

Effects of acknowledging uncertainty over time: the case of intentional food contamination

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Introduction

Experts frequently advise communicators to acknowledge or even “proclaim” uncertainty when talking about risk. However, in reality investigators often feel pressure to quickly and publicly express confidence that the situation has been resolved. The current study was designed to understand the role of expressing uncertainty, including uncertainty when explaining what actions are being taken to reduce uncertainty. In addition, we explored whether these effects are different at the start compared to at the conclusion of an outbreak. We also investigated whether the topic of uncertainty matters, in this case exploring communicating uncertainty about both the food involved in the outbreak and the cause of the outbreak (accidental vs. intentional).

Methods

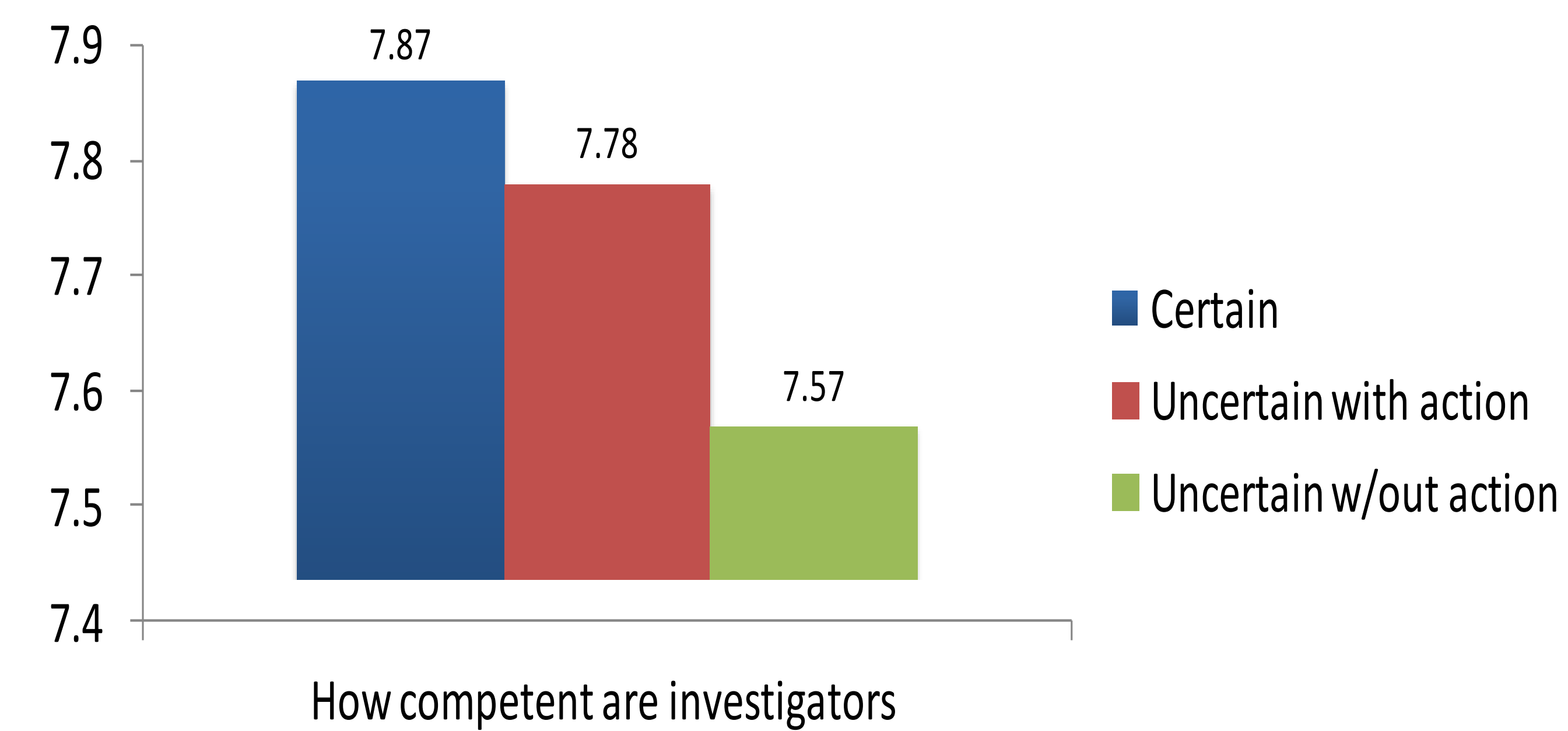
Data were collected, in December, 2011, from 1,924 American adult participants who were part of an Internet panel for Knowledge Networks (65.3% completion rate). The study employed a full factorial design (see Table 1). The survey instrument used a sequence of fictional newspaper articles based on the FDA’s Food Related Emergency Exercise Bundle, and respondents saw different information based on the condition, although all participants eventually were told that the cause of the outbreak was intentional contamination of ground beef. After each of three sequential messages, participants rated how competent they believed the investigators were. Additional variables were investigated and are reported elsewhere.

