The Effects of Mammography Narratives in Online News Commentary on Breast Cancer Risk Perceptions and Screening Intentions

A Proposal for the Russell Ackoff Doctoral Student Fellowship for Research on Human Decision Processes and Risk Management

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Effects of Mammography Narratives On Risk Perceptions and Screening Intentions

Specific Aims
This research examines the effects of personal mammography narratives appearing in user-generated online news comments on young female readers’ breast cancer risk perceptions, mammography perceptions, and intentions to be screened for breast cancer. Funding is being sought to recruit and compensate a national sample of participants.

Background and Significance
The inclusion of user comments following news stories has become standard practice for many online news sources (Weber, 2014). Comments may contain personal narratives, in which readers share personal experiences related to the news topic. In fact, Len-Rios, Bhandari, and Medvedeva (2014) found that 42% of comments on articles about breastfeedsing included personal experiences. Personal narratives are also present in comments on news articles about mammography (Seitz, 2014). Unfortunately, the effect of these comments on readers is not well understood. Most research to date on the effects of comments focuses on the effects of comment valence and/or incivility (e.g., Shi, Messaris, & Cappella, 2014), while research on the effect of exemplars (example cases) or narratives in comments is lacking. To my knowledge, only one unpublished study has examined the effects of story-oriented news comments, finding that story-oriented comments had a stronger effect on opinions about the health topic of the article than fact-oriented comments (Witteman, Fagerlin, Exe, & Zikmund-Fisher, 2013). Further research is needed to understand what effects, if any, narratives appearing in comments on stories about mammography may have on their readers’ breast cancer risk perceptions and mammography intentions. This research may have implications for news and public health organizations who allow online comments.

There is reason to believe that narratives in comments on news articles can have an effect on behavioral intentions. In addition to the work by Witteman et al. (2013), a large body of research suggests that narratives can have a greater effect on behavioral intentions than non-narrative information can (Green, 2006). One way in which narrative comments may change behavioral intentions is through engagement, which Kim, Bigman, Leader, Lerman, and Cappella (2012) found to mediate the relationship between exemplars and behavioral intentions. Another possible mechanism of effect is through comments’ effects on perceived social norms. Individuals are motivated to observe norms (in this case, through reading about others’ experiences) so that they can hold accurate beliefs and gain social acceptance (Cialdini & Goldstein, 2004). Finally, narrative comments may change behavioral intentions by providing models for behavior change (Green, 2006); according to Social Cognitive Theory (Bandura, 1977; Bandura, 1986), vicarious experience obtained by observing others can increase self-efficacy for a particular behavior. The Integrative Model (Fishbein, 2000; Fishbein & Ajzen, 2010) proposes that both perceived norms and self-efficacy are direct predictors of behavioral intention, providing a pathway through which narrative comments may have an effect on mammography intentions. Specifically, I predict that the presence of narrative comments about mammogram-detected breast cancer will increase mammography intentions (H1), and the presence of narrative comments about false-positives will decrease mammography intentions (H2). Because the relative weight of these two effects is unknown and are predicted to work in opposite directions, I also pose a research question: what effect will mammogram-detected breast cancer narratives and false-positive narratives have when both are presented together (RQ1)?

Narrative comments on mammography news articles may also have effects on breast cancer risk perceptions, which play a role in predicting behavioral intentions (Brewer et al., 2007). Prior research shows that narratives about adverse vaccine events can lead to increased perceived risk (Betch, Ulshofer, Renkewitz, & Betsch, 2011) and that narrative evidence (compared to statistical evidence) increased perceived risk of contracting Hepatitis B (de Wit, Das, & Vet, 2008). The same may be true for mammography narratives. Possible mechanisms of action include effects on affect, effects through transportation and identification, and effects due to the availability heuristic. According to Slovic and Peters (2006), the experience of fear can increase perceived risk. Findings from McQueen, Kreuter, Kalesan, and Alcaraz (2011) support this proposed mechanism; the effect of breast cancer survivor stories on increased
risk perceptions was mediated by negative affect. A second possible mechanism is through narrative transportation, identification, and social distance. In their Risk Convergence Model, So and Nabi (2013) propose that narratives affect risk perceptions by increasing transportation and identification and thereby decreasing perceived social distance between the character and reader. Finally, based on Tversky and Kahneman’s availability heuristic (1982), it is possible that, if narrative comments occur frequently enough, they may have an effect on risk perceptions by influencing the ease with which readers can retrieve examples of women who have experienced various mammography outcomes. Based on theory underlying risk perceptions, I propose two additional hypotheses and a research question: Mammogram-detected cancer narratives will increase perceived breast cancer risk (H3); false-positive narratives will increase perceived risk of experiencing a false-positive (H4); and what effect, if any, will false-positive narratives have on breast cancer risk perceptions (RQ2)?

