?), Public Response to Disaster Warnings, https://swfound.org/media/82620/public%20response%20to%20disaster%20warnings%20-%20dennis%20s.%20mileti.pdf

[7] Heide, E. a. D., (2004). Common Misconceptions about Disasters: Panic, the "Disaster Syndrome," and Looting. O'Leary M (2004) The First 72 Hours: A Community Approach to Disaster Preparedness. Lincoln (Nebraska), iUniverse Publishing.

[8] Solberg, C., Joffe, H. and Rossetto, T., (2008). How people behave in anticipation of and during earthquakes: A review of social science literature on what drives this behaviour. 14th World Conference on Earthquake Engineering, 12-17 October 2008, Beijing, China

[9] Mulvey, S., (2010). Chile earthquake: Why do people loot?. BBC News. http://news.bbc.co.uk/2/hi/americas/8546411.stm (accessed 25 March 2023)

[10] Proulx, G., Sime, J. D. (1991). To Prevent 'Panic' in an Underground Emergency: Why Not Tell People the Truth? Fire Safety Science Proceedings of the 3rd International Symposium (pp. 843-852)

[11] Drury, J., Cocking, C. (2007). The Mass Psychology of Disasters and Emergency Evacuations: A Research Report and Implications for Practice. University of Sussex

[12]Uenuma, F., (2019). 20 Years Later, the Y2K Bug Seems Like a Joke—Because Those Behind the Scenes Took It Seriously. Time. https://time.com/5752129/y2k-bug-history/ (accessed 25 March 2023)

[13] Chapman, C. R., Durda, D. D., Gold, R. E. (2001). The Comet/Asteroid Impact Hazard: A Systems Approach, SwRI White Paper: http://www.boundarycondition.com/NEOwp_Chapman-Durda-Gold.pdf (accessed 26 March 2023)

[14] Shiga, D. (2009). It's Behind You! New Scientist Volume 203. Issue 2727, (pp.30-33).

[15] Shirish, R., Groeve, T.d., Mani, L., Bjorgo, E., Moissl, R., Roncero, J. M., Rowan, K., Schuld, D., Lewis, L.A., Kofler, R. (2022), When It Strikes, Are We Ready? Lessons Identified at the 7th Planetary Defense Conference in Preparing for a Near-Earth Object Impact Scenario. International Journal of Disaster Risk Science (2022) 13 (pp.151-159).