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A challenging empirical question: What are the effects of media on psychogenic illness during a community crisis?

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Abstract

Psychogenic illness during disasters can cripple emergency healthcare services. Almost all research into this phenomenon has been retrospective and observational, and much of it suggests that media coverage can amplify psychogenic outbreaks. But there is little empirical evidence that this is true or that, conversely, media reports can mitigate psychogenic symptoms. In their work experimentally inducing psychogenic illness, the authors became sharply aware that it is difficult to experimentally mimic real-time media coverage. Yet clarifying media's effects on psychogenic illness is important if we want to prevent psychological disturbance. To meet this challenge, the authors advocate the funding and development of research protocols in advance of public emergencies, ready to be implemented in real-time. Coupled with digital media, which can track the reading and viewing behavior of millions of people, this approach can help us better understand media's impact on public health during an emergency, for better or for worse.

Keywords

disaster; mass media; social medicine; psychosomatic disorders

Psychogenic illness can emerge during unremarkable community events as well as public health disasters. When outbreaks occur, individuals experience symptoms that have no discernible physical cause but that spread as if contagious.[1-4] Even with minor events, such outbreaks can overburden health services, as medical personnel deal with symptoms and look for organic illness. Worse yet, when outbreaks occur in tandem with a disaster, whether natural or manmade, they can cripple emergency healthcare services, preventing care from being effectively delivered to those in most need. For instance, in 1995, when terrorists released sarin nerve gas in the subways of Tokyo, about 85 percent of the 5,500 people who sought care in hospitals had no actual exposure, but many exhibited symptoms. [5]

Almost all research into this phenomenon has been observational and anecdotal, and much of it has suggested that media coverage can amplify psychogenic outbreaks. To allow more rigorous investigation, our laboratory has been conducting research to create an experimental analogue. We recently completed experiments to induce psychogenic illness and included media exposure as one of the conditions.[6] Although we were able to demonstrate the social contagion aspect of psychogenic illness, we found no effect due to media exposure. We are aware, however, that the media exposure we used, watching a documentary film, did not fully reflect the real-world experiences of news consumers during a public health emergency. As we wrestled with our study design, we came to realize that creating an experimental condition that mimics real-time media coverage during an emergency is a true challenge. Yet it is important to clarify media's effects on induction of stress and psychogenic illness, so we can understand and learn to mitigate significant psychological disturbance.

Many observational studies and commentaries on the consequences of media coverage during a crisis suggest that it can escalate the emotional response leading to negative psychological effects. The arrival of ambulances and news reporters at the site of a sudden illness outbreak has been said to increase the numbers of persons reporting illness, heightening anxiety and confirming the sense that something real and dangerous is occurring.[7-9] Some authors state flatly that newspaper and television reports spread psychogenic illness and that lack of coverage will prevent spread.[10, 11] One set of authors notes: "Nearly all who write on this topic draw attention at some stage to the role of the media, usually in unflattering terms." [8] Yet surprising, there is little or no empirical evidence to support assertions that media reports fuel psychogenic outbreaks.

The strongest evidence of media impact comes from post-hoc observational studies of the aftermaths of the September 11th attacks in 2001 and the 1995 Oklahoma City bombing. Researchers found that heavy viewing of television reports about the terrorist attacks was associated with symptoms of distress, stress or post-traumatic stress disorder.[12-18] This link was sometimes seen only in certain groups, such as children under 10,[19] or in people who also had been personally affected, especially if they repeatedly viewed specific images, such as people falling from the World Trade Center.[20] Because they rely on retrospective correlations between news exposure and reports of symptoms, these study designs are not able to demonstrate a causal link or establish the direction of association – is media consumption the cause or the effect of an individual's psychological response?

Authors of such retrospective studies consistently observe that greater media exposure may be a marker of distress, rather than a cause. In the following statement, for instance, researchers offer three possible scenarios for the interplay of media and psychogenic symptoms. In only one of these is media a cause rather than an effect:

"The associations could be an indication that exposure via TV contributed to the development of the symptoms, that those who were already distressed by other September 11 exposures watched TV coverage as a coping mechanism, or that psychologically vulnerable persons are more likely to seek out such exposures via TV." p. 587[14]

Are psychologically vulnerable persons more likely to watch TV footage of disaster, over and over? The literature on the effects of personality on media choice and consumption is inconclusive. Two studies do link neuroticism to attention to media. Shim and Paul found "neuroticism was positively associated with attention to all genres assessed" -- news, soap operas, reality shows, talk shows and crime dramas.[21] Weaver found that male college students scoring high on neuroticism expressed a strong preference for "information/news

television programs” over comedy or action-adventure offerings.[22] Thus, personality and personal history may interact with the impact of crisis media.