Research Design and Methods

Participants. I will obtain from Survey Sampling International (SSI) a sample of women in the United States between the ages of 35 and 49 (N = 1200), as women in this age group are encouraged by new U.S. Preventive Services Task Force guidelines to make a mammography decision based on personal risk. The sample will receive an email invitation and a link to the online study.

Measures. Primary dependent variables are mammography intentions, perceived risk of breast cancer, and mammography perceptions (including risk of false-positives). Proposed mediators of the relationship between exposure to mammography narratives and the dependent variables that will be measured include narrative transportation/engagement, perceived social norms, self-efficacy, affect, identification with commenters, and social distance from commenters. Demographic variables and breast cancer risk factors used to calculate breast cancer risk (Gail & Costantino, 2001) will also be measured.

Research Design. This research will utilize Qualtrics, a web-based survey platform, to execute a between-subjects experimental design. After giving informed consent, participants will complete measures of breast cancer risk factors. Participants will then be randomly assigned to one of the following conditions: 1) no information control, 2) no comments control, 3) Non-narrative comments, 4) false-positive mammogram narrative comments, 5) mammogram-detected cancer narrative comments, or 6) combination comments. In condition 1, participants will move directly to the post-test. In condition 2, participants will view a balanced composite New York Times news story about mammography before completing the post-test. In conditions 3 through 6, participants will view the same balanced New York Times news story followed by a series of six reader comments (varying by condition) before completing the post-test. The post-test will include measures of mammography intentions, perceived breast cancer risk, and mammography perceptions, followed by measures of the proposed mediators and demographic variables. Participants will be fully debriefed after completing the survey.

Experimental Manipulation. The article and comments used for the study will be taken from a content analysis I am currently conducting. The content analysis includes mammography articles and associated reader comments published on NYTimes.com from January 2009 to December 2014. Comments are being coded for the presence of and type of mammography narratives present, particularly 1) narratives about a woman’s experience with a false-positive mammography result and 2) narratives about a woman whose cancer was detected with a mammogram, and will be pretested with an expert panel. In condition 3, participants will view six comments that have been randomly ordered and randomly selected from a pool of 30 non-narrative comments. In condition 4, the pool will include 20 false-positive narrative comments and 10 non-narrative comments. In condition 5, the pool will include 20 mammogram-detected cancer narrative comments and 10 non-narrative comments. Finally, in condition 6, the pool will include 20 false-positive narrative comments, 20 mammogram-detected cancer narrative comments, and 20 non-narrative comments. The combination of both narrative and non-narrative comments in conditions 4 and 5 is designed to help mask the purpose of the study, while the use of a large pool of comments for conditions 3 through 6 is designed to minimize case-category confounding.
Budget and Budget Justification

Rationale for Funding
Funding will be used to acquire and compensate participants. Funding at the level requested will help to provide a more diverse and nationally representative sample than could be acquired through convenience sampling, increasing the quality and generalizability of the findings. Because communication interventions typically lead to small effects (Snyder & Hamilton, 2002), this study will need to be powered to detect relatively small differences between conditions. Using risk perception and intention data from prior studies, power calculations show that a sample size of 200 participants per condition (for a total $N = 1200$) will provide 80% power to adequately detect a standardized mean difference of .20 (a small effect size according to Cohen, 1992).

Detailed Budget for Online Experiment

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey sample provided by Survey Sampling International (SSI), cost per 15-minute interview</td>
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<tr>
<td>Sample size</td>
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<tr>
<td>Estimated total cost</td>
<td>$4020</td>
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<tr>
<td>Amount requested</td>
<td>$4000</td>
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Description of Other Current Sources of Research Funding

- Annenberg School for Communication (ASC) graduate students may apply for a dissertation budget of up to $1,200 to be used for payment of incentives to study participants or coding expenses.
- The Annenberg School for Communication provides statistical software and coding and hosting for online experiments, so these costs are not included in the total budget.
- ASC provides travel funding of $1,200 per year for presentation of research at professional conferences.
References


