ORIGINAL RESEARCH

Outbreak or Epidemic? How Obama's Language Choice Transformed the Ebola Outbreak Into an Epidemic

Anat Gesser-Edelsburg, PhD; Yaffa Shir-Raz, PhD; Oshrat Sassoni Bar-Lev, MA; James J. James, MD, DrPH, MHA; Manfred S. Green, MSc, MBChB, MPH, PhD

ABSTRACT

Objective: Our aim was to examine in what terms leading newspapers' online sites described the current Ebola crisis.

Methods: We employed a quantitative content analysis of terms attributed to Ebola. We found and analyzed 582 articles published between March 23 and September 30, 2014, on the online websites of 3 newspapers: *The New York Times*, *Daily Mail*, and *Ynet*. Our theoretical framework drew from the fields of health communication and emerging infectious disease communication, including such concepts as framing media literacy, risk signatures, and mental models.

Results: We found that *outbreak* and *epidemic* were used interchangeably in the articles. From September 16, 2014, onward, *epidemic* predominated, corresponding to when President Barack Obama explicitly referred to Ebola as an *epidemic*. Prior to Obama's speech, 86.8% of the articles (323) used the term *outbreak* and only 8.6% (32) used the term *epidemic*. Subsequently, both terms were used almost the same amount: 53.8% of the articles (113) used the term *outbreak* and 53.3% (112) used the term *epidemic*.

Conclusions: Effective communication is crucial during public health emergencies such as Ebola, because language framing affects the decision-making process of social judgments and actions. The choice of one term (*outbreak*) over another (*epidemic*) can create different conceptualizations of the disease, thereby influencing the risk signature. (*Disaster Med Public Health Preparedness*. 2016;page 1 of 5)

Key Words: Ebola, framing affect, outbreak and epidemic, EID communication, content analysis

The surge of Ebola virus disease (EVD) that began in December 2013 in 3 West African countries (Guinea, Liberia, and Sierra Leone) is the largest ever documented.[1] It has once again brought into focus the confusion associated with the use of the term *epidemic*. Ebola, one of numerous viral hemorrhagic fevers,[2] is a severe, often fatal illness in humans.[3] According to the World Health Organization (WHO) Situation Report of 17 February 2016,[4] 28,639 cases and 11,316 deaths were reported to the WHO up to 14 February 2016.

Given these numbers, the ongoing Ebola episode should be described as an epidemic. According to the literature, whereas an outbreak is a sudden rise in the occurrence (the number of cases) of a disease,[5] an epidemic is the occurrence of more cases of a disease than is anticipated in a community or region during a given period by previous experience.[6] Nevertheless, leading health organizations, such as the WHO and the Centers for Disease Control and Prevention (CDC), continue to characterize it as an outbreak.[7,8] For example, a news release published on the WHO website as recently as September 19 dubs the current Ebola epidemic an "ongoing outbreak."[8] Similarly, a CDC website headline reads, "2014 Ebola Outbreak in West Africa." However, in his speech on September 16, 2014, at the CDC, President Barack Obama referred to Ebola as an epidemic.[9] Although in later speeches Obama tried to placate the public regarding the crisis, behind the scenes he was concerned about the escalating episode and even criticized the CDC for its response as being "not tight,"[10] which suggests that his use of the term *epidemic* was not accidental.

Following the work of Kahneman and Tversky and others in the 1970s and early 1980s,[11-13] studies have shown that that the public's response to a given message can depend on how the message is tailored and how it is subsequently encoded by the recipient.[14,15] When health authorities make a decision—to declare or not to declare an epidemic or an outbreak, for example—this decision frames the risk to the public and has political, economic, and policy implications, as well as implications for public health and for the public's trust.