Empirical evidence that news reports fuel stress may be lacking. But, what about the opposite hypothesis? It is often said that in crisis situations the news media can play a positive role by conveying accurate information, outlining steps people can take to protect themselves, and relaying realistic messages of reassurance.[23, 24] During a crisis, the media serve as a conduit for official and expert statements. Teaching public health officials how to convey such messages directly, through their own communication networks, and indirectly, through the news media, is central to the practice of risk communication as embraced and taught by the Centers for Disease Control and Prevention, among others. [25-27] Yet, just as we have little empirical evidence that news media reports cause anxiety, stress or psychogenic symptoms, we also do not know to what extent, if any, media reports can mitigate these harmful reactions. Such extremely broad questions about the impact of media should serve as a gateway to more focused, useful questions. We need to learn which characteristics of messages in differing formats, including the increasingly dominant arena of web-based media, help to determine their impact on various kinds of individuals.

One reason empirical evidence is lacking is that it’s hard to gather. Once a crisis is underway, it is extremely difficult to implement prospective data collection. Researchers can more readily conduct retrospective correlational studies, but they cannot determine causality. One solution is to provide research funding to support the development of research protocols in advance of public emergencies, ready to be implemented in real-time to test hypotheses like the impact of media and public health messaging on individuals’ stress reactions during an actual crisis. This would allow researchers to study the impact of media coverage in its full complexity, looking not only at the verbal, visual and aural content of media messages, but at their volume and repetitiveness, within the context of an unfolding crisis.

Understanding the role of news reports in stoking or preventing stress, anxiety and psychogenic illness is important as we seek ways in which society can respond most effectively to crises. And now may be the perfect time for deeper investigation. The rise of websites, blogs, podcasting, viral videos, and social media has profoundly changed the way people around the world get their news, with more change on the way. For instance, in an analysis comparing the coverage of radiation issues in the Three Mile Island, Chernobyl and Fukushima nuclear accidents, Friedman attributes the differences largely to the existence of new social media, which allowed non-journalists to share information about Fukushima and to help inform mainstream coverage. As a result, she concludes that coverage of radiation information was superior in the Fukushima case, even if television coverage had weaknesses.[28]

The new digital media present an open canvas for study and analysis of the effects of coverage on stress, anxiety and psychogenic symptoms. At the same time, they lend themselves to new metrics, new means of analysis. In many cases, readers’ and viewers’ behavior can be tracked click by click and second by second, so researchers can tell what people actually read, hear, view and respond, rather than what they recollect they did. Moreover, through digital media, researchers can observe the behavior of not a few dozen or a few hundred research subjects, but of millions of people.

These tools already are bearing fruit in some research fields. A study published recently in *Science*, for instance, tracked daily and seasonal variations in mood by analyzing 509 million Twitter messages posted by about 2.4 million individuals over two years.[29] “Data from increasingly popular online social media allow social scientists to study individual

behavior in real time in a way that is both fine-grained and massively global in scale,” the authors write. With tools such as these, and advance funding and planning of research protocols, we can make progress toward understanding the impact that news coverage has on public health during an emergency, for better or for worse.

