Assessment of Consumer Responses to Risk Messages

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Problem

- *E. coli* O157:H7 outbreak in ground beef products served in restaurants
- 11 ill in 4 states
- Could outbreak have been prevented if there was better risk communication?
Questions about Consumer Advisory

- Is the process of disclosure and reminding actually occurring in restaurants?
- If so, how is it done?
- How prevalent is the service of medium rare burgers when ordered?
- Is there a difference in how risk is communicated between chain and independently owned restaurants?
Attitude towards behavior

Subjective norm

Perceived behavioral control

Intention

Behavior

Theory of planned behavior, Ajzen, 1991
Data Collection: Secret Shopper Project

- 260 restaurants randomly selected in 7 states
- 2 types of restaurants: chain and independently owned
- Ordered 2 burgers to go (medium rare and well done)
Coding of Server Responses

- Verbal data analysis:
  - Can medium rare be ordered?
  - Method of doneness
  - Is safety information provided?
  - Is any incorrect information provided?
Method of Doneness

- Temperature: 20%
- Color: 35%
- Touch: 10%
- Time: 5%
- Cooks know: 15%
- I don't know: 15%
“Eating medium rare burgers is perfectly fine and not a problem… Told us a story about her sister eating barely browned beef (raw in middle) while she was pregnant and she is just fine.

“‘The ingredients used are of good quality and so it’s not risky. As long as the outside of the burger is cooked it is safe because that is where most of the bad bacteria is.’

“Medium rare is safe. It will be cooked to about 135.”

“I was actually going to tell you about that- we have to remind you that there is a risk when you order undercooked food. You can still get medium rare, just need to let you know about that.”
Server Knowledge/Attitudes: Survey

Focus:
- Methods of testing burger doneness
- Personal preferences
- Recommendations and advisory to consumers
- Designation between quality and safety
- Level of concern about restaurant reputation

Convenience sampling (n = 50)
Survey Results

- Personal preference did not influence likelihood to remind consumers of risk
- 51% believe medium rare is safe
- Over half of servers (62%) report “never” communicating risk
- 40% report using color as indicator of doneness
- Ultimately believe it is up to the consumer
Results

- Servers are not adequate risk communicators
- Assurance of safety
- Color and other qualitative measures used to determine doneness
- Other incorrect information shared
Communication and Perception

Server Communication

Customer Perception
Consumer Perception

- Crucial to explore how consumers perceive risk - current gap in literature
- Over half of consumers find thermometer use is unnecessary (Phang and Bruhn, 2011)
- Likelihood to eat undercooked hamburger linked to emotion (Olsen et al., 2014)
- Redmond and Griffith (2005) suggest that majority of consumers are more likely to listen to food safety advice given to them
Consumer Response to Risk Messages

- Online multifactorial survey conducted with consumers (n = 250)
- Consumer likelihood to order a medium rare hamburger
- Consumer likelihood to question a server about safety
- 5 risk messages
Raw beef contains bacteria capable of causing severe illness in individuals especially if you have certain medical conditions, or are below five years of age. Consuming raw or undercooked ground beef puts you at risk of illness. Color is not a reliable method of determining the doneness of a hamburger because meat may brown before reaching a safe temperature. Hamburgers should be cooked to 155°F for 15 seconds or instantaneously to 160°F in order to be considered safe for consumption.

Consuming raw or undercooked meats, poultry, seafood, shellfish, or eggs may increase your risk of foodborne illness.
Consumer Response to Varying Risk Messages

Average Score

Likelihood to Order
Likelihood to Question

Risk Message
Results

- No significant difference in response between the Model Food Code message and the other four risk messages ($p = 0.1177$)
- Consumers reported they were unlikely to order a medium rare hamburger after reading each message
- Neutral about likelihood to ask a server about the safety
Conclusions

- Pre-conceived preferences
- Not enough difference in messaging
- Fatigue bias
- Delivery in person vs. text
- Useful to collect perceived risk about undercooked ground beef
Future Steps

- Are consumer responses different if risk communication is delivered in person rather than text form?
- Fill knowledge gap, provide relatable case studies to servers
- Significant improvement needed to improve risk communication culture
- Future work can identify what messages consumers identify with
- Menu engineering
- Should servers actually be risk communicators?
Questions?