 DOI: 10.1017/dmp.2016.48

The authorities' deliberation regarding whether to frame a disease as an epidemic or a pandemic may also arise from conflicts among experts, who continue to deliberate as to when to employ different terms in light of the emphases accompanying them (Kimball et al., written communication, September 2014). When a strange type of illness occurs, or an unusually large number of people develop an illness or symptoms, the situation may be considered an outbreak, an epidemic, another type of infectious disease emergency, an environmental issue, or an incident of bioterrorism.[5] The terms *outbreak* and *epidemic* are used interchangeably and sometimes together by many epidemiologists and in the professional literature.[6,16,17] There are scientific articles in which the title indicates an epidemic, while in the body of the paper the episode is called an outbreak.[6]

However, the general population tends to perceive the term *epidemic* somewhat differently from that intended by epidemiologists. According to the CDC, the public is more likely to think that *epidemic* implies a crisis situation.[16] The popular literature uses the term *epidemic* to indicate an outbreak associated with greater risk and greater danger to the public and striking a large number of victims.[6]

The declaration or nondeclaration of an epidemic entails different risk framing, possessing different risk signatures[18] in terms of their capacity to engender certain patterns of public understanding. The concept of risk signatures shows that the correlation between scientific terminology and public understanding is not predictable or straightforward. Using the current Ebola episode as a case in point, the terms through which authorities communicate the risk of Ebola, whether as a "mere" outbreak or as an epidemic, influence the response, attitudes, and behaviors of the public. The risk communication approach indicates that public engagement and involvement[19] are imperative, stressing the importance of building trust with the public[20-22] under the unique conditions that prevail during an emerging infectious disease outbreak.[23-25]

In risk communication, the health literacy of the public and how the public understands the definitions of scientific phenomena are connected to the Mental Models approach. This approach calls for research to gauge the public's comprehension of science compared with that of the experts in order to make information more accessible to the public.[26]

The WHO has defined health literacy as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health."[27] Health information can be ineffective or even harmful if the public does not possess high enough levels of health literacy to access the information, understand what is being communicated, and appropriately apply it.[28]

The media conveys information about illnesses and outbreaks and mediates the authorities' decisions and frames to the public. Media literacy is the public's "ability to access, analyze, evaluate, and produce communication in a variety of media forms."[29] One who has developed media literacy will be able to discern the validity and relative worth of information.[30]

The terms through which an outbreak are communicated and how these terms are understood (media literacy) are crucial. The aim of the present study was to examine in what terms leading newspapers and news sites characterized the Ebola crisis.

METHODS

To examine how the media characterized Ebola, we employed a quantitative content analysis of concepts and terms attributed to the disease, including *outbreak*, *epidemic*, and others. This technique is often used in communication studies, including health communication, and is implemented in a variety of areas, including examining media content versus reality,[31,32] comparison of media content,[33] and identifying trends in the media.[34]

Sample

Our sample included online websites of 3 leading newspapers from 3 different countries: *The New York Times* (United States), *Daily Mail* (United Kingdom), and *Ynet* (Israel). *The New York Times* is the second largest newspaper in the United States;[35] the *Daily Mail* is the most read newspaper brand in the United Kingdom;[36] and *Ynet* has a 36.4% share of the Israeli market according to a TGI survey.[a,37] We gathered 582 articles: 80 articles from *The New York Times*, 444 articles from the *Daily Mail*, and 58 articles from *Ynet*.

We analyzed all of the online articles that reported on the Ebola disease from each newspaper's website, from March 23, 2014, the date on which the WHO declared an outbreak of the Ebola disease, to September 30, 2014, when the first case of Ebola was reported in the United States.

Analysis Procedure

We retrieved excerpts that contained terms referring to the Ebola disease in headlines, subheadings, and texts of the articles. Then we quantified the terms *outbreak* and *epidemic*.

[a]Because the study examines the potential influence of the terms *outbreak* and *epidemic*, we chose to examine newspapers from English-speaking countries–United States and United Kingdom. While in Hebrew, these terms are used in an identical manner, in other languages, such as French and Italian, it is possible that these terms are used differently than in English. For example, according to the English-Italian dictionary, the term *outbreak* translates to *epidemia* in Italian, when used in relation to diseases, while the term *scoppio* in Italian, which literally means "outbreak," is used in relation to violence. In addition, since we examined the potential influence of the American president's speech, our first choice was an American newspaper. Furthermore, *The New York Times* and the *Daily Mail* websites are 2 of the most prominent newspaper websites in the world (Wheeler, 27 January 2012; eBizMBA, 2015). Israel was also chosen because the Israeli Ministry of Health follows the WHO and the CDC instructions and recommendations for crisis situations, so we could examine how the US policy influences the media discourse in Israel.

In addition, we found and quantified other terms used in the articles to describe Ebola, namely, *disease*, *virus*, and *spread*.