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References

1. Boss LP. Epidemic hysteria: a review of the published literature. *Epidemiologic Reviews*. 1997; 19:233–43. [PubMed: 9494785]
2. Bartholomew R. Rethinking the dancing mania. *The Committee for Skeptical Inquiry*. 2000
3. Pastel R. Collective Behaviors: Mass panic and outbreaks of multiple unexplained symptoms. *Military Medicine*. 2001; 166:44–6. [PubMed: 11778431]
4. Jones TF, Craig AS, Hoy D, et al. Mass psychogenic illness attributed to toxic exposure at a high school. *New England Journal of Medicine*. 2000; 342:96–100. [PubMed: 10631279]
5. Smithson, A. Rethinking the lessons of Tokyo. In: Smithson, A.; Levy, L., editors. *Ataxia: The Chemical and Biological Terrorism Threat and the US Response*. The Henry L. Stimson Center; Washington, DC: 2000. p. 71-111.
6. Broderick JE, Kaplan-Liss E, Bass E. Experimental induction of psychogenic illness in the context of a medical event and media exposure. *American Journal of Disaster Medicine*. 2011; 6:163–72. [PubMed: 21870665]
7. Vasterman P, Yzermans CJ, Dirkzwager AJ. The role of the media and media hypes in the aftermath of disasters. *Epidemiologic Reviews*. 2005; 27:107–14. [PubMed: 15958431]
8. Page LA, Petrie KJ, Wessely SC. Psychosocial responses to environmental incidents: A review and a proposed typology. *Journal of Psychosomatic Research*. 2006; 60:413–22. [PubMed: 16581367]
9. Hefez A. The role of the press and the medical community in the epidemic of “mysterious gas poisoning” in the Jordan West Bank. *Am J Psychiatry*. 1985; 142:833–7. [PubMed: 4014505]
10. Modan B, Swartz TA, Tirosh M, et al. The Arjenyattah epidemic. A mass phenomenon: spread and triggering factors. *Lancet*. 1983; 2:1472–4.
11. Karam EG, Khattar LH. Mass psychogenic illness (epidemic sociogenic attacks) in a village in Lebanon. *Journal Medical Libanais Lebanese Medical Journal*. 2007; 55:112–5.
12. Ahern J, Galea S, Resnick H, et al. Television images and probable posttraumatic stress disorder after September 11: the role of background characteristics, event exposures, and perievent panic. *J Nerv Ment Dis*. 2004; 192:217–26. [PubMed: 15091303]
13. Schuster MA, Stein BD, Jaycox L, et al. A national survey of stress reactions after the September 11, 2001, terrorist attacks. *New England Journal of Medicine*. 2001; 345:1507–12. [PubMed: 11794216]
14. Schlenger WE, Caddell JM, Ebert L, et al. Psychological reactions to terrorist attacks: Findings from the National Study of Americans’ Reactions to September 11. *Jama*. 2002; 288:581–8. [PubMed: 12150669]
15. Silver RC, Holman EA, McIntosh DN, et al. Nationwide longitudinal study of psychological responses to September 11. *Jama*. 2002; 288:1235–44. [PubMed: 12215130]
16. Pfefferbaum B, Seale TW, McDonald NB, et al. Posttraumatic stress two years after the Oklahoma City bombing in youths geographically distant from the explosion. *Psychiatry*. 2000; 63:358–70. [PubMed: 11218559]
17. Pfefferbaum B, Nixon SJ, Tivis RD, et al. Television exposure in children after a terrorist incident. *Psychiatry*. 2001; 64:202–11. [PubMed: 11708044]

18. Pfefferbaum B, Seale TW, Brandt EN Jr, et al. Media exposure in children one hundred miles from a terrorist bombing. *Ann Clin Psychiatry*. 2003; 15:1–8. [PubMed: 12839427]
19. Otto MW, Henin A, Hirshfeld-Becker DR, et al. Posttraumatic stress disorder symptoms following media exposure to tragic events: impact of 9/11 on children at risk for anxiety disorders. *J Anxiety Disord*. 2007; 21:888–902. [PubMed: 17276653]
20. Ahern J, Galea S, Resnick H, et al. Television images and psychological symptoms after the September 11 terrorist attacks. *Psychiatry*. 2002; 65:289–300. [PubMed: 12530330]
21. Shim J, Paul B. Effects of personality types on the use of television genre. *Journal of Broadcasting & Electronic Media*. 2007; 51:287–304.
22. Weaver J. Exploring the links between personality and media preferences. *Personality and Individual Differences*. 1991; 12:1293–9.
23. Nacos, B. *Mass-mediated terrorism: The central role of the media in terrorism and counterterrorism*. Rowman and Littlefield Publishers, Inc; London: 2007.
24. Graber, D. *Mass Media and American Politics*. Congressional Quarterly Press; Washington, DC: 2009.
25. Centers for Disease Control and Prevention. [Accessed 2011 October 29] *Crisis & Emergency Risk Communication* [internet]. Available from: <http://www.bt.cdc.gov/>
26. Becker SM. Emergency communication and information issues in terrorist events involving radioactive materials. *Biosecurity & Bioterrorism*. 2004; 2:195–207. [PubMed: 15588058]
27. Prue CE, Lackey C, Swenarski L, et al. Communication monitoring: shaping CDC's emergency risk communication efforts. *Journal of Health Communication*. 2003; 8:35–49. [PubMed: 14692571]
28. Friedman S. Three Mile Island, Chernobyl and Fukushima: An analysis of traditional and new media coverage of nuclear accidents and radiation. *Bulletin of the Atomic Scientists*. 2011; 67:55–65.
29. Golder SA, Macy MW. Diurnal and seasonal mood vary with work, sleep, and daylength across diverse cultures. *Science*. 2011; 333:1878–81. [PubMed: 21960633]