Determining the Influence of Broadcast Visuals and Messaging on the Public's Perception and Intent to Shelter in Tornado Warnings

Kristina Balentine†, Kathleen Sherman-Morris†, Barrett Gutter†, and Philip Poe‡
†Department of Geosciences, Mississippi State University, ‡Department of Communication, Mississippi State University

Background

The public still uses broadcast television as their number one source for tornado warning information (Stokes & Senkbeil, 2016; Miran et al., 2018). Regular viewers develop trust in their local meteorologist, and trust turns into the public listening to the broadcaster's advice to shelter (Sherman-Morris, 2005). Research has shown that people try to see the tornado before they shelter (Chaney & Weaver, 2010; Sherman-Morris, 2013; Sherman-Morris & Brown, 2012), but little is known on if the meteorologist's sheltering message has an influence of the public's intent to shelter.

Research Questions

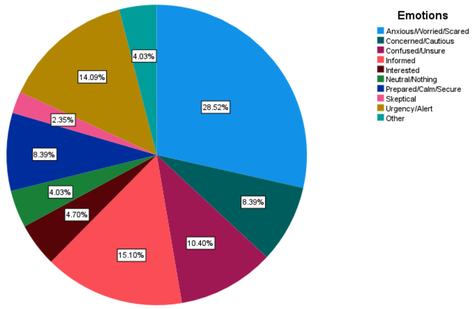
- Will the public be swayed to shelter differently if they are:
  - Shown base velocity vs. correlation coefficient?
  - Shown a tornado video before radar video?
  - Told to shelter vs. told to send in video vs. shown viewer-submitted video?
- How are they feeling after viewing each video, and do those feelings depend on the condition they were randomly assigned?

Methodology

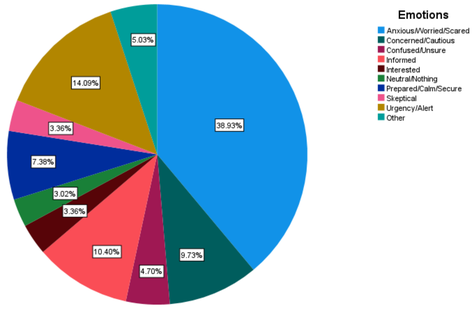
Six 30-second mock live tornado warning coverage videos were recorded by a broadcast meteorologist. One video showing base velocity, one showing correlation coefficient, one showing a traffic cam video of the tornado, one proper call-to-shelter video, one call-to-shelter video with a request for viewer-submitted videos, and one call-to-action video showing a viewer submitted video. Each survey participant (N = 301) was shown three videos (one radar video, the traffic camera video, and one call-to-shelter video) and asked whether they would shelter and how the video made them feel after each video. The survey was created in Qualtrics and distributed through Prolific so that the respondents would be represented of the population of the United States.

Results

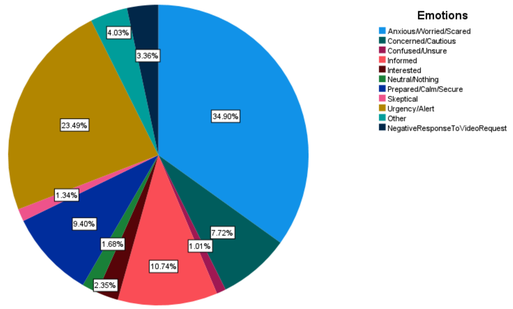
Emotional Responses After Viewing Radar Video



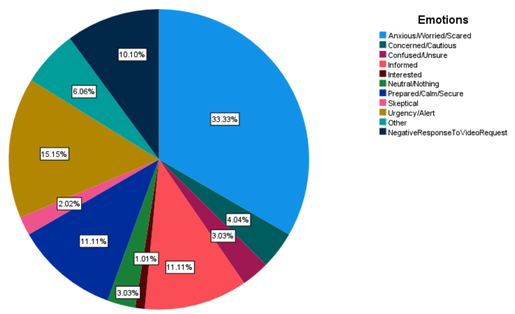
Emotional Responses After Watching Tornado Video



Emotional Responses After Watching Call-To-Action Video

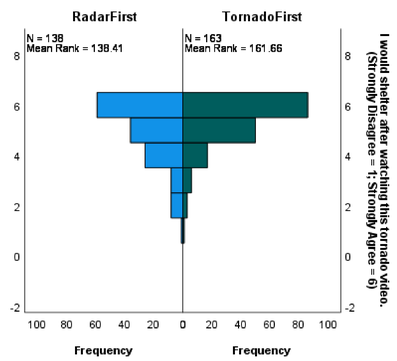


Emotional Responses After Watching Call-to-Action Video with Request for Tornado Pictures/Videos



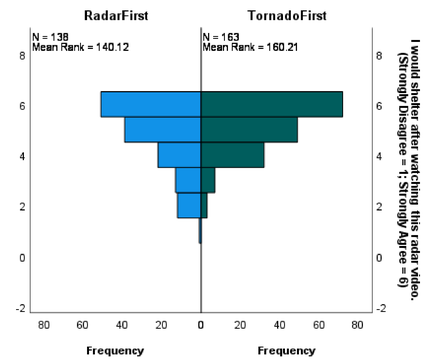
Independent-Samples Mann-Whitney U Test

Shown Radar Video First Vs. Shown Tornado Video First



Independent-Samples Mann-Whitney U Test

Shown Radar Video First vs. Shown Tornado Video First



Seeing IS Believing!

Conclusions

- There was no significant influence on the survey respondent's intent to shelter based on whether they saw base velocity or correlation coefficient nor whether they saw either of the three call-to-action videos.
- There were significant results on the order in which they saw the tornado video and the radar video.
- Results of two Mann-Whitney tests said that respondents were most likely to say they would shelter after viewing the radar video (M = 4.93; p = 0.035) if they were shown the tornado video first. The second Mann-Whitney test found that respondents were also more likely to say they would shelter after viewing the tornado video (M = 5.11; p = 0.013) if they were shown the tornado video first.
- The most abundant emotion in each of the three videos was some form of anxiety, worry, or fear, followed by a sense of urgency or alarm.
- The only significant result found was in the call-to-action group. Of participants who were shown the call-to-action video with a request for tornado pictures or videos from the meteorologist, 10 of the 99 respondents recorded a negative emotion to that request.

Acknowledgements

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