

## Chapter 14

# A Sentiment Analysis of the 2014–15 Ebola Outbreak in the Media and Social Media

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### ABSTRACT

*The negative and unbalanced nature of media and social media coverage has amplified anxieties and fears about the Ebola outbreak. The authors analyse news articles on the Ebola outbreak from two leading news outlets, together with comments on the articles from a well-known social media platform, from March 2014 to July 2015. The volume of news articles was greatest between August 2014 and January 2015, with a spike in October 2014, and was driven by the few cases of transmission in Europe and the USA. Sentiment analysis reveals coverage and commentary on the small number of Ebola cases in Europe and the USA were much more extensive than coverage and commentary on the outbreak in West Africa. Articles expressing negative sentiments were more common in the USA and also received more comments than those expressing positive sentiments. The negative sentiments expressed in the media and social media amplified fears about an Ebola outbreak outside West Africa, which increased pressure for unwarranted and wasteful precautionary measures.*

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## **INTRODUCTION**

The Ebola outbreak in West Africa began in late 2013, and was declared as an international public health emergency by the World Health Organization (WHO) on 8th August 2014 (WHO 2014). A total of 28,616 cases of Ebola virus disease (EVD) and 11,310 deaths were reported in Guinea, Liberia, and Sierra Leone (WHO, 2016). There were an additional 36 cases and 15 deaths that occurred when the outbreak spread outside of these three countries that include Italy, Mali, Nigeria, Senegal, Spain, United Kingdom and United States. By 7<sup>th</sup> October 2015, the WHO reported its first week with any new Ebola cases, and on 26 March 2016, it lifted the Public Health Emergencies of International Concern (PHEIC) status of West Africa.

In the 2014 – 2015 outbreak, coverage of Ebola was extensive in the media and social media but was also narrow, negative, and unbalanced (Funge et al., 2014). As mentioned in a Lancet editorial of November 2014, a “disproportionate airtime has been given to the nine confirmed American cases of Ebola compared with the massive human crisis unfolding in Liberia, Guinea, and Sierra Leone” (Lancet, 2014, pg 1). While Europe and the USA demonstrated preparedness by identifying cases, isolating them, treating and quarantining contacts, media coverage of the outbreak created a parallel epidemic of fear and fueled demand for additional, ineffective and unnecessary precautionary measures (Mira et al., 2015). These measures included temperature screening at airports, the cancellation of flights to West Africa, and the isolation and quarantining of asymptomatic health workers and other returning from the region (Mello et al., 2005).

However, evidence is missing on the role played by the social media in molding public perceptions about the risks of Ebola. The research problem addressed in this study is to determine how the attitudes of writers of news articles and comments on the Ebola outbreak influenced public perceptions towards it in Europe and America, thereby amplifying fears about an Ebola outbreak in the West. This paper employs sentiment analysis (Deng et al., 2018; Lak et al., 2017), a textual analysis method originating in the computational linguistics and natural language processing literature, to determine the attitudes of writers of news articles and comments toward the Ebola outbreak. We applied design science steps to plot and present the findings from the sentiment analysis based on the six activities of design science research (Baskerville et al., 2018). Thus, to analyse the research question, we collected coverage on the Ebola outbreak from two leading news services on either side of the Atlantic (the British Broadcasting Corporation (BBC) and the US-based Cable Network News (CNN), together with follow-up comments from a well-known social media platform (Reddit), and conducted an in-depth sentiment analysis. Our findings suggest that the negative and unbalanced nature of news coverage in Europe and the USA amplified public anxieties and fears about the Ebola outbreak outside West Africa.

## **Literature Review**

From the start of Ebola in August 2014 till to its official end in March 2016, most studies focused on how to handle Ebola (Kruk, 2015; Gostin, 2015). The loss of life, social disruption, and failure of health-care systems demonstrate what happens when a crisis like Ebola hits the world (Peterson, 2015; Asamoah et al., 2015). Ebola is covered as an emerging social issue often led to rumors breeding and propagation in social media in various parts of the world (Ye et al., 2018). Guah (2017) presents the resilience during Liberia’s Ebola epidemic while, Ding et al., (2016) investigates people’s online prosocial microlending decision making after a natural disaster like Ebola in Africa. Chung et al., (2015) visualized Ebola out-

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