We also quantified the terms used before and after Obama's speech on September 16, 2014, in which he referred to it as an epidemic.[9] We made this decision during the course of our research upon finding that there was a significant increase in the use of *epidemic* following Obama's speech. We conducted separate analyses of each newspaper. Then we compared the newspapers to view overall coverage.

RESULTS

Three main findings emerged from the analysis. The first was that both terms, *outbreak* and *epidemic*, were used interchangeably in articles focusing on Ebola. The second finding was that the term *outbreak* was used most frequently. As shown in Table 1, we found that *outbreak* appeared in 436 of 582 articles (74.9% of all articles), whereas *epidemic* appeared in 144 (24.7%).

An examination of each newspaper separately showed that in both English-language newspapers, *outbreak* was more prevalent. In *The New York Times*, the term appeared in 65 of 80 articles (81.3%), while the term *epidemic* appeared in 17 articles (21.3%). Similarly, in the *Daily Mail*, *outbreak* appeared in 356 of 444 articles (80.2%), while *epidemic* appeared in 102 (23%). In contrast, on *Ynet*, *epidemic* was more prevalent. It appeared in 25 of 58 articles (43.1%), while *outbreak* appeared in 15 (25.9%).

Furthermore, we found that in 31 articles published in the 3 newspapers, both terms were used interchangeably in the same article, sometimes even in the same sentence. This occurred in 24 of 444 articles in the *Daily Mail* (5.4%), 3 of 80 articles (3.8%) in *The New York Times*, and 4 of 58 articles (6.9%) on *Ynet*. For example, in an article from July 27, 2014, in *The New York Times*,[38] both terms are used: *outbreak* is used in the subheading of an accompanying video: "Amid the deadliest Ebola virus outbreak in history, doctors are fighting the disease and also local populations' fear of medical treatment." In the body of the article, *epidemic* is used: "Health workers here say they are now battling two enemies: the unprecedented Ebola epidemic…and fear." In an article from September 17, 2014, in the *Daily Mail*,[39] *outbreak* and *epidemic* are used in the same sentence: "The U.S. yesterday vowed to deploy 3,000 armed troops to Liberia, the country hardest hit by the outbreak, to help tackle the epidemic." In a small percentage of the articles, 5.5% overall (32 articles), neither *outbreak* nor *epidemic* was used. Instead, we found the use of other terms, including *disease*, *virus*, *spread*, and in one case, *pandemic*.

The third finding that emerged is that there was a noticeable increase in the use of *epidemic* from September 16, 2014, corresponding to the date of Barack Obama's speech about

TABLE 1

Number of Articles That Used the Terms *Outbreak*, *Epidemic*, *Pandemic*, *Disease*, *Virus*, and Other to Describe Ebola in *The New York Times*, *Daily Mail*, and *Ynet* Before and After President Obama's Speech

Newspaper (Country)	Before or After President Obama's Speech	Outbreak		Epidemic		Pandemic		Disease		Virus		Other		Total No. of Articles	Total No. of Articles	χ^2, df, P	z, *P* (Outbreak vs Epidemic only)
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
New York Times (USA)	Before	51	94.4	3	5.6	—	—	—	—	—	—	—	—	54	80	22.16, 1, <0.001	−4.71, <0.001
	After	14	53.8	14	53.8	—	—	—	—	—	—	—	—	26			
Daily Mail (United Kingdom)	Before	263	93.3	22	7.8	1	0.4	3	1.1	2	0.7	—	—	282	444	97.90, 4, <0.001	−9.61, <0.001
	After	93	57.4	80	49.4	—	—	—	—	5	3.1	—	—	162			
Ynet (Israel)	Before	9	25.0	7	19.4	—	—	1	2.8	14	38.9	2	5.6	36	58	15.11, 4, <0.01	−2.00, <0.05
	After	6	27.3	18	81.8	—	—	—	—	3	13.6	—	—	22			
Total	Before	323	86.8	32	8.6	1	0.3	4	1.1	16	4.3	2	0.5	372	582	128.06, 5, <0.001	−11.08, <0.001
	After	113	53.8	112	53.3	—	—	—	—	8	3.8	—	—	210			

Ebola, explicitly calling it an epidemic. As shown in Table 1, prior to Obama's speech, 86.8% of the articles (323 of the 372 articles published before the speech) used *outbreak* and only 8.6% (32 out of 372) used *epidemic*. The articles published after his speech showed a greater use of *epidemic*, such that both terms were used nearly to the same extent: 53.8% of the articles (113 of the 210 articles after the speech) used *outbreak* and 53.3% (112 of the 210 articles after the speech) used *epidemic*.