Results

Table 1. Experimental Design

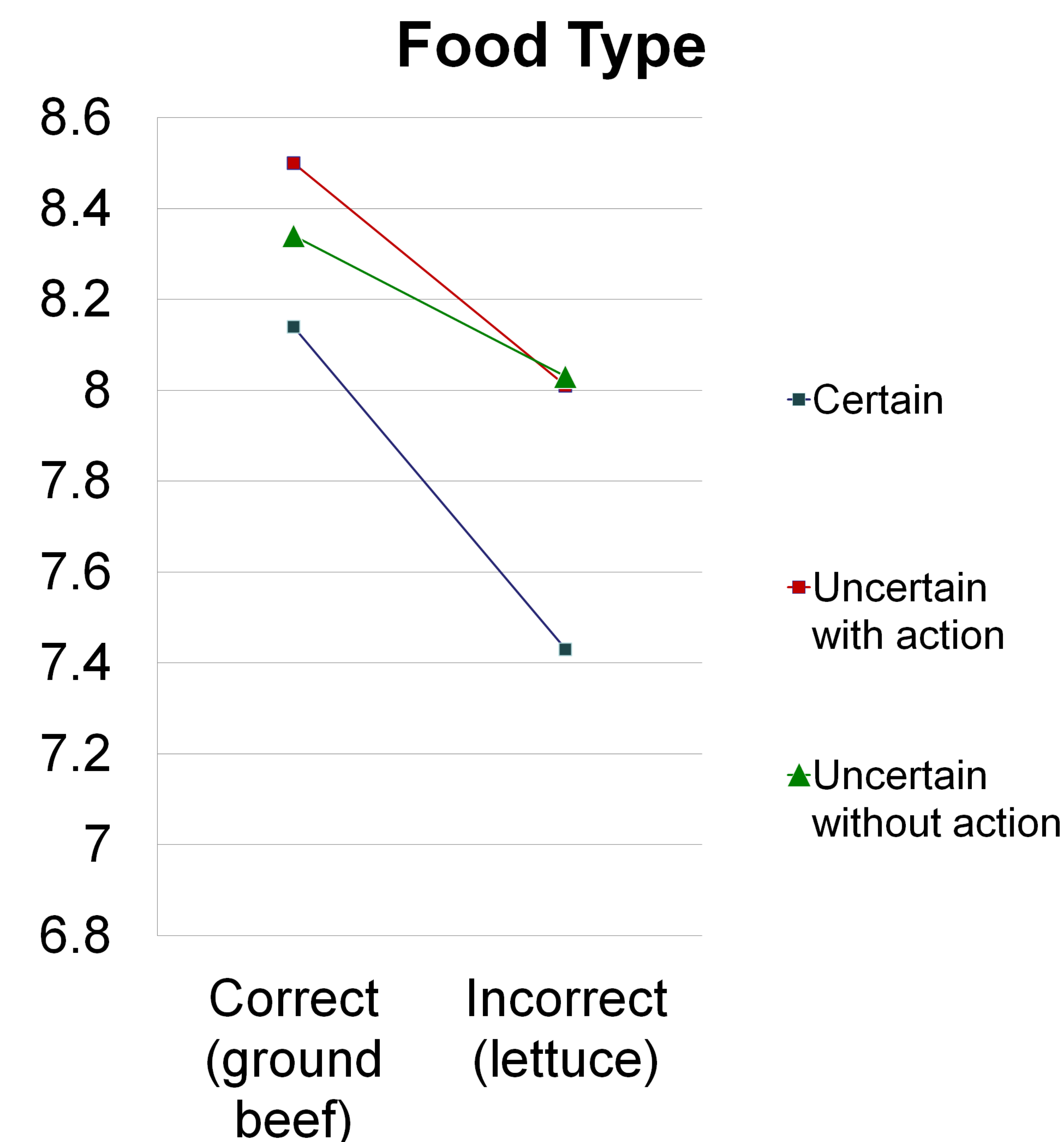
<p>Factor 1: Certainty about food</p> <ul style="list-style-type: none"> • Certain • Uncertain without action • Uncertain with action 	<p>Factor 3: Certainty about cause</p> <ul style="list-style-type: none"> • Certain • Uncertain
<p>Factor 2: Food</p> <ul style="list-style-type: none"> • Ground beef • Lettuce 	<p>Factor 4: Cause</p> <ul style="list-style-type: none"> • Intentional • Accidental

