# Ebola outbreak: A longitudinal survey of risk perception 

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## Abstract

Thomas Eric Duncan, age 42, died of the Ebola virus on October $8^{\text {th }}, 2014$, the first case on American soil. This sparked public concern about an outbreak in the United States. We conducted a 5-wave survey on a US web panel to follow risk perception of Ebola over 6 months. Using multilevel modeling, results showed that baseline (December 2014) perceived risk of Ebola for the U.S. was amplified among those who followed the news more closely, felt there was a high likelihood of a U.S. outbreak in the next five years, felt that the U.S. had had a near-miss with a large outbreak, or dreaded Ebola. However, there was a significant decline in U.S.-risk perception through May 2015. News following and feelings of a near-miss with a large outbreak were associated with greater decreases, and belief in a future outbreak with lesser decreases, in perceived U.S. risk.

## Methods

The Decision Research web panel, a diverse sample of US citizens, was surveyed 5 times over the course of 6 months Subjects were paid $\$ 4-\$ 6$ for each survey completion and a chance to win $\$ 100$ for completing all 5 surveys. Survey 1 had 815 respondents. The final survey had 625 respondents.





## Measures:

- Perceived risk of Ebola (personal, U.S., global); dread
- Trust in Centers for Disease Control \& Prevention (CDC)
- How closely they followed Ebola in the news
- Belief in near-miss disaster; likelihood of U.S. outbreak
- Exposure knowledge
- Individual difference measures: Worldviews (Kahan et al. 2007) \& Need for closure (Roets \& van Hiel, 2011)

\section*{Results- Baseline measures, December 2014 <br> 

Risk ratings were highest for global risk and lowest for personal risk. Risk ratings were linearly related to following the news of Ebola. Despite a high rate of news following, public knowledge of infection statistics and treatment was low.

Results - Change over time \& Dread of Ebola


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## Results - Multilevel Modeling

We used a split sample method, first developing a random coefficients multilevel model with perceived U.S. risk as the DV , then pseudoreplicated the final model on the second half of the sample

|  |  | Model 1 | Model 2 | Final | Pseudoreplication |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\beta$ | $\beta$ | B | $\beta$ |
| Initial risk |  | 3.647 | 3.789 | 3.477 | 3.508* |
| Linear Time (weeks) |  | -0.019 | -0.033 | -0.018* | -0.022* |
| News Following |  | 0.146 | 0.228 | 0.218* | 0.289* |
| Trust in the CDC |  | -0.031 | -0.076 |  |  |
| Perceived Dread |  | 0.07 | 0.087 | 0.074* | 0.111* |
| "Near Miss" |  | 0.13 | 0.162 | 0.133* | 0.145* |
| Worldviews HE |  | 0.007 | 0.012 |  |  |
| Worldviews IC |  | 0.005 | -0.001 |  |  |
| Need for Closure |  | -0.003 | -0.054 |  |  |
| Likelihood of outbreak |  | 0.54 | 0.347 | 0.433* | 0.261* |
| Age |  | 0 | 0.000 |  |  |
| Gender |  | -0.11 | -0.111 |  |  |
| News*Time |  |  | -0.008 | -0.009* | -0.01* |
| Trust*Time |  |  | 0.005 |  |  |
| Dread*Time |  |  | -0.002 |  |  |
| Near Miss * Time |  |  | -0.003 | -0.003* | -0.003* |
| WV HE*Time |  |  | 0.000 |  |  |
| WV Ic*Time |  |  | 0.001 |  |  |
| NFC**ime |  |  | 0.005 |  |  |
| Likely * Time |  |  | 0.018 | 0.011* | 0.023* |
| Deviance Change tests (ML) | Model 1 < Model 2 |  |  | Model 2 < Final model |  |
|  | Chisq |  | 29.82 |  | 23.38 |
|  | df |  | 8.00 |  | 11.00 |
|  |  |  |  |  | $p=.016$ |

## Conclusions

- U.S. risk perception one month after the last US death from Ebola (Nov. 2014) was predicted by news following (+), perceived dread of Ebola (+), "near miss" perceptions (+).
- Perceived risk declined linearly over time but this decline was moderated by "near miss" perceptions ( - ), news following ( - ), and perceived likelihood of an outbreak $(+)$
- Results support previous work on near-miss views of disasters (Dillon, Tinsley, \& Burns 2014), dread as a predictor of risk (Fischhoff, Slovic, Lichtenstein, Read, \& Combs, 1978), and the social amplification of risk (Kasperson et al., 1988)


## Select References

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