DISCUSSION

Effective communication is crucial during public health emergencies such as Ebola, because the public's response to a given message can depend on how the message is framed and how the public subsequently encodes it.[14,15] Health organizations' use of particular frames can influence the public's response to a given health emergency and serve to enhance or undermine the public's trust in authorities. This is because the description or definition of a phenomenon frames the risk for the public and provides the terms through which they grasp its severity, its relevance, and the extent of its spread. The finding that the term *outbreak* was more prevalent in the articles before Obama's speech stems from the fact that this was (and continues to be) the term used consistently by leading health authorities. Perhaps the authorities' decision to cling to the term *outbreak* stemmed from their previous experience declaring "epidemics": the WHO was heavily criticized for exaggerating the extent of the H1N1 crisis because this declaration framed the disease in unnecessarily severe terms.[40] Researchers tend to assume that the term *epidemic* triggers concerns and fears in the public more than use of the term *outbreak*, although they can be considered synonyms.[6] Thus, the health authorities may have chosen the term *outbreak* to allay public fears. As for the media, studies have shown that journalists tend to rely on official sources perceived as reliable and convincing.[41-43]

Another possibility is that some of the journalists simply did not perceive a difference between the terms. This possibility is reinforced by the finding that the newspaper articles used *epidemic* and *outbreak* interchangeably in their characterization of Ebola, leading to ambiguous framing of the disease. In addition, it is possible that the media, like the health authorities, exercised caution in framing Ebola. Hence, despite overall tendency towards sensationalism,[44] in the current episode, they chose the more cautious frame in most cases. The finding that *outbreak* and *epidemic* were used interchangeably in the articles on Ebola reflects the ongoing ambivalence among experts regarding the terms *outbreak*, *epidemic*, and *pandemic*.[6] We can argue that the uncertainty regarding the appropriate terms stems from the debates among the experts in health organizations.

Our most surprising finding was the notable increase in the use of *epidemic* after Obama's speech. This finding indicates that Obama's speech had greater potential influence on the media's framing than the terminology employed by world health organizations, despite the fact that Obama is not a professional health authority. His usage of the term *epidemic* legitimized it for the media. This interpretation of the findings is reinforced by recent criticism of leading health authorities.[45] In contrast to previous epidemics, criticism is being voiced during the course of the epidemic (rather than afterward), and Obama himself is said to be one of the critics.

"Risk signatures" referring to how the public may comprehend risk are conceptualized by at least 4 dimensions relating to (1) the nature and specificity of the effects or harm, (2) the potential for harm to others, (3) the extent to which the authorities responsible for management are trusted, and (4) moral considerations.[18] Although the use of the term *outbreak* is part of the occurrence of an epidemic, each term can generate different conceptualizations of the disease, thereby influencing the risk signature. In the case of Ebola, the term *outbreak* may create an expectation that the risk is fleeting and the disease will pass, whereas the term *epidemic* gives a more amorphous impression of time, implying perhaps that the risk is longer-lasting, and hence, greater.

CONCLUSIONS

According to experts, an outbreak is part of an epidemic. However, we were not able to find in-depth studies on how these terms frame the public's comprehension of a disease. In light of this, it is crucial to examine what the public knows about Ebola and how the media's choice of terminology affects the public, in accordance with the Mental Models approach.[26] To ensure effective communication, and for the public to develop a high level of media literacy,[29] health organizations must research the implications of one frame or another on public attitudes and behavior.

About the Authors

School of Public Health (Drs Gesser-Edelsburg, Shir-Raz, and Green) and Department of Communication (Mrs Bar-Lev), University of Haifa, Haifa, Israel, and Society for Disaster Medicine and Public Health, Bethesda, Maryland (Dr James).

Correspondence and reprint requests to Anat Gesser-Edelsburg, PhD, Health Promotion Program, School of Public Health, University of Haifa, 199 Aba Khoushy Ave, Mount Carmel, Haifa 3498838, Israel (e-mail: ageser@univ.haifa.ac.il).

Acknowledgments

The research leading to these results received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement no. 278723 (TELL ME).

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