Figure 1. Perceived competence and understanding at start of outbreak

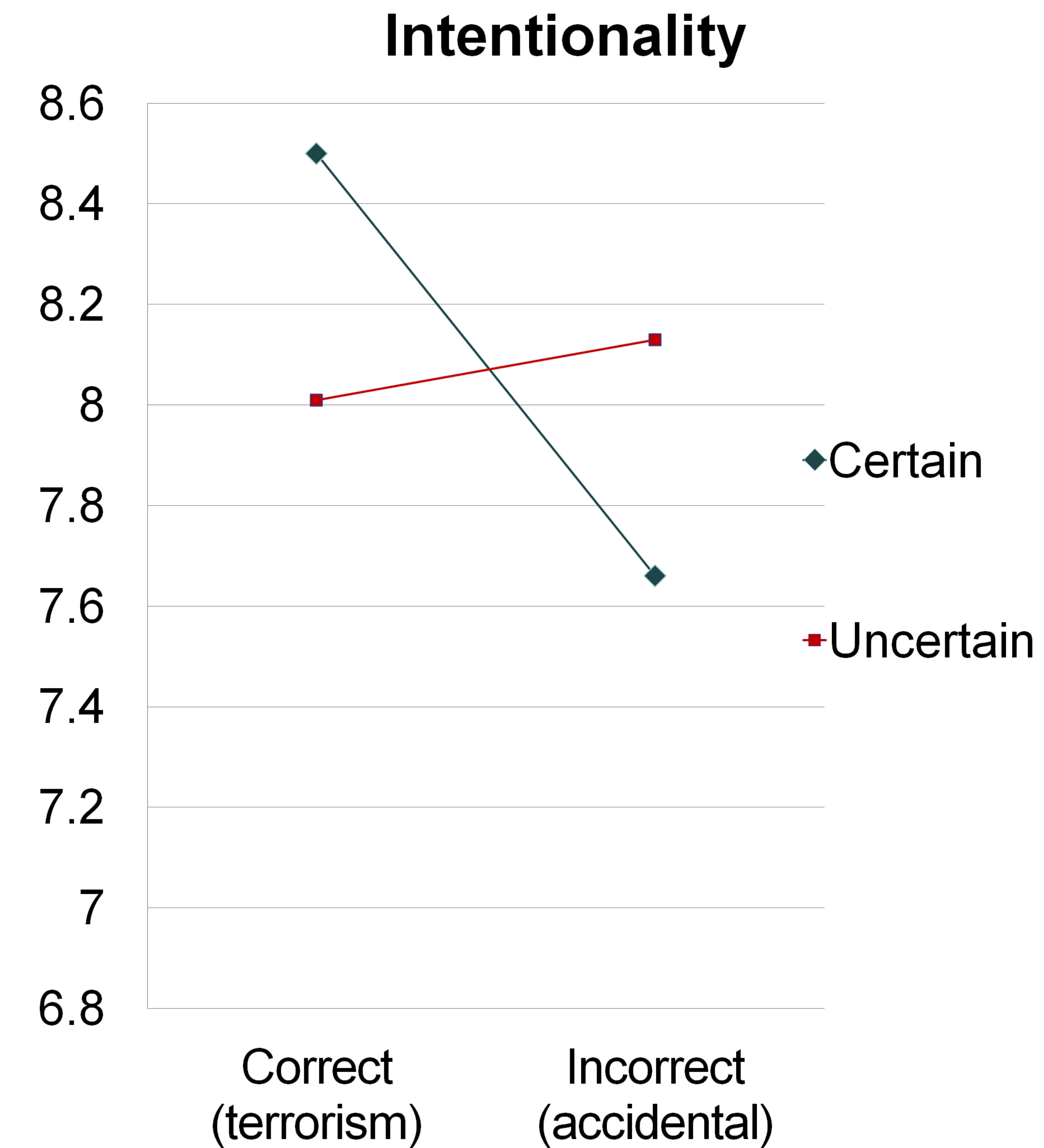


Note. $F(2, 1892) = 3.56, p < .05$.

Figure 2 and 3. Ratings of competence of the investigators taken at the conclusion of the outbreak.



Note. $F(5, 1890) = 8.26, p < .001$.



Note. $F(3, 1892) = 8.60, p < .001$.

Conclusions

The results indicate that there are initial benefits to expressing certainty compared to uncertainty, though there is no benefit of certainty over uncertainty with action. The results also indicate that expressing certainty can have negative effects if a communicator is ultimately shown to be incorrect.

At the start of an outbreak:

There is a small but significant initial benefit when the communicator expresses certainty rather than uncertainty at the start of an outbreak.

- Communicators are perceived as more competent.
- However, if communicators express uncertainty with action, we see a similar effect.

After the outbreak has been resolved:

Expressing certainty can result in less favorable perceptions of communicator *if it turns out the communicator was wrong*

The results lead to the recommendation that communicators to express and even proclaim uncertainty when discussing ongoing foodborne illness outbreaks, while letting the public know what is being done to resolve the uncertainty. .

Acknowledgements

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Abstract: A primary goal of food terrorism is to undermine confidence in the food system. A national Internet survey of 1,204 American adults was conducted to test the likely impact of intentional food contamination. Respondents read a scenario about a nationwide contamination incident affecting multiple foods and were then randomized into 1 of 3 conditions: “intentional” where it was caused by someone who “knowingly and purposefully tried to hurt people;” “accidental” where it was the result of “natural causes in the course of producing the food;” and control in which no cause was given. Manipulation checks indicated that the intervention worked: those in the intentional condition were significantly more likely to believe that the contamination was purposeful and less likely to believe that it was accidental, normal, caused by technology, or natural than those in the other conditions; and, those in the accidental condition were more likely to believe the contamination was accidental. Ratings of how widespread the contamination was, how serious the illness, and how risky it would be to eat the food did not vary by condition, indicating that the intentionality of the event did not influence respondents’ objective impact assessments. Although those in the intentional condition were significantly more likely to feel angry and less likely to feel neutral, there were no differences across condition on the majority of the other emotional responses measured (e.g., how frightened, worried, or happy they feel while thinking about the situation). Additional analyses indicated that there were main effects of gender and education level on many of the dependent variables, but these did not interact with the intentionality factor. Although a limitation of the study is its hypothetical nature, these data suggest that the public’s objective assessment of the risks posed by a food contamination incident may not be significantly affected by the perceived intentionality of the